2018
The Syntax-Phonology Interface
In Generative Grammar

Date | 8-10 August 2018
Location | Konkuk University, Seoul, Korea

Keynote speaker:
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Invited workshop speaker:
Michael Barrie (Sogang University)

Hosted by
The Korean Generative Grammar Circle &
College of Liberal Arts, Konkuk University

Supervised by
Center for Korean Studies, Korea University

This work was supported by the National Research Foundation of Korea Grant funded by the Korean Government
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Acknowledgement

The conference could not have been possible without the participation and assistance of so many people whose names may not all be enumerated here. Their contributions are sincerely appreciated and gratefully acknowledged. Nevertheless, we, the organizers of SICOGG 20, would like to express our special gratitude to the following KGGC members: Sangwan Shim (Dankook University), Treasurer; Jungmee Lee (Sungkyunkwan University), Advertising Executive; Won Il Chung (Dongguk University), Information Tech. Executive; especially Sanghoun Song (Incheon National University) for producing SICOGG 20 Homepage and Wooseung Lee (Konkuk University) for organizing SICOGG 20 reading meeting; all the presenters in the reading meeting for their time and efforts; Ungkyu Bae (Korea University) for all the administrative helps.
Preface

This volume includes 30 selected presenters’ papers presented at the 20th Seoul International Conference on Generative Grammar (SICOGG 20), which is held at Konkuk University from August 8 to August 10, 2018. I appreciate all the presenters for bringing up the latest issues in generative syntax and thus setting up the conference as a place of heated debate. I am also grateful to the authors of the papers for their timely submission and kind cooperation in the publication of this volume.

SICOGG has been hosted by the Korean Generative Grammar Circle (KGGC) since 1989, inviting the leading linguists and thereby offering people a chance of deeper understanding of linguistics. This year, the conference, with the theme ‘The Syntax-Phonology Interface in Generative Grammar’, features Norvin Richards (MIT, USA) as a keynote speaker, who generously contributes his time and efforts to the conference and gives a 3-day series of lectures on the syntax-phonology interface. Furthermore, Michael Barrie (Sogang University, South Korea) as an invited workshop speaker gives a talk on the syntax of nominals and reduced nominal expressions.

I am much indebted to the organizing committee. Without their immeasurably devotional efforts, the conference could not have been so successfully prepared. I also express my heartful appreciation to anonymous reviewers of the submitted papers, the session chairs, and the assisting students of Konkuk University. Last but not the least, I would like to thank all the other participants in the conference for their interest, participation, and ardent discussion.

My special thanks go to the National Research Foundation, Center for Korean Studies at Korea University, and College of Liberal Arts, Konkuk University, which supported SICOGG 20 with substantial amount of fund.

As a truly ‘international’ conference both in name and reality, SICOGG 20, where linguists from 9 different countries present their papers, will be a locus of comparative generative syntax (comparing languages particularly with Korean), helping to deepen the understanding of universal grammar and particular grammar. SICOGG, I hope, goes beyond comparative syntax, broadening its horizons with diverse applications of syntax, which would lead to the comprehensive and practical development of theoretical linguistics.

As a final remark, I am pleased to dedicate this volume to all the current and future linguists home and abroad who share an interest in generative syntax.

Rhanghyeyun Kim
President of KGGC
August 2018
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1. Introduction

It has been standard to claim that the null arguments of East Asian languages such as Japanese, Korean and Chinese may involve argument ellipsis (AE) (see Oku 1998, Kim 1999, Cheng 2013, among others). The following Japanese example illustrates a typical case of AE:

(1a) Bill-wa [zibun-no gakusei-ga siken-ni tootta to] omotteiru.
    Bill-TOP self-GEN student-NOM exam-DAT passed COMP think
    ‘Lit. Bill thinks that self’s student passed the exam.’

    John-also exam-DAT passed COMP think
    ‘Lit. John also thinks that [e] passed the exam.’ (Oku 1998:166)

(1b) involves a null subject in the embedded clause and it can be interpreted sloppily as referring to John’s student. Given that the availability of sloppy readings is a hallmark of ellipsis, it is standardly claimed that such a null argument instantiates AE. Another indication of AE comes from the availability of so-called quantificational readings. Let us consider the following example:

(2a) Seerusuman-ga Mary-no uti-ni kita.
    salesman-NOM Mary-GEN house-to came
    ‘A salesman came to Mary’s house.’

b. [e] John-no uti-ni-mo kita. (quantificational reading)
    John-GEN house-to-also came
    ‘Lit. [e] came to John’s house, too.’ (Oku 1998:167)

The null subject in (2b) can be interpreted not only as referring to the salesman mentioned in (2a) but also as referring to a salesman different from the one mentioned in this sentence, which should not be available if the null subject is simply regarded as an instance of pro; this latter reading is called a quantificational reading.

On the other hand, in Abe (2009) I observe that when a null argument is c-commanded by its antecedent, it behaves like an ordinary pronoun, lacking a sloppy reading, as shown below:

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* Part of the material reported in this paper was presented at Keio Linguistic Colloquium, held in Keio University in June, 2018. I thank the audience for helpful questions and comments.
How to Derive the Anti-C-Command Requirement on Argument Ellipsis

   John-TOP self-GEN daughter-DAT teacher-NOM want-to-see COMP said
   ‘Lit. John told self’s daughter that the teacher wanted to see [e].’
   (*sloppy reading) (Abe 2009:151)

In (3), when the embedded null object takes zibun-no musume ‘self’s daughter’ as its antecedent, it can be interpreted only as ‘John’s daughter’, but not ‘self’s daughter’, which would refer to the teacher’s daughter. Likewise, when a null argument is c-commanded by its antecedent, it also lacks a quantificational reading, as shown below:

(4) Taitei-no sensei-ga [[e] kyoo-no gogo kuru to] itta.
    most-GEN teacher-NOM today-GEN afternoon come COMP said
    ‘Lit. Most teachers said [e] would come this afternoon.’
    (*quantificational reading) (Abe 2009:149)

From these observations, I reach the following conclusion in Abe (2009):

(5) Ellipsis cannot hold when the antecedent c-commands the ellipsis site.

In this paper, I argue that this requirement is best captured along the lines of a movement theory of anaphora of the sort Abe (2014) proposes which deals with Condition C effects, another case of anti-c-command requirement. I propose that AE cases involve covert movement taking place from the antecedent of a null argument to that argument in accordance with such a movement theory of anaphora. With this proposal, I argue that the anti-c-command requirement on AE is derived from the ban on downward movement.

The paper is organized as follows: Section 2 outlines the movement theory of anaphora proposed by Abe (2014). It is demonstrated how this theory derives Condition C effects and how apparent violations of this condition are evaded by way of sideward movement. Section 3 examines Abe and Park’s (2017) proposal about how the anti-c-command requirement on AE is derived. It is pointed out that their proposal in terms of the last resort nature of AE has serious problems, especially when the option of sideward movement is taken into consideration. In Section 4, I propose an alternative way of deriving the anti-c-command requirement on AE, demonstrating how the relevant data involving sloppy and quantificational readings are properly accounted for.


Following Hornstein (2001, 2009) and Kayne (2002), among others, I propose in Abe (2014) a movement theory of anaphora in which those anaphoric relations that are captured traditionally by rules of construal are established by the operation Move and only by this means. Two crucial ingredients of this theory are summarized below:

(6) Pro undergoes Move to establish an anaphoric relation.
(7) If pro-movement violates any locality condition on Move, then the tail must be pronounced.

With (6), the relation of a pronoun and its antecedent is mediated by pro-movement with late
insertion of the content of the antecedent into the top copy of the resulting chain. The idea behind (7) is that locality condition effects arise only with what Ross (1967) calls chopping rules, but not with copying rules. Thus, pronunciation of pro in the tail of a chain makes that chain immune from locality conditions. In order to see how this mechanism works, let us consider a sentence like John thinks Mary likes him, where him refers to John. This sentence is derived in the following way:

(8) a.  ___ thinks Mary likes pro
    b.  pro thinks Mary likes pro
        \________________________\[movement of pro (sideward movement of pro)]
    c.  pro thinks Mary likes him
    d.  John thinks Mary likes him

In (8a), pro is merged in the complement position of likes, in this case one with third person male features, and then undergoes A-movement to the matrix subject position, leaving its own copy behind, as in (8b). Note that this pro-movement violates whatever locality condition prohibits A-movement from taking place across a tensed clause or a specified subject in the sense of Chomsky (1973). Thus, the tail of the resulting chain must be pronounced as him according to (7), as in (8c). Finally, John is overlaid onto the top copy of the resulting chain, giving rise to the final output, as in (8d). This derivation yields the chain (John, him) by way of Move, based on which him is interpreted as referring to John.

In Abe (2014) I follow Kayne (2002) in deriving Condition C effects from the ban on downward movement under my movement theory of anaphora. Thus, let us consider a typical case of Condition C violation:

(9) *He\(_1\) thinks Mary likes John\(_1\).

Under this movement theory, pro-movement would have to take place from the matrix subject position to the embedded object position, but this is prohibited due to the ban on downward movement.\(^1\) This movement theory, however, appears to incorrectly rule out non-c-commanding anaphora altogether. Thus, let us consider the following example:

(10) His\(_1\) mother likes John\(_1\).

It does not seem that in this case, the anaphoric relation between John and his can be captured under the movement theory, since the derivation would involve downward pro-movement. In Abe (2014) I propose that such a case involves sideward movement, so that (10) is derived in the following way:

(11) a.  [DP pro mother], [likes ___ ]
    b.  [DP pro mother], [likes pro]
        \________________________\[sideward movement of pro]
    c.  [DP his mother], [likes pro]

\(^1\) In order to prohibit downward movement, I adopt in Abe (2014) the Extension Condition, proposed by Chomsky (1993), which requires that structure be extended.
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In (11b), pro undergoes sideward movement from the Spec of DP to the complement of *likes*. In Abe (2014) I propose that sideward movement always violates an island condition with the assumption that independent syntactic objects constitute islands for each other. Hence, the bottom copy of pro is spelled out as *his* for remedy of an island violation, as in (11c). After replacing the top copy of pro by *John*, as in (11d), we can combine the DP *his mother* and the VP *likes John* in the usual way, producing the final output given in (11e). With this derivation, *his* and *John* make a chain via sideward movement, hence establishing a coreferential relation.

As a consequence of this movement theory, I demonstrate in Abe (2014) that it can properly deal with an argument-adjunct asymmetry regarding Condition C reconstruction effects, such as follows:

(12) a. *Which claim that John₁ was asleep was he₁ willing to discuss?*
   b. Which claim that John₁ made was he₁ willing to discuss? (Chomsky 1993:36)

When the antecedent of a pronoun is included in a relative clause, as in (12b), it seems as if no reconstruction of the fronted *wh*-phrase takes place, so that *John* in (12b) does not induce a Condition C violation. On the other hand, when the antecedent of a pronoun is included in the complement clause of a nominal head, as in (12a), the fronted *wh*-phrase behaves as if it is reconstructed into its original position, thereby inducing a Condition C violation. Lebeaux (1988) proposes a mechanism of late merge according to which an adjunct can be introduced into a structure counter-cyclically due to the fact that it has no direct relevance for *θ*-relations and hence can be adjoined to a phrase it modifies after the latter undergoes *wh*-movement.

Adopting this mechanism of late merge in Abe (2014), I account for the contrast between (12a) and (12b) in the following way: Given that the adjunct clause *that John made* in (12b) can be merged with *which claim* after the latter undergoes *wh*-movement, sideward movement can take place from the position of *he* to that of *John*, so that (12b) will be derived in the following way:

(13) a.  
   
   b.  
   c.  
   d.  
   e.  

In (13b), pro undergoes sideward movement from the subject position of *was willing* to that of *made*, and is spelled out as *he* in its original position, as in (13c). Then, *which claim* undergoes *wh*-movement in one structure while in the other structure, the pro in the subject
position of made is replaced by John and the whole TP is built up with the complementizer that, as shown in (13d). Finally, the adjunct clause is adjoined to which claim, as in (13e). We thus successfully derive sentence (12b) with he connected to John via sideward movement. As for (12a), it cannot have the same derivation as given in (13), since the complement clause that John was asleep must be introduced into the complement position of claim before which claim undergoes wh-movement. Thus, in order to connect he to John through movement, we need to move pro from the former position to the latter either before or after we apply wh-movement to the whole wh-phrase which claim that John was asleep. In either case, the movement involved will violate the Extension Condition (EC) (cf. fn. 1), hence no way of linking he to John under the proposed movement theory.

We can give much the same explanation to another case of argument-adjunct asymmetry regarding Condition C effects that is observed at the right edge of a sentence. Reinhart (1976) observes the following contrast:

(14) a. *Zelda sent him back all Dr. Levin’s flowers.
   b. Zelda sent him back all the flowers which Dr. Levin had bought for her.
   (Reinhart 1976:160-161)

Under the present movement theory, (14b) will be derived in the following way:

(15) a. [vP Zelda sent pro back all the flowers], [ ___ had bought for her]
   b. [vP Zelda sent pro back all the flowers], [pro had bought for her]
      ________________________________
      (sideward movement)
   c. [vP Zelda sent him back all the flowers], [pro had bought for her]
   d. [vP Zelda sent him back all the flowers]  
      \ [CP which Dr. Levin had bought for her]
      (late merge)

In (15b), pro undergoes sideward movement from the object position of sent to the subject position of had bought, and is spelled out as him in its original position, as in (15c). Then, after the construction of the adjunct clause is completed with pro overlaid by Dr. Levin, it is adjoined to all the flowers, as in (15d). In this way, we can derive sentence (14b) with him connected to Dr. Levin via sideward movement. In (14a), on the other hand, there is no way for pro to undergo movement from the object position of sent to the Spec position of flowers without violating the EC. That is why him cannot be anaphorically dependent on Dr. Levin in (14a).2

2 Notice that late merge of adjuncts takes place counter-cyclically and hence is somehow exempt from the EC. But this violability of the EC cannot be unconstrained; if so, we would incorrectly produce a sentence such as the following with he connected to Dr. Levin via sideward movement:

(i) *He1 sent Zelda back all the flowers which she had bought for Dr. Levin1.

This sentence would be derived if the adjunct clause which she had bought for Dr. Levin could be adjoined to

Let us now go back to discuss why the anti-c-command requirement holds for the availability of AE. In Abe and Park (2017) we propose, assuming the movement theory of Abe (2014), that the anti-c-command requirement on AE is derived from its last resort nature:

(16) Argument ellipsis is available only when pro and its antecedent cannot establish an anaphoric relation via Move.

Let us first consider how an anaphoric relation is established in a sentence like the following under Abe’s (2014) movement theory of anaphora:

    John-TOP today-GEN afternoon come COMP said
    ‘John said [e]1 would come this afternoon.’

This sentence is derived in the following way:

(18) a. __ [pro kyoo-no gogo kuru to] itta
    b. pro [pro kyoo-no gogo kuru to] itta       (pro movement)
        ▲
    c. John-wa [pro kyoo-no gogo kuru to] itta
       (overlay of John-wa onto pro)

In this derivation, pro is first merged with the embedded predicate and then undergoes Move to the matrix subject position, as in (18b). In Abe (2014), I argue that Japanese is different from a language like English in that it is not subject to the Nominative Island Condition or whatever condition derives it, so that the pro-movement in (18b) does not violate any locality condition, hence not required to have the bottom copy of the resulting chain pronounced. Then, after John-wa is overlaid onto the top copy of pro, as in (18c), we correctly obtain the surface form of (17) with the resulting chain (John-wa, pro) interpreted as a case of coreferential anaphora. Under this movement theory, (4), reproduced below, has a derivation

all the flowers after pro underwent sideward movement from the position occupied by he to that occupied by Dr. Levin. In order to circumvent this unwanted outcome, I propose in Abe (2018) that an adjunct must be merged no later than completion of a given phase. With this assumption, the adjunct clause in (i) must be adjoined to its head by the time when pro is merged in the subject position in which it is manifested as he, and hence the pro-movement that connects he to Dr. Levine necessarily violates the EC.

3 Also addressing this question, Sakamoto (2016) proposes that the antecedent of a null argument must be transferred to the LF interface before it becomes available for copying onto the null argument. Thus, in a configuration in which a null argument is c-commanded by its antecedent, the latter cannot serve as such when a null argument is introduced into a structure. This is how the anti-c-command requirement on AE is derived under Sakamoto’s theory. I will not discuss this alternative in the text mainly because Sakamoto posits pro for a null argument that cannot be taken as a case of AE due to the anti-c-command requirement, and does not consider the relationship between pro and AE. In what follows, I attempt to unify these two cases under Abe’s (2014) movement theory of anaphora. See Lee (2016) for conceptual as well as empirical arguments against Sakamoto’s (2016) approach.
exactly like in (18), producing the chain ("taitei-no sensei-ga, pro"), which is interpreted as an instance of bound variable anaphora.⁴

(19) Taitei-no sensei-ga [[e] kyoo-no gogo kuru to] itta.  
    most-GEN teacher-NOM today-GEN afternoon come COMP said  
    ‘Lit. Most teachers said [e] would come this afternoon.’  
    (*quantificational reading)

Given the last resort nature of AE characterized by Abe and Park (2017) as in (16), the option of AE is not available to (19), which thus cannot have a quantificational reading.

Let us now consider a case such as (3), reproduced below, that involves long-distance dependency in the sense that a subject intervenes:

    John-TOP self-GEN daughter-DAT teacher-NOM want-to-see COMP said  
    ‘Lit. John told self’s daughter that the teacher wanted to see [e].’  
    (*sloppy reading)

For such a case, I propose in Abe (2014) that to avoid a violation of a minimality condition to the effect that a step of Move cannot skip a possible landing site, the first application of Move to pro is operator movement to the embedded Spec-CP and then it is moved to the matrix subject position, in which it is overlaid by lexical material. Thus, (20) has the following derivation:

(21) a.  
      \[ CP \ldots \] [TP sensei-ga pro aitagatteiru] to]  
    b.  
      \[ CP \ldots \] pro [TP sensei-ga pro aitagatteiru] to]  
      \[ \text{Operator Movement} \]  
    c.  
      pro \[ CP \ldots \] pro [TP sensei-ga pro aitagatteiru] to] itta  
      \[ \text{Operator Movement} \]  
    d.  
      John-wa zibun-no musume-ni [CP pro [TP sensei-ga pro aitagatteiru] to] itta  
      \[ \text{Operator Movement} \]  

In this derivation, pro is first merged in the embedded object position, as in (21a), and then undergoes operator movement to the embedded Spec-CP, as in (21b). This movement observes the minimality condition in question since the embedded subject position is not a possible landing site for operator movement.⁵ Next, pro undergoes further movement to the matrix object position, as in (21c), in which it is overlaid by zibun-no musume-ni ‘self’s daughter-DAT’. After John-wa is merged in the matrix subject position, as in (21d), the derivation correctly gives rise to the output form of (20). The resulting chain (zibun-no musume-ni, pro, pro) is interpreted as a case of coreferential anaphora, so that (20) is

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⁴ See Abe (2014) for the claim that a null subject locally bound by a QP functions only as its variable.
⁵ According to Abe (2014), this null operator-like movement is an option available to Japanese, but not to English. See Abe (2014) for more discussion on why this parameterization holds.
interpreted as such that John told John’s daughter that the teacher wanted to see her. Given the last resort property of AE, this is the only interpretation available to (20).

There arises a problem, however, with such a characterization of the last resort nature of AE as given in (16) when we consider those cases that are traditionally taken as Condition C violations. Let us consider the following example:

(22) Mary-ga [e][John-ga ooku-no hito-ni asu au daroo to] itta.
    Mary-NOM John-NOM many-GEN person-DAT tomorrow see will COMP said
    ‘Lit. Mary told [e] that John would see many people tomorrow.’

This sentence cannot be interpreted as such that Mary told many people that John would see many people tomorrow, and this is usually attributed to a Condition C violation since ooku-no hito ‘many people’ is c-commanded by the matrix null IO. Note, however, that this quantificational reading should be available to (22), according to the last resort nature of AE, since in this case, the matrix null IO and ooku-no hito cannot establish an anaphoric relation via pro-movement.

Further, as Abe and Park (2017) themselves note, the last resort nature of AE needs to be understood in such a way that the availability of AE is preempted by the “proper chains” produced by pro-movement, where “proper chains” are those which are produced only by upward movement, but not by sideward movement. Let us consider the following examples, taken from Abe (2009):

    COMP advised
    ‘Lit. A person who hates self’s daughter advised Bill to love [e].’
    (OK sloppy reading) (Abe 2009:152)

(24) [Taitei-no sensei-o kiratteiru] gakusei-ga [e] hinansita.
    most-GEN teacher-ACC hate student-NOM criticized
    ‘Lit. The students who hated most teachers criticized [e].’
    (OK quantificational reading) (ibid.:150)

Assuming the anti-c-command requirement on AE, we can account for the availability of a sloppy reading to (23) and of a quantificational reading to (24), since in these cases, the null objects are not c-commanded by their antecedents. However, once we claim that the anti-command requirement is derived from (16), we face a problem: given the sideward movement option, pro and its antecedent can establish an anaphoric relation via Move even if they are not in a c-command relation. This will indicate that the option of sideward movement does not count in characterizing the last resort nature of AE.

In the next section, I will try to revise (16) to clarify how the last resort nature of AE works with the further assumption that AE also involves movement in connecting a null argument and its antecedent.

4. A Movement Theory of Argument Ellipsis

First of all, I propose that AE also involves movement in obtaining its semantic content
from its antecedent:

(25) AE obtains its semantic content via covert movement to $[e]$ from its antecedent.

With this assumption, the quantificational reading of (24) will be derived in the following way:

(26)a. $[CP\ most\-GEN\ teacher-ACC\ hate],\ [student-NOM\ __\ criticized]$  
   \[\text{(sideward movement)}\]

b. $[CP\ most\-GEN\ teacher-ACC\ hate],\ [student-NOM\ <most\-GEN\ teacher-ACC>\ criticized]$  
c. $[student-NOM\ <most\-GEN\ teacher-ACC>\ criticized]\ 
   \wedge [CP\ most\-GEN\ teacher-ACC\ hate]$  
   \[\text{(late merge)}\]

In (26a), $most\-GEN\ teacher-ACC$, which is the object of the relative clause, undergoes covert sideward movement to the null object position in the other structure. Here “covert” movement means that only the original copy of the resulting chain is pronounced, as shown in (26b), in which the copy enclosed with angular brackets represents an unpronounced one. Finally, the relative clause is late merged with its head $student-NOM$, as in (26c), and we can correctly derive (24) with its quantificational reading. Note that if we use normal pro-movement to establish the relevant anaphoric relation in (24), the derivation proceeds in the following way:

(27)a. $[CP\ pro\ hate],\ [student-NOM\ pro\ criticized]$  
   \[\text{(sideward movement of pro)}\]

b. $[CP\ most\-GEN\ teacher-ACC\ hate],\ [student-NOM\ pro\ criticized]$  
c. $[student-NOM\ pro\ criticized]\ 
   \wedge [CP\ most\-GEN\ teacher-ACC\ hate]$  
   \[\text{(late merge)}\]

In this case, pro-movement takes place from the matrix object position to the object position in the relative clause, as in (27a), and then the top copy of the resulting chain is overlaid by $most\-GEN\ teacher-ACC$, as in (27b). After the relative clause is late merged with its head, as in (27c), we obtain (24) with the resulting chain ($most\-GEN\ teacher-ACC,\ pro$), in which pro refers to its quantificational antecedent, hence giving rise to a so-called E-type reading. (23) also has two derivations that will be derived in the same way as in (26) and (27): the one

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6 We need to assume that the sideward pro-movement in (27a) is somehow exempt from (7), so that the bottom copy of the resulting chain remains unpronounced. It looks like (7) is not at work at all in Japanese. I must leave the question why this must be so for future research.
derived in such a way as given in (26) will yield a sloppy reading whereas that derived in such a way as given in (27) will yield a strict reading.

Now given (25), the unavailability of quantificational and sloppy readings to (19) and (20) is immediately derived: there is no way to apply movement to [e] from its antecedent without violating the EC in these cases. This is how the anti-c-command requirement on AE is derived from (25).

Given the present proposal that AE is a case in which the antecedent of a null argument undergoes covert movement to it, one may raise the question how it deals with such a case in which a null argument and its antecedent are located inter-sententially, as in (1), reproduced below:

    Bill-TOP self-GEN student-NOM exam-DAT passed COMP think
    ‘Lit. Bill thinks that self’s student passed the exam.’
    John-also exam-DAT passed COMP think
    ‘Lit. John also thinks that [e] passed the exam.’

This will not cause a serious problem for the present approach, given the current minimalist conception (cf. Chomsky 2004) that movement is simply a special case of Merge, namely internal Merge. Given this conception, it will not be unnatural to expect that not only internal Merge but also external Merge is involved in supplying a null argument with its content. I suggest that (28) illustrates exactly this case, so that the antecedent of the null subject, namely zibun-no gakusei-ga ‘self’s student-NOM’ is externally merged with the embedded predicate in (28b), and crucially this operation is “covert” in the sense that the merged copy of the antecedent lacks its phonetic content.⁷

Let us now consider the Condition C violation case noted in the previous section, namely (22), reproduced below:

    Mary-NOM John-NOM many-GEN person-DAT tomorrow see will to] COMP said
    ‘Lit. Mary told [e] that John would see many people tomorrow.’

Under Abe’s (2014) movement theory of anaphora, the matrix null IO and its antecedent ooku-no hito ‘many people’ cannot establish an anaphoric relation, since the pro-movement involved would have to occur from the position occupied by [e] to that occupied by its antecedent, hence inducing an EC violation. But notice that this will not suffice to account for the unavailability of the relevant reading to (22); we need to consider the possibility of taking the null argument as a case of AE. Under the present assumptions, (22) should be acceptable with the intended reading, since nothing seems to prevent ooku-no hito ‘many people’ from undergoing covert movement to the position occupied by the matrix IO, according to (25).

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⁷ This “covert” external Merge amounts to the copy operation under what is standardly called the LF copy theory of ellipsis, as one reviewer of the abstract of this paper points out. In this sense, the present way of supplying semantic content to a null argument can be said to be in line with this LF copy theory.
Here I propose that such an application of covert movement is prohibited due to the last resort nature of this operation; that is, it is preempted by a standard application of pro-movement with the top copy of the resulting chain overlaid with lexical content. With this latter derivation, we can derive the following sentence:

\[(30)\]  Mary-ga ooku-no hito-ni, [John-ga pro1] asu au daroo  
Mary-NOM many-GEN person-DAT John-NOM tomorrow see will itta.  
COMP said
‘Lit. Mary told many people1 that John would see pro1 tomorrow.’

The intuition behind this reasoning is that the chain produced by covert movement of *ooku-no hito* ‘many people’ in (29), namely (*ooku-no hito, ooku-no hito*) is preempted by the “more normal” chain that connects the same two positions by pro-movement, namely (*ooku-no hito, pro*), which gives rise to (30). Let us then assume the following:

\[(31)\]  A chain \((X, X)\) is preempted by the existence of the corresponding chain \((X, \text{pro})\).

Notice that this condition should be so restricted that it may not exclude the AE cases that involve sideward covert movement. Consider again (23) and (24), reproduced below:

\[(32)\]  [Zibun-no musume-o kiratteiru] hito-ga [Bill-ni [e] aise yo]  
self-GEN daughter-ACC hate person-NOM Bill-DAT love to]  
COMP advised  
‘Lit. A person who hates self’s daughter advised Bill to love [e].’  
(\text{OK sloppy reading})

\[(33)\]  [Taitei-no sensei-o kiratteiru] gakusei-ga [e]  
most-GEN teacher-ACC hate student-NOM criticized  
‘Lit. The students who hated most teachers criticized [e].’  
(\text{OK quantificational reading})

In these cases, we do not want to claim that the covert sideward movement that is involved in deriving the sloppy and quantificational readings is preempted by the corresponding sideward pro-movement with the top copy of the resulting chain overlaid with lexical content.\(^8\) Thus,

\[(i)?*[pro1 kiratteiru] hito-ga Bill-ni [zibun-no musume]-o aise yo to]  
hate person-NOM Bill-DAT self-GEN daughter-ACC love COMP advised  
‘A person who hates pro1 advised Bill to love [self’s daughter].’

\[(ii)?*[pro1 kiratteiru] gakusei-ga taitei-no sensei-o hinansita.  
hate student-NOM most-GEN teacher-ACC criticized  
‘The students who hated pro1 criticized most teachers.’

These sentences with the intended readings would be derived by pro-movement taking place from the object positions in the relative clauses to the designated object positions with the top copies of the resulting chains overlaid by *zibun-no musume-o* ‘self’s daughter-ACC’ in (i) and *taitei-no sensei-o* ‘most teachers-ACC’ in (ii). Though the availability of the relevant readings to (32) and (33) could be taken care of in this way, such an
we need to modify (31) in such a way that the corresponding chain \((X, \text{pro})\) is confined to a chain that is produced only by upward movement. Let us call such a chain “proper chain”. Then, (31) is modified as follows:

\[(34) \quad \text{A chain } (X, X) \text{ is preempted by the existence of the corresponding proper chain } (X, \text{pro}).\]

Let us now consider the following argument-adjunct asymmetry regarding Condition C in Japanese, observed by Abe (2018):

\[(35) \quad \begin{align*}
a. \ & \text{John-wa pro}_1 \text{Mary}_1-\text{no syasin-o} \text{ miseta.} \\
\ & \text{John-TOP Mary-GEN picture-ACC showed} \\
\ & \text{‘John showed her}_1 \text{Mary}_1’s \text{pictures.’}
\end{align*}\]

\[b. \quad \text{John-wa pro}_1 [\text{Mary}_1-\text{ga ututteiru}] \text{ syasin-o miseta.} \\
\ & \text{John-TOP Mary-NOM is-seen picture-ACC showed} \\
\ & \text{‘John showed her}_1 \text{pictures in which Mary}_1 \text{is seen.’}
\]

\[(\text{Abe 2018: 100})\]

This demonstrates the same argument-adjunct asymmetry as we observed with the English examples in (14), reproduced below:

\[(36) \quad \begin{align*}
a. \ & \text{Zelda sent him}_1 \text{back all Dr. Levin}_1’s \text{flowers.} \\
\ & \text{Zelda sent him}_1 \text{back all the flowers which Dr. Levin}_1 \text{had bought for her.}
\end{align*}\]

(35a) and (36a) induce a Condition C violation since pro and \text{him} c-command their antecedents \text{Mary} and \text{Dr. Levin}, and (35b) and (36b) are exempt from this violation since the antecedents of the pronouns are located inside adjunct clauses. Under the present movement theory of anaphora, the acceptability of (35b) and (36b) with the intended readings follows from a successful application of sideward pro-movement from the positions occupied by the pronouns to those occupied by their antecedents before the relative clauses are late merged with their heads. Thus, sentence (35b) can be derived in the following way:

\[(37) \quad \begin{align*}
a. \quad [\text{John-TOP pro picture-ACC showed}, [\text{CP pro is-seen}] \\
\ & \text{[John-TOP pro picture-ACC showed], [CP Mary-NOM is-seen]}
\end{align*}\]

account is not general enough. See the discussion on (43) and (44).

\* As discussed by Abe (2014), there is an independent reason to posit a notion like proper chain: only this chain can be involved in bound variable anaphora. Note that non-c-commanding anaphora, as illustrated in (i), is established only via sideward movement and further that such anaphora cannot establish an operator-variable relationship, as illustrated in (ii):

\[(i) \quad \text{His}_1 \text{mother likes John}_1.\]

\[(ii) \star \text{His}_1 \text{mother likes every man}_1.\]

Thus, a “non-proper” chain produced by sideward movement can induce only coreferential anaphora.
First, pro-movement takes place sideward from the IO position of the matrix predicate to the subject position in the relative clause, as in (37a), and the top copy of the resulting chain is overlaid by Mary-NOM, as in (37b). Finally, the relative clause is late merged with its head picture-ACC, as in (37c). This gives rise to the final output of (35b) with the IO pro establishing an anaphoric relation with Mary-NOM via pro-movement. The unacceptability of (35a) and (36a) with the intended readings, on the other hand, follows from the unavailability of such sideward pro-movement as in (37a) to these sentences. On top of that, even if we take the null argument in (35a) as a case of AE, the application of covert movement to Mary is preempted, according to (34), by the standard application of pro-movement with the top copy of the resulting chain overlaid with Mary, which gives rise to the following sentence:

(38) John-wa Mary₁-ni [pro₁ syasin]-o miseta.
    John-TOP Mary-DAT picture-ACC showed
    ‘John showed Mary₁ pro₁’s pictures.’

Note that (35b) also has one more derivation to consider, namely the one that involves covert movement of the antecedent of the null object:

(39) a. [CP Mary-NOM is-seen], [John-TOP __ picture-ACC showed]  
    \[\overrightarrow{\text{CP Mary-NOM is-seen}}\]  
    (late merge)  
    b. [CP Mary-NOM is-seen], [John-TOP <Mary-DAT> picture-ACC showed]  
    c. [John-TOP <Mary-DAT> picture-ACC showed]  
       \[\overrightarrow{\text{CP Mary-NOM is-seen}}\]  
       (late merge)

In this derivation, Mary-NOM undergoes covert sideward movement to the matrix IO position, as in (39a), but according to (34), the resulting chain (Mary-DAT, Mary-NOM) is preempted by the corresponding chain (Mary-DAT, pro) that is involved in deriving the following sentence:

(40) John-wa Mary₁-ni [pro₁ ututteiru] syasin-o miseta.
    John-TOP Mary-DAT is-seen picture-ACC showed
    ‘John showed Mary₁ pictures in which she₁ is seen.’

Hence, the derivation given in (39) is ruled illegitimate.

Now a prediction: in a configuration like (35b), the null IO cannot be taken as a case of AE. This prediction is borne out by the unavailability of the sloppy and quantificational readings to the following sentences:
How to Derive the Anti-C-Command Requirement on Argument Ellipsis

(41)  John-wa [e] [Mary-ga zibun-no tomodati-ni miseta] syasin-o  
John-TOP Mary-NOM self-GEN friend-DAT showed picture-ACC  
mise-nakat-ta. (*sloppy reading)  
show-not-Past  
‘Lit. John didn’t show [e] pictures that Mary showed to self’s friends.’

(42)  John-wa [e] [Mary-ga takusan-no hito-ni miseta koto-ga aru]  
John-TOP Mary-NOM many-GEN person-DAT showed fact-NOM be  
syasin-o miseta. (*quantificational reading)  
picture-ACC showed  
‘Lit. John showed [e] pictures that Mary had shown to many people.’

The null IO in (41) cannot be interpreted sloppily as referring to John’s friends and that in (42) cannot be interpreted as referring to many people that are different in denotation from those Mary showed pictures to. These facts follow under the present assumptions since the derivations that give rise to these readings, which are just like in (39), are preempted by the corresponding derivations that involve pro-movement with the top copies of the resulting chains overlaid with lexical content, giving rise to the following sentences:

(43)  John-wa zibun-no tomodati₁-ni [Mary-ga pro₁ mise-nakat-ta]  
John-TOP self-GEN friend-DAT Mary-NOM show-not-PAST  
syasin-o miseta. picture-ACC showed  
‘Lit. John₁ showed [self₁’s friends]₂ pictures that Mary didn’t show to pro₂.’

(44)  John-wa takusan-no hito₁-ni [Mary-ga pro₁ miseta koto-ga aru]  
John-TOP many-GEN person-DAT Mary-NOM showed fact-NOM  
bé picture-ACC showed  
‘Lit. John showed many people₁ pictures that Mary had shown to pro₁.’

Notice that (43) and (44) preempt (41) and (42), respectively, according to (34), despite the fact that the former and the latter do not share the same intended readings: the relevant chain (zibun-no tomodati, pro) in (43) produces its strict reading, so that it is interpreted as such that John showed his friends pictures that Mary didn’t show to them, and the relevant chain (takusan-no hito, pro) in (44) produces its bound variable or E-type reading, so that it is interpreted as such that John showed many people pictures that Mary had shown to them. Notice further that (43) and (44) also have sloppy and quantificational readings, respectively, when the null arguments are taken as cases of AE. This is because (43), for instance, can have the following derivation for its sloppy reading:

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10 On the other hand, it is expected that the null IO in (41) refers to Mary’s friends and that in (42) refers to the people Mary showed pictures to. These readings are a little bit hard to obtain and I speculate that this is due to the fact that they involve backward anaphora of non-definite nominal phrases. See fn. 8 for relevant observations.
In (45a), *self’s friend-DAT*, which is the IO of the matrix clause, undergoes covert sideward movement to the null IO position in the relative clause, giving rise to (45b). Then the relative clause is late merged with its head *picture-ACC*, as in (45c), and we can correctly derive (43) with its sloppy reading. In this case, the covert sideward movement applied at state (45a) will not be preempted by the corresponding pro movement that connect the same two positions, according to (34), since the resulting chain produced by the latter movement will not be a proper chain. Much the same derivation as given in (45) is also available to (44), which thus gives rise to its quantificational reading.

To recapitulate, I have argued that the anti-c-command requirement on AE observed by Abe (2009) is best captured under the movement theory of anaphora proposed by Abe (2014), in much the same way as this theory derives Condition C effects, another case of anti-c-command requirement. I have proposed that AE cases involve covert movement taking place from the antecedent of a null argument to that argument in accordance with such a movement theory of anaphora. With this proposal, I have argued that the anti-c-command requirement on AE is derived from the ban on downward movement a la Kayne (2002).

References

Oxford University Press.
Words have two defining characteristics; one, representation of morpho-syntactic information and two, phonologically independent stand-alone unit. Theoretically, there are two opposing proposals for understanding word in the realm of generative grammar. While one group argues words to be learned items that exist as compact atoms stored in the mental representation, called Lexicon (Chomsky, 1970; Aronoff, 1972, 1976; Kiparsky, 1980), the other group treats words to be constructed units generated through syntactic operations like phrases and sentences (Halle and Marrantz, 1993; Harley and Noyer, 1999; Bobaljik, 2017; Embick, 2015; Bruening, 2018). Technically, the former group is known as the Lexicalist approach in line with Chomsky’s (1970) Lexicalist Hypothesis and the latter group as non-Lexicalist approach. One main proponent of the non-Lexicalist approach is Distributed Morphology (DM) (Halle and Marrantz, 1993). Investigating the grammatical words in Meiteilon, this paper affirms the non-lexicalist approach of understanding words and argues that words are constructed linguistic elements generated through syntax. The paper substantiates the argument by illustrating how difference in morpho-syntactic configuration of words can impact morpho-phonological realization of words using Meiteilon data. Precisely, the main claim of this paper is that difference in morpho-syntactic configuration of words results in difference of prosodic domain marking. Such a difference is illustrated by investigating two types of grammatical word constructions in Meiteilon. For this, I begin with the theoretical discussion of grammatical words in section 1. To illustrate the domain of grammatical words, section 2 discusses the segmental phonological processes that takes place within words in Meiteilon. The next two sections, section 3 and 4, discusses the structural configuration co-indexed to voicing assimilation and nasal place assimilation as well as deaspiration respectively. Section 5 briefly discusses the construction where no phonological processes apply. Section 6 concludes the paper.

1. Grammatical Words: illustrating how morpho-syntax influences morpho-phonology

In Saussurean model, a word is understood as a linguistic ‘sign’ which represents a correlation between a concept ‘signified’ and a sound or image ‘signified’ (Saussure, 1959). Following this theoretical understanding, ‘words’ got decomposed into meaning and sound components, where the two components are associated in an arbitrary manner. However, words can also contain grammatical concepts such as phi features (person, number, gender), tense, aspect and so on (1), where each component has a sound-meaning correspondence apart from the arbitrary association of meaning and sound.
1. Two sound-meaning correspondence elements
   a. Phi Features
      i. i-ma ‘mother’ (Meiteilon)
         1P-mother ‘mother’
      ii. cats (English)
         cat= noun
         -s = number
      iii. ətsʰ-i (Hindi)
         good-Fem ‘good (Fem)’
   b. Tense
      i. waited (English)
         wait= verb
         -ed = Past Tense
   c. Aspect
      i. čət-le ‘went’ (Meiteilon)
         go- Perfective

Additionally, there are also words where it is difficult to isolate the sound-meaning correspondence of each concept within a word. For example:

2. people = one sound unit with two meanings
   a. people ↔ [people]   Noun + Number

So, the presence of multiple concepts within a ‘word’ indicates words to be complex linguistic items. Such indications entails the items to be constructed elements formed by applying generative operation(s) on smaller units. This raises the question of what are the smaller units through which words are constructed.

Most works in the literature argue morphemes to be the small units from words are constructed (Fromkin, Rodman and Hyams, 2011). While this idea remains uncontested, the question of what exactly the morpheme constitutes is still an on-going debate. Hockett (1958) argues meaning to be the main component of morphemes and divides morpheme into different types namely portmanteau morpheme (3); empty morpheme (4); null/zero morpheme (5) and so on. Portmanteau morphemes are the one where the meaning component has a sound correspondence while empty morphemes are the ones where the sound component is present without any meaning contribution. Somewhat similar to empty morpheme, null morphemes are the ones that has semantic component but do not have a sound counterpart.

3. Portmanteau Morpheme (same phonological form different meanings ‘-s’ in English)
   a. dogs [plural]
   b. John teaches folksongs [3P agreement]

4. Empty Morpheme (lack meaning and sound correlates)
   a. Fact [N] ➔ Factual [Adj]
      u in Factual (Factual = Fact+al)

5. Zero/null Morpheme
   a. Host [V] vs Host [N]
i. John hosted last night’s party (act of arranging the party)
ii. John was the host of last night’s party (person who arranged the party)

However, the idea of taking meaning as the main constituent of morphemes was critiqued by Aronoff (1974, 1976) based on words where certain units within it do not correlate to a clear meaning constituent. Some examples of such words can be seen in cranberry and latinate (prefix+ suffix) morpheme in English (6).

6. Morphemes with no distinct meaning
   a. Cranberry Morpheme
      i. cran in Cranberry
      ii. straw in Strawberry
   b. Latinate morpheme
      i. -mit in transmit, permit
      ii. -pel in compel, repel

Since the above examples have sound correspondence but no meaning counterpart, Aronoff argues that morphemes must be understood as a ‘phonetic string that can be connected to a linguistic entity outside the string’ (1976: p 15). Though proposing what morphemes are, Aronoff does not argue all words to be constructed elements. According to him, complex words with regular forms are the constructed ones and refers to them as regular words. Such words are argued to be constructed through a systematic word generating process called Word Formation Rule (WFR) which takes place within the Lexicon. The idea of word construction to be a part of the Lexicon is in sync with Lexicalist Hypothesis (Chomsky, 1970). So, simple words are argued to exist as it is in the lexicon and they form the Base. Like Base, irregular words are also argued to be present as it is in the lexicon. To elaborate, they are constructed by combining Base, the simplex words and Affixes, the functional elements that possess syntactic properties. Words produced by combining these Base and Affixes illustrates formal syntactic properties possessed by the Affix (7).

7. \[\text{teach}_V + [-\text{er}]_N \rightarrow \text{[teach-er]}_N\]

Nonetheless, there are certain issues with the understanding of morpheme and words argued in WFR. Firstly, the proposal of morphemes to be understood as linguistic units with recurrent phonological pattern would predict all morphemes to have phonological form. Yet, we have seen certain morphemes can lack clear phonological form but have clear meaning shown earlier in the case of empty and null morphemes. Secondly, the treatment of word as a compact unit in WFR will be difficult to explain how it interacts with other modules of grammar. So, it will be difficult to account how morpho-syntactic information of word has certain phonological implications. For instance, the position of stress assignment within words in English is determined by the type of syntactic category as given below.

8. \(\text{permit}_V - \text{permitt}_{N} \rightarrow \text{permitt}_V\)
9. \(\text{protest}_V - \text{protest}_{N} \rightarrow \text{protest}_V\)

(Examples taken from Arad, 2003b; 760)

Apart from stress, the implications on the phonological realization of a word can also be determined by complex structural configuration of the clause (10).

10. go+ Past \(\rightarrow\) went
Further, the same language also exhibits instances where change in syntactic category do not exhibit any phonological implications (11).

11. a. John bought a **hammer**.
   b. John **hammered** a nail.

Within the Lexicalist framework, the puzzle of variation in stress were resolved through the notion of Lexical Phonology (Kiparsky, 1980). So, the stress assignment were argued to be an implication of words undergoing grammatical derivation process(es) from a base. What is/are the grammatical process(es) through which words are generated?

Moreover, as temporal marker is also seen to have influence on phonological realisation of word, it implies that only derivational processes cannot be a part of word formation. Such examples show that syntactic processes can also be a part of word formation. Thus, the theory of word formation must take syntactic theories into account. A theory of word formation in line of syntax is L-syntax (Hale and Keyser, 1993). According to this theory, formation of denominal verbs (11) has the same form of syntactic head movement constraints. Consequently, such derivations must be represented in a syntactic manner. While the proposal of L-syntax implicates certain words to be generated items, it argues the process to take place within the Lexicon. Hence, L-syntax indicates the presence of a generative mechanism inside the lexicon which entails a demarcation between syntax inside versus outside the lexicon. Does this mean that elements present in the domain of syntax generally referred as inflectional affixes cannot be a part of word formation processes?

Interestingly, Breuning (2018) illustrates the presence of both inflectional affixes (12a) as well as phrasal units (12b) to be a part of word formation in English. He further illustrates the capability of syntax penetrating within words through focus particle targeting parts of word (12c).

12. Syntactic units as part of word formation
   a. English Inflectional affix (Plural, past)
      i. apple + -s (plural) ➔ apples
      ii. sing+ past ➔ sung
   b. Phrasal unit (Breuning, 2018; 3 shown as (2b) and (2c))
      i. She had that I’m-so-proud-of-myself look.
      ii. She had that What-the-hell-are-you-doing?! look
   c. Focus targeting part of word (Breuning, 2018; 15 shown as (33a) and (33c))
      i. That poet is from the POST-colonial era, not the PRE-colonial one.
      ii. That individual is TRANS-sexual, not BI-sexual.

The ability of focus particle piercing within a word suggests words are not an opaque object in the domain of syntax. Further, note that each word in the above examples possess the grammatical features which are argued to be part of the syntactic domain. Such examples thus indicate the need to explore a theory of word construction where takes place in the domain of syntax.

A recent theory which argues words to be generated in the domain of syntax is Distributed Morphology (Halle and Marantz, 1993; Harley and Noyer, 1999; Embick, 2000; Borer, 2005, 2013; Embick and Noyer, 2007; Harley, 2014; Bobaljik, 2017). According to this theory, words are constructed through application of syntactic operation on smaller items in similar
manner as generation of phrases and sentences. This means that words are not necessarily learned elements with sound-meaning correspondence. Therefore, DM’s understanding of word enables one to analyse the presence of complex internal structure within a word. In DM, the base units for construction of syntactic elements (words, phrases and sentences) are features. Embick (2015) argues features to be of two types, namely a) phonological features and b) syntactico-semantic (synsem) features. These features are argued to behave as syntactic terminals referred as ‘morpheme’. The morphemes associated with phonological features are known as roots and the latter as functional morpheme/ items. Thus, Roots and Functional Items are the building blocks for generating linguistic elements. And, the linguistic elements constructed from these units are taken as inputs for phonological domain creation at the PF interface. This means that the module of phonology will work on linguistic elements that possess syntactic structural information.

Following the working mechanism proposed in DM, I argue that the internal structural configuration will play a crucial role in determining the phonological domains of linguistic elements. Precisely, the structural configuration present within the syntactically generated elements can have implications while forming phonological domains. I illustrate this proposal through the difference in phonological characteristic conditioned by structural difference in Meiteilon words. On a broader perspective, the proposal argued in this paper attempts to show how phonological characteristics can help determine structural configuration.

2. Segmental Phonological processes in Meiteilon: a brief introduction

Meiteilon has three common segmental phonological processes which take place within a word; namely, a) Voicing Assimilation (VA) (13); b) Nasal Place Assimilation (NPA) (14) and c) Loss of Aspiration or deaspiration (LoA) (15).

13. Voicing Assimilation
   a. ləŋ- + -pa  ꞏ ləŋ-bə ‘to throw’
      throw NZR
   b. ləŋ- + -te  ꞏ ləŋ-de ‘did not throw’
      throw Negation
   c. ləŋ- + -ke  ꞏ ləŋ-ɡe ‘will throw’
      throw Vol.
   d. ləŋ- + ɬə +-ke ꞏ ləŋ-dʒə-ɡe ‘will throw (respectful utterance)’
      throw Hon. Vol.

14. Nasal Place Assimilation
   a. sə + kon ꞏ səŋon ‘cow shed’
      cow shed
   b. kom + kut ꞏ kon-ɡut / *kon-gut ‘pit’
      dent deep
   c. ʧeŋ + pɑk ꞏ ʧem-pɑk / *ʧem-bɑk ‘puff rice’
      rice flat

15. Loss of Aspiration
   a. pʰi + tʰɑ ꞏ pʰi-da ‘mat’
      cloth spread
   b. sən + kʰɑw ꞏ sen-ɡaw ‘purse’
      money bag
The process of voicing assimilation alters the voiceless stops present in the onset position of second morpheme of the final sound of the preceding morpheme is voiced. For deaspiration, the presence of an aspirated stop or a fricative sound in the onset position in the preceding morpheme is a necessary condition. Unlike VA and LoA, the process of NPA alters nasal present in coda position of initial morpheme. Though the three phonological processes are seen to take place between morphemes, the application of these processes illustrate some restriction. Specifically, the processes fail to apply in certain words as shown below:

16. Non-application of the processes
   a. Voicing Assimilation
      i. ɬa + ton ➔ t̂a-ton/*t̂a-don ‘younger brother’
         brother young
   b. Nasal Place Assimilation
      i. kʰoŋ + ləm ➔ kʰoŋ-ləm/*kʰon-ləm ‘footpath’
         foot land
   c. Loss of Aspiration
      i. tʰaw + tʰi ➔ tʰaw-tʰi/*tʰaw-di ‘oil waste’
         oil waste

Note that all the words in (16) are compounds. So, one could argue that the segmental processes fail to within compounds and apply only within non-compounds. However, such an analysis will not work because all the processes do take place in nominal compounds (17).

17. Application of the processes within compounds
   a. Voicing Assimilation
      i. sən + kʰom ➔ səŋ-gom/*sən-kʰom ‘milk’
         cow breast
   b. Nasal Place Assimilation
      i. kon + pək ➔ ək-m-pək/*kon-pək ‘flat bowel’
         utensil flat
   c. Loss of Aspiration
      i. tʰaw + tʰi ➔ tʰaw-dok/*tʰaw-tʰok ‘event’
         duty outward

The presence of such phenomenon indicate that both underapplication (18) as well as overapplication (19) of phonological processes do take place within Meiteilon words. Such underapplication and overapplication are attested in both nominal and verbal domain of Meiteilon (18).

18. Underapplication

<table>
<thead>
<tr>
<th>Nominal Domain</th>
<th>Verbal Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. wa + ton ➔ wa-ton ‘tip of bamboo’</td>
<td>a. tʰaw+ -kʰi ➔ tʰaw-kʰi ‘carried’ carried past</td>
</tr>
<tr>
<td>b. tʰaw + tʰi ➔ tʰaw-tʰi ‘oil waste’</td>
<td>b. tʰan-+ kʰi ➔ tʰan-kʰi ‘lit up’ light up</td>
</tr>
</tbody>
</table>
19. Overapplication

<table>
<thead>
<tr>
<th>Nominal Domain</th>
<th>Verbal Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. san + kon → sanj-gon ‘cowshed’ cow occupy</td>
<td>a. tʰαŋ- + tʰok- → tʰαŋ-dok ‘carry out’ carry Dir</td>
</tr>
<tr>
<td>b. tʰəw + tʰok → tʰəw-dok ‘event’ duty occur</td>
<td>b. tʰαŋ- + kʰat- → tʰαŋ-gat ‘light up’ light Dir</td>
</tr>
</tbody>
</table>

Note that the variation in application versus non-application of the phonological processes are not conditioned by prosodic factors such number of syllable or syllable type. Further, the variation is also not conditioned by morphological factors such as compounds versus non-compounds. So, what factor determines this variation? In order to account this variation, one must investigate it with respect to their structural configuration.

Adopting the Edge-Based (Selkirk, 1996) and Generalized Alignment (McCarthy and Prince, 1993) mechanisms, I illustrate that all the phonological processes in MeiteiLion apply within the domain of Prosodic Word. Specifically, Prosodic words in MeiteiLion are formed by mapping the left edge of roots to the left edge of a Prosodic word. A schematic representation of this proposal is as shown in (21).

20. Algorithm of MeiteiLion Prosodic Word construction

\[ \text{Prosodic Mapping: Align left edge of root to left edge of Prosodic Word} \]

I further illustrate that the variation in application of each phonological processes are conditioned by difference in the structural configuration. To show the domain for application of each process, I begin with discussing the domain of Voicing Assimilation in the next section.
3. Domain of Voicing Assimilation

The process of voicing assimilation applies between two morphemes at the morpheme boundaries of morpho-syntactic configurations consisting of root and inflectional items in both nominal and verbal domain. So, I argue that the domain for voicing assimilation is an inflectional word in Meiteilon. To elaborate, I argue that all inflectional elements in Meiteilon being affixal in nature get attached to roots. Further, as the functional items are argued to receive their phonological materials at the time of Vocabulary Insertion in Meiteilon, they will not be assigned for phonological faithfulness. Hence, the process of VA will take place in order to satisfy the phonological well-formedness condition. I illustrate this point using the Demonstrative Phrase in (21) and step-by-step illustration of how the phonological domain is formed in (22).

21. sem + -tu + -ki → sem-du-gi
   apple  Dem Gen
   ‘the apple’s’

22.

\[ \Rightarrow [\text{DP} [\text{DemP} [\text{NP} \text{sem}_N (\text{sem N}) \text{Dem}] \text{D}]] \]
\[ \Rightarrow \text{Morphological Merger} = \text{sem}_N + \text{Dem} + \text{D} \]
\[ \Rightarrow \text{Vocabulary Insertion} = \text{sem}_N + -tu + -ki \]
\[ \Rightarrow \text{Prosodic Mapping} = (\alpha \text{sem} + -tu + -ki) \]
\[ = \text{sem} -\text{du} -\text{gi} \]
\[ \text{‘the/that apple’} \]

Additionally, VA will continue to alter the onset of the inflectional items until another Root appears (23).

23. tʰɑŋ + tʃə + ke → tʰɑŋ-dʃə-ge ‘will carry (polite)’ (Honorific Marker)
   carry  -Hon  -Vol.

Thus, the domain for voicing assimilation extends beyond a phrasal boundary. This can be seen in (21) where the volitional marker which exist beyond the aspect phrase domain (Kidwai, 2010) is clubbed with the verb root. I illustrate a step by step mechanism that triggers to the application of voicing assimilation of (23) in (24).
To conclude, this section has shown that the domain for Voicing Assimilation in Meiteilon is an inflectional word which consist of a root and inflectional suffixes. Such phonological pattern is attested in both nominal and verbal domain of Meiteilon. I now proceed to discuss the domain of Nasal Place Assimilation and Loss of Aspiration in the following section.

4. Domain of Nasal Place Assimilation and Deaspiration

Unlike voicing assimilation, the processes of nasal place assimilation and deaspiration do not apply between every morpheme boundary in inflectional word. In fact, both these processes apply in compound-like constructions in both nominal and verbal paradigm. To illustrate in what type of construction the processes apply, I begin with discussing the domain of NPA and LoA in nominal paradigm.

4.1. Nominal Paradigm

As mentioned earlier, the processes of NPA and LoA applies in compound construction of nominal paradigm. Specifically, Bhat and Ningomba (1997) argue that compounds in Meiteilon are formed through two nominal elements which are related to one another either through possessive genitive or by verbal base (1997; 26). They further state that the phonological processes in Meiteilon nominal compounds ceases to apply if a functional element intervenes between the two nominals. So compounds such as səŋ-gon ‘cow shed’, səŋ-gaw ‘money bag’; yen-gon ‘chicken coop’ can be elaborated as here.

25. Compounds with Possessive genitive correlate
   a. səŋ-gon  səŋ - gi mə- kon ‘cow shed’
The phenomenon of compounds construction from phrasal units are also found in other languages such as English (26) and French (27).

26. shop of book ➔ bookshop (English)
27. homme -de -paille ➔ man of straw 'strawman' (DiScullo, 2009: 229)

den Dikken (2008) analyses the compound construction of English through Predicate Inversion analysis. However, this proposal cannot be adopted to explain the Meiteilon nominal compounds because they do not exhibit neither argument inversion nor disappearance of the functional possessive marker within the compound. While the presence of functional marker do not produce a compound construction, inversion of argument to form compound results in ungrammatical construction.

28. cow-Gen 3P-shed

Further the application of phonological processes between the nominals indicate that the two units form a single phonological domain. Thus, it implies that the two units are not simply clubbing the two arguments to form a compound. An important point to note of the nominal compounds is that one of the morpheme behaves like a modifying\(^1\) element of the other morpheme.

A way to analyse such compound construction from phrases is to argue that the entire structure has been ‘renumerated’ in line of Johnson (2002) (cited in Sato, 2007). Another theory which proposes similar idea but in the non-lexicalist framework is proposed by Harley (2009). She argues that the entire phrase is a frozen chunk that results in treating the phrasal unit as a single item. Though the phrasal freezing account helps to explain the construction like French data, it still does not help to explain the nominal construction of Meiteilon due to disappearance of functional marker as well as non-alteration of arguments order.

As discussed earlier, the phrase that correlates to compounds are similar to genitive phrase. However, they are different from possessive phrase such that compounds cannot be constructed from possessive phrases that have a strong possessive reading in Meiteilon.

29. Thoi-Gen knife

\(^1\) By modifying morphemes, I am referring to those type of morphemes adjectival elements. I am not calling such elements as adjective because it different from the adjectives constructions derived through the frame a- + root + -ə (Achom et al. 2013). However, the modifying elements exist as units which attribute certain quality of the roots. An example to illustrate this point is as follows:

a. ta- + ton ➔ taton ‘younger brother’
Such examples indicate that the syntactic configuration of possessive phrase are different from the ones where compounds are derived. Here, I argue that compounds cannot be constructed from possessive phrase because movement of second noun crossing the possessor head will be blocked due to Head Movement Constraint (HMC) (Travis, 1984).

30.

However, the possibility for a genitive marker to appear between the arguments in non-compounded version implies the presence of a position where the marker can be inserted during vocabulary insertion. Further, it must also be noted that such position must behave like non-head as it allows movement of the second argument crossing it.

Based on the study of possessive genitive in English, Taylor (1989) argues that possessive genitive construction can be interpreted in multiple ways. According to him, the construction which exhibit modifying reading relation referred as descriptive genitives are the ones that correspond to compounds. Unlike possessives, the arguments in a descriptive genitive construction behaves as modifier-modified and not as possessor-possesses relationship (31).

31. Descriptive Genitive
   a. a woman’s college
   b. a girl’s shirt

Like the examples in (31), the arguments of nominal compounds where NPA and LoA apply has modifier-modified relationship and not possessor-possesses (32)

32. Difference in Interpretation of Meiteilon Genitive-like construction
   a. Descriptive Genitive
      i. san-gi mə-kon ➔ sanŋ-gon
to-cow   3P shed
      ‘cow shed’ (Lt. shed where cow stays
               ➔ shed owned by cow)
      ii. sen-gi kʰaw ➔ senŋ-gaw
money-cow bag
      ‘money bag’ (Lt. bag to put money
               ➔ bag owned by money)
   b. Possessive Genitive
      i. tʰoy-gi tʰaŋ ➔ *tʰoy-daŋ
Thoy-cow knife
      ‘Thoy’s knife’ (Lt. knife owned by Thoy)
      ii. yaymə-gi kʰaw ➔ *yaymə-gaw
Yaima-cow bag
‘Yaima’s bag’ (Lt. bag owned by Yaima)

Following such distinction, I argue that the functional marker in Meiteilon nominal compounds where NPA and LoA apply behaves more as a linker of the two arguments. So, the structural configuration of such compound must be represented through Relator Phrase (den Dikkens, 2008). Further, the Relator head being an abstract functional head does not behave as prediciating head and allows the movement of second argument crossing it. Additionally, the presence of this functional head provides a slot for insertion of genitive marker during vocabulary insertion in non-compounded construction. A schematic representation of this idea is presented here:

33. Structure that results to a genitive-like construction

An issue with this analysis is why the onset of second root exhibit phonological alteration. This is because Ashem (2016) has shown that roots in Meiteilon are associated with higher phonological faithfulness. So, the phonological elements associated with roots resist any phonological alteration. However, the phonological alteration of second root indicates that the element is not interpreted as root.

Additionally, deeper probe reveals that not all Relator phrases in Meiteilon can be derived into a compound form.

34. huy-gi mə-kon ➔ huy məkon (*huy-gon)
   dog-Gen 3P-shed
   ‘dog’s shed’

35. ṣanu-gi mə-rum ➔ ṣanu mərum (*ṣanu-rum)
   duck-Gen 3P-egg
   ‘duck’s egg’

So, adopting Harley’s (2009), I argue that the Relator phrase through which compounds are constructed are frozen units. She argues that the frozen effect results in specific conceptualization of the phrase as quoted below

‘.. the phrase seems to be frozen as an expression evoking a particular abstract conceptualization of the compositional meaning determined by the internal phrasal syntax’

(Harley, 2009: 21)
Schematically, Harley represents the proposal of converting complex syntactic units to simple unit through the syntactic process of affixing a nominal head (36).

36. $[[XP \ n^0]_NP$

Similar to the above idea, Embick (2015) argues that a root which exist within a cyclic head (such as Noun, Verb, Adjective heads) results in the invisibility of the root to another cyclic head. Thus, I argue that the phrasal compounds in Meiteilon are derived by merging $n^0$ head to certain Relator Phrases. After the selection of the RP by $n^0$, I argue that the entire phrase will be interpreted as a single unit. Additionally, the $n^0$ being a cyclic head will block the second root to be visible as a root. Thus, this results to non-marking of second root for phonological faithfulness and hence the application of NPA and LoA. I present the schematic representation of this idea as well as the step by step illustration prosodic domain formation in (37)

37.

\[ \Rightarrow \text{Structure Representation: } [NP \ Spec \ [RP \ (sen_N) \ (k^baw_N) \ R] \ N] = [\ (sen - k^baw) \ N) \]
\[ \Rightarrow \text{Vocabulary Insertion: Not Applicable} \]
\[ \Rightarrow \text{Prosodic Mapping: Map the left edge of root to left edge of Prosodic Word} \]
\[ = (osen - k^baw) \quad [\text{Prediction } \Rightarrow \text{phonological processes must apply}] \]
\[ = (osen-gaw) \]

To sum up, the phrasal nominal compounds in Meiteilon are derived by merge between a RP and a category defining nominal head. Further, the structural configuration co-indexed with nasal place assimilation and deaspiration in nominal domain can be concluded as syntactic sisters (38)

38. Voicing Assimilation, Nasal Place Assimilation, Deaspiration = Syntactic sisters

With discussing the construction where NPA and LoA applies in nominal domain, I now proceed to discuss the configuration where the processes apply in verbal domain.

4.2. Verbal Domain

Within the verbal domain, the processes of NPA and LoA takes place in verb plus directional marker construction referred as Complex Verb Structure (CVS) (Ashem, 2017). CVS consist
of verbal root (the first element) and directional suffix (the second element). The directional suffixes that forms the second element in CVS are sin- ‘inward’; tʰok- ‘outward’; tʰɑ- ‘downward’; kʰət- ‘upward’. I illustrate some examples of CVS using the four directional markers combined with the verb pi- ‘give’ in (39).

39. a. pi- + sin- \rightarrow pi-sin ‘give in’
b. pi- + tʰok- \rightarrow pi- tʰok ‘give out’
c. pi- + tʰɑ- \rightarrow pi-tʰɑ ‘give down’
d. pi- + kʰət- \rightarrow pi-kʰət ‘give up’

Though the function of the above markers is to encode directional information with respect to movement of state or events, Ashem (2017) illustrates that they contribute aspectual information rather than exclusive directional information.

40. a. tomba čač ča-kʰɑ-re
   Tomba rice eat-Past-Perf
   ‘Tomba has eaten rice’
b. tomba čač ča-tʰok-kʰɑ-re
   Tomba rice eat-Dir-Past-Perf
   ‘Tomba had eaten rice’

Based on such characteristics, Ashem (2017) investigates Meiteilon Complex Verb Structure in purview of Light Verb Structure (Butt, 1995, 2003, 2010) and argue that CVS aligns with Light Verb structure. It has been further shown that though Meitei lon CVS illustrates the Form identity, monoclausality and joint predication characteristics, the directional marker (second element of CVS) cannot be generated under v head, the cause verb. This is because the directional marker presents more of path information and does not encode any form of causal information.

Hence, following Ramchand (2008) who argues that verbs which have only ‘directed motion interpretation’ must combine with PathP (Ramchand, 2008; 125), I argue that the directional marker of Meiteilon Complex Verb Structure originates under Path head. Further, the Path head being affixal in nature moves up to the verb head resulting into syntactic sister relation. Thus, such structural configuration results in the application of NPA and LoA in CVS. The schematic representation of this proposal is as given below.
I illustrate the step by step mechanism to demonstrate the domain for nasal place assimilation and loss of aspiration using the Meiteilon sentence in (42) and presenting its structural configuration in (43):

42. tomba tʰɑŋ-dok-kʰi
   tomba tree carry-Dir-Past
   ‘Tomba carried out the tree’

43. Structural Representation of Meiteilon CVS
\[ [TP \text{tomb}_N \ [ \text{tomb}_N \ N] \ [VP \text{tomb}_N \ VP \ u_N \ [ \ u \ N] \ [PathP \ Spec \ [RV \ Spec \ [RV \ P] \ t\alpha\eta V] + Path] V] T] \]

- Morphological Merger = tomb\_N \ u \ (t^b\alpha\eta + Path)-v-T
- Vocabulary Insertion = tomb \ u \ (t^b\alpha\eta + t^b\phi \kappa)-k^b\phi
- Prosodic Mapping = (\omega\text{tomb} \ (\omega \ u) \ (\omega (t^b\alpha\eta + t^b\phi \kappa)-k^b\phi

\[ \text{‘Tomba carried out the tree'} \]

To sum up, the discussion on verbal domain has also shown that the application of despiration, nasal place assimilation and voicing assimilation within CVS is also conditioned by the same structural configuration as that of nominal domain.

44. Voicing Assimilation, Nasal Place Assimilation, Despiration = Syntactic sisters

After discussing the structural configurations which conditions the application of phonological processes in Meiteilon, I discuss the last phenomenon of no phonological processes in the section below.

5. No phonological processes

It has been mentioned earlier that roots in Meiteilon are marked for phonological faithfulness, hence they resist any phonological alteration. This finding predicts that no phonological processes will apply in compounds formed from two roots. And, this is exactly what we see in compound where no phonological processes apply. However, the puzzle of why the application of only nasal place assimilation is seen to take place arises.

Note that the compound formed from two roots will have embedded phonological units as each root will correlate to a phonological domain. Here, I argue that the distinction in phonological strength of onset versus coda will play a crucial role. To elaborate, when two similar morpho-syntactic elements exist within a phonological word domain, the phonological element present in stronger position will target the ones present in weaker position (Lombardi, 1999). Hence, this results in the alteration of nasals present in coda position of the preceding root. This analysis also explains why the process of nasal place assimilation applies in regressive manner while the other two (voicing assimilation and despiration) applies in progressive manner. A schematic representation of this proposal is shown here.

45. Nasal Place Assimilation

\[ \text{Compound} \]

\[ \sqrt{k\phi n} \]

\[ \sqrt{p\phi k} \]

\[ \sqrt{k\phi n} \]

\[ \sqrt{p\phi k} \]

\[ O \]

\[ N \]

\[ C \]

\[ O \]

\[ N \]

\[ C \]

\[ k \]

\[ o \]

\[ n \]

\[ p \]

\[ a \]

\[ k \]
With respect to the compounds where no phonological processes apply, not even the process of nasal place assimilation, note that the data does not have any nasal coda. To highlight, I repeat the examples in (46).

46. No Phonological Processes
   a. \( w\alpha + ton \rightarrow w\alpha-ton \) ‘tip of bamboo’
      bamboo tip
   b. \( tʰ\alpha w + tʰi \rightarrow tʰ\alpha w-tʰi \) ‘oil waste’
      oil waste

Thus, the discussion in this section also highlights how morpho-syntactic information can have influence on the morpho-phonological well-formedness of words.

6. Conclusion

This paper has shown how the structural configuration of linguistic item (here word) influences the morpho-phonological realisation of word. Specifically, it has been shown that the process of voicing assimilation is conditioned on inflectional words, while the processes of voicing assimilation, nasal place assimilation and deaspiration are conditioned by syntactic sisters.

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Abstract

The paper primarily focuses on analyzing variation in dative case expressions, in the ditransitive constructions, observed in the speech of two different dialect groups of Assamese, namely the Eastern dialect (henceforth, EA) and the Rangia dialect of Assamese (a sub-variety of Western Assamese, henceforth WA).

The dative case markers in Eastern Assamese (EA) are $k$ and $loi$, while the Rangia variety uses $k$ and $k$ $legi$ as dative case markers. The paper shows that variation between Eastern and Western dialect of Assamese is in the Vocabulary (or speaker’s knowledge), which in turn determines the insertion of a phonological exponent in the PF component of Grammar. In addition, the paper looks in detail the base-generated word-orders of the Assamese ditransitives and provides a Distributed Morphology based account of the structures (following Halle and Marantz (1993, 1994), Embick and Noyer (2007), Embick and Marantz (2008) and Embick (2015). The problem encountered during the study is the duality in the categorial feature of $loi$ and $legi$ (behaving as either postpositions or dative case, depending on the animacy of the indirect argument) which is then resolved using the DM framework.

1) Objective

The primary objective of this paper is to study the nature and locus of variation observed in dative case expressions in the ditransitives across dialects of Assamese, particularly concentrating on the Eastern dialect (EA) and the Western Kamrupi Assamese dialect spoken in the Rangia town (WA).

2) Three classes of ditransitive verbs

In this paper, the ditransitive verbs in Assamese are classified into three sub-groups on the basis of PATH semantics (of Jackendoff 1983, Svenonius 2010).

i) the send-class verbs
ii) the give-class verbs and
iii) the causatives

2.1 The send-class verbs

The send-class verbs include verbs like $pothia$ (‘to send something to/for someone or to some place’), $dolia$ (‘to throw something towards someone or something’), $likha$ (‘to write
something to someone’), *dzasa* (‘to convey wishes to/ for someone’), *korhia* (‘to carry something to some place’) and so on. This class of verbs is characterized by PATH semantics (GoalPath and GoalDirection) as it indicates something (a <THEME>) being displaced (sometimes conceptually, as in the case of ‘writing a letter to someone’ or conveying a wish to someone’) or moved along a trajectory (<PATH>) in a specific direction that has the Goal as the termination point. This can be supported by the following examples in (1).

1) a. moi ghor-oloi sithi-khon pothia-l-u. (EA)
   1S home-to letter-CL send-PAST-1
   ‘I sent the letter to my home.’

   b. tai dilli-k legi e-khan sithi pothe-s-il. (WA)
   She Delhi-Ø to one-CL sithi write-AUX-PAST
   ‘She had sent a letter to Delhi.’

2.2 The give-class verbs

The give-class verb class includes verbs like *dia* (‘to give something to/for someone’), *bika* (‘to sell something to someone’), *kua* (‘to tell something to someone’) and so on. Such verbs are characterized by <DIRECTION> semantics only and they lack <PATH> semantics as the <THEME> does not traverse a path as they do in case of *send*-class verbs. The verbs simply represent change of state or possession of the <THEME> from the Agent to the Goal. This illustrated in (2).

2) a. moi iva-k kitap-khon di-l-u. (EA)
   1S Eva-DAT book-CL give-PAST-1
   ‘I gave Eva the book.’

   b. iva-i mo-k kitap-khan biki-s-il. (WA)
   Eva-ERG 1S-DAT book-CL sell-PERF-PAST
   ‘Eva had sold the book to me.’

2.3 The causatives

The causatives include verbs such as *dekhua* (‘to show’), *porhua* (‘to make someone study’), *khu* (‘to feed’), *xika* (‘to make someone learn a skill’) and others. These verbs simply portray the act of causation of an event (as shown in (3)).

3) a. moi ram-ok sobi-khon dekh-ua-l-u. (EA)
   1S Ram-DAT picture-CL see-CAUS-PAST-1
   ‘I showed Ram the picture.’

   b. moi iva-k oŋko porhe-s-l-u. (WA)
   1S Eva-DAT Mathematics teach-AUX-PAST-1
   ‘I taught Eva Maths.’

Hence, the distinction between the three classes of verbs can be summarized in the following table (1).
3) Dative case expressions in Eastern Assamese and Western Kamrupi ditransitives

This section of the paper provides a detailed data set showing the use of dative case markers *loi*, *k* and *k legi* in EA and the Rangia variety of WA.

3.1 EASTERN ASSAMESE

3.1.1 Send-type Verbs in EA

In case of the *send*-type verbs, both Target and Benefactive Goals (Ben) take *loi* as the Dative case marker (as shown from (4) to (7)). The suffix –*loi* is attached to the nominal base in both cases. However, the differences in the interpretation can be understood using discourse context.

\[
\begin{align*}
\text{4) } & \text{ moi ram-oloi kitap-khon potha-l-u. (Target)} \\
& 1S \text{ Ram-DAT book-CL send-PAST-1} \\
& \text{ ‘I sent Ram the book.’} \\
\text{5) } & \text{ tai skul-or principal-oloi e-khon sithi likh-ib-o. (Target)} \\
& 3S \text{ school-GEN Principal-DAT one-CL letter write-FUT-3} \\
& \text{ ‘She will write a letter to the Principal of the school.’} \\
\text{6) } & \text{ moi bān pirito luk-xokol-oloi khua bostu potha-m. (Ben)} \\
& 1S \text{ flood affected people-CL-DAT food send-FUT} \\
& \text{ ‘I will send food for the flood-affected people.’} \\
\text{7) } & \text{ teu-luk-e bān pirito luk-xokol-oloi khua bostu korhia-i-s-e.} \\
& 3S-CL-ERG flood affected people-CL-DAT food carry-PROG-AUS-3 \\
& \text{ ‘They are carrying food for the flood-affected people.’}
\end{align*}
\]

3.1.2 Give-class Verbs in EA

In *give*-class verbs, the Target Goal takes –*k* as the Dative case marker (as shown in (8)) while the Benefactive Goals take –*loi* as the Dative case marker (as in (9)).

\[
\begin{align*}
\text{8) } & \text{ moi ram-ok kitap-khon di-s-il-u. (Target)} \\
& 1S \text{ Ram-DAT book-CL give-AUX-PAST-1} \\
& \text{ ‘I gave Ram the book.’} \\
\text{9) } & \text{ tai dukhiya manuh-zon-oloi kapur di-s-il-e. (Ben)} \\
& 3S \text{ poor man-CL-DAT clothes give-PERF-PAST-1} \\
& \text{ ‘She gave clothes for the poor man.’}
\end{align*}
\]

3.1.3 The causatives in EA

<table>
<thead>
<tr>
<th>PATH</th>
<th>‘send’-class</th>
<th>‘give’-class</th>
<th>Causatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECTION</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 1: Distinction between the three classes of ditransitive verbs
In case of the causatives, the benefactive goals take –k as the Dative case marker (as in (10)).

10) a. moi ram-ok fiziks porh-ua-l-u.
    1S Ram-DAT Physics study-CAUS-PAST-1
    ‘I taught Physics to Ram.’

3.2 WESTERN KAMRUPI ASSAMESE

3.2.1 ‘Send’-class verbs in WA
This class of ditransitive predicates in Western Kamrupi Assamese (spoken in Rangia) does not morpho-syntactically distinguish between the expression of Benefactive Goals and Target Goals. Both Benefactive Goals and Target Goals take –k legi as the Dative case marker. The Modern Assamese (henceforth MA) –k was used as Genitive case in Middle Indo-Aryan; while legi has come from Middle Indo-Aryan lagi, a post-position (Kakati 1941, Chatterji 1985). However, -k is no longer used as Genitive case in Modern Assamese.

11) tai skul-or principal-ok legi e-khan application lekh-s-il. (Target)
    3S school-GEN principal-Ø DAT one-CL application write-AUX-PAST
    ‘She had written an application to the Principal of the school.

12) ram-e dukhiya manhu-tu-k legi khua bostu pothe-s-il. (Ben)
    Rame-ERG poor man-CL-GEN for food send-AUX-PAST
    ‘Ram had sent food for the poor man.’

3.2.2 ‘Give’-class verbs in WA
This class of ditransitive verbs has distinct ways of expressing Target Goals and Benefactive Goals. Target Goals take –k and –k legi as the Dative case and the Benefactive Goals take –k legi to express the same.

13) iva-i mo-k / mo-k legi kitap-khɔn di-s-il. (Target)
    Eva-ERG me-DAT IS-Ø DAT book-CL give-PERF-PAST
    ‘Eva had given me the book.’

14) ram-e dukhiya manhu-tu-k legi khua bostu di-s-il. (Ben)
    Rame-ERG poor man-CL-GEN for food give-AUX-PAST
    ‘Ram had given food for the poor man.’

3.2.3 Causatives

The three-place causatives take a Benefactive Goal with –k as the Dative case as shown in (15).

15) xi iva-k oŋko porh-o-s-il.
    He Eva-DAT Maths study-CAUS-AUX-PAST
    ‘He had taught Maths to Eva.’
The above two sections clearly show the existence variation in expressing Dative case in the ditransitive constructions between EA and WA. In addition, variation is also observed within each dialect of Assamese between the verb-classes (for instance, between the causatives and the ‘send’-class verbs). The two types of variation observed are captured in the following table in (16).

<table>
<thead>
<tr>
<th>Verb Types</th>
<th>Verbs</th>
<th>Benefactive Goal</th>
<th>Target Goal</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Animate</td>
<td>Inanimate</td>
<td></td>
</tr>
<tr>
<td>Causatives</td>
<td>Feed, show, Teach</td>
<td>-k (EA, WA)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>‘Send’-type</td>
<td>Send, throw, convey, write</td>
<td>-loi (EA) -k legi (WA) -karone (EA , WA)</td>
<td>-loi (EA) -k legi (WA)</td>
<td>-loi (EA) -k legi (WA)</td>
</tr>
<tr>
<td>‘Give’-type</td>
<td>Give</td>
<td>-loi (EA) -k legi (WA) -karone (EA , WA)</td>
<td>-k (EA, WA)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Sell, tell</td>
<td>-</td>
<td>-k (EA, WA)</td>
<td>-k legi (WA)</td>
</tr>
</tbody>
</table>
19) a. kṛṣṇa ka häte delö
   ‘I put it in Krishna’s hand.’
b. rākaca ka häte dite cava
   ‘You want to put him in a demon’s hands

20) a. kona strika devaba (ka as Dative)
   ‘Which wife shall I give it to?’
    b. je dāna māgaha tàheka devaba
       ‘I will give the gift you ask for.’

The present day -ra Genitive was also used in Brajvali but infrequently as noted in Smith (1995).

21) kṛṣṇa-ra carana cinti
    ‘having thought of Krishna’s feet’

4.2 Development of legi and loi as dative case markers

Kakati (1941), pointed out that loi in Assamese (Eastern) has come down from –ka+lāgi (lai) from Māgadhī, where ka was the genitive marker in Māgadhī and –ka +lāgi was used to indicate direction and purpose (in MIA in conformity with OIA) as shown in (22) and (23). This marker –ka lāgi is still evident in the speech of the Kamrupi speakers (as shown in (24)) and has retained the ‘purpose’ interpretation. The genitive ka has been deleted in the Eastern dialect and lāgi has transformed into loi, as already shown in (25).

22) kṛṣṇa-ra pasa-ka lāgi
    ‘to Krishna’s side’

23) jātanā-k lāgi
    ‘for the purpose of punishment’ (from Kakaty 1941:289)

24) mu-r ma-e mu-k legi kapor poth-e di-s-il.
    1S-GEN mother-ERG 1Sg-GEN for clothes send-NF give-AUX-PAST
    ‘My mother had sent clothes for me.’

25) tai iva-loi kitap-khon potha-l-e
    3S Eva-DAT book-CL send-PAST-3
    ‘She sent the book to Eva.’

Chatterji (1985: 774) also describes the development of –lagi. According to him lāgi (with different dialectal variation, lāge, lāge, loi, le and so on) has come from lāgiya (‘to come in touch with’). He further mentions that this postposition lāgi is used with the base or genitive to indicate the dative of interest (‘for the sake of’) and that it is exceedingly common in Middle Bangla and in the archaic poetical language (as in (26)).

26) sukhēra lāgiya ē ghara bāndhnu.
    ‘for the sake of happiness this house I built’

According to Bharali (1959), the late MIA period (or Early Assamese) saw the loss of many consonants, including /g/.
27) /ghagi/ (experienced) → /ghai/ chief
28) /bhogni/ (sister) → /bhoni/ sister
29) /lagi/ (to have an effect on/to come in contact with) → /lai/

Hence, following Kakati (1941), Chatterji (1985) and Bharali (1959), we can trace the development of *legi* in Kamrupi and -loī Eastern Assamese as shown:

30) *lāgi* in Magadhi > *legi* / *loī* in Modern Assamese.

On the basis of the discussion with relation to the diachronic development of the Dative case markers the following possible stages of development of *loī* in modern EA from old Assamese complex *ka lagi* can be proposed.

i) **First Stage, The Prakrit Stage (MIA):** At this stage, *legi/ lagi* was a postposition that assigned Genitive case to its Nominal complement.

31)

![Diagram](image)

ii) **Second Stage or Middle Assamese:** In Brajabuli texts of the middle Assamese era showed existence of both *lai* and *lagi* as postpositions (Mahanta 2015, Bharali 1959).

32) tohā-ka lāgi
2Sg-GEN to/for
‘to/for you’

With the loss of the phoneme /g/ accompanied the weakening of the head (P, lai)-complement (NP) relation (as in (33)).

33)

![Diagram](image)

---

1 The description provided in this section is originally proposed by Dr. Tanmoy Bhattacharya during the discussion held on 26/11/2018.
iii) **Third Stage or Modern Assamese:** The last stage marks the incorporation of P into N, resulting in *loi* being just a suffix. The job of assigning Dative case is then taken over by the Verb. This claim is supported by the data in (35b) where the focus marker is suffixed to *loi* and not to the N-base.

34) P incorporation into N

35) a. N-GEN-loi

b. moi kitap-khon okol ram-oloi-he potha-l-u.

1S book-CL only Ram-DAT-FOC send-PAST-1

‘I sent only Ram the book.’

Based on such observations the following claims can be made:

i. *ka* is lexicalized in the complex N-*ka-legi* in Modern WA and in this frozen structure *legi* behaves more like *loi*.

ii. *k* as Dative case is used in Modern Assamese (with recipients of *give*-type verbs and Causatives). It has lost its genitive interpretation and is not productive with *legi* (except in benefactives).

5) **Dual-Base hypothesis**

Miyagawa and Tsujioka (2004) claimed that Japanese has two distinct argument structures based on quantifier float and quantifier scope tests. Bhattacharya and Simpson’s (2011) work on Bangla ditransitives was based on Miyagawa (1997) and Miyagawa and Tsujioka (2004). They framed sets of data similar to the Japanese ditransitives and conducted the same quantifier float and quantifier scope tests among others. The results of the tests showed interesting cross-linguistic agreement and consistency between the Bangla patterns and patterns observed in Japanese. Hence, an attempt has been made to see if such kind of concurrence is also observed between Assamese and Bangla and also between Assamese and Japanese. As the title of this section suggests, it has been hypothesized that Assamese has dual base word-order corresponding to English *to*-Datives and double object constructions (DOC). Three tests were conducted (following Bhattacharya and Simpson (2011), namely
quantifier float, anaphor binding and quantifier scope. Each test was conducted for both the dialects of Assamese.  

5.1 Three tests for finding out the base-structure of Assamese ditransitives

This sub-section provides a detail illustration of the three tests conducted on the data from Eastern Assamese speakers.

1) Anaphor binding

The constituent (Goal or Theme) which contains the antecedent precedes the other containing the reflexive or the reciprocal, following the Binding principles. This test showed a very flexible argument structure of the ditransitives, that is, either the Goal (indirect object, IO) can be higher than the Theme (direct object, DO) or vice versa, depending on which constituent contains the antecedent.

36) 

a. moi [iva aru ram-ok]; [izon-xizon-or]; bixoye ko-l-u. (IO-DO)
1S Eva and Ram-DAT each other-GEN about tell-PAST-1
‘I told Eva and Ram about each other.’

b. moi [iva aru simi-k]; [izon xizon-or]; kutha-loi potha-l-u. (DO-IO)
1S Eva aru Simi-ACC each other-GEN room-to send-PAST-1
‘I sent Eva and Simi to each other’s room.’

c. moi [ram-ok]; [taa-k nijoke]; aina-t dekh-ua-l-u. (IO-DO)
1S Ram-DAT 3S-ACC self mirror-LOC see-CAUS-PAST-1
‘I showed Ram himself in the mirror.’

However, we can also have the alternative word-orders of the sentences in (36) as listed in (37) except in case of the reflexive nijoke, ‘self’, for which the antecedent has to precede it (as shown by the ungrammaticality of the sentence in (37c).

37) 

a. moi [izon-xizon-or]; bixoye [iva aru ram-ok]; ko-l-u. (IO-DO)
1S each other-GEN about Eva and Ram-DAT tell-PAST-1
‘I told Eva and Ram about each other.’

b. moi [izon xizon-or]; kutha-loi [iva aru simi-k]; potha-l-u. (DO-IO)
1S each other-GEN room-to Eva aru Simi-ACC send-PAST-1
‘I sent Eva and Simi to each other’s room.’

c. *moi [taa-k nijoke]; [ram-ok]; aina-t dekh-ua-l-u
1S 3S-ACC self Ram-DAT mirror-LOC see-CAUS-PAST-1

The word-order patterns in (36) indicate that the antecedent containing constituent is higher than the one containing the anaphor. However, the reverse order is possible by raising the lower argument across the higher argument by A’-movement (as in (37)).

2) Quantifier float

This test is conducted by stranding the quantifier-classifier (Q-Cl) complex associated with the Goal or Theme argument by raising the linked Argument to a higher
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position leaving the Q-Cl lower in the base position, and thereby obtaining the derived order. The sentence in (38a) represents the order Goal-Theme. The Q-Cl is associated with the Theme argument (kitap, ‘book’) and can be left stranded by moving the Theme argument higher (as in (38b)).

```
38) a. ram-e iva-loi du-khon_i kitap_i potha-l-e.
    Ram-ERG Eva-DAT two-CL book send-PAST-3
    ‘Ram sent two books to Eva.’
b. ram-e kitap_i iva-loi du-khon_i t potha-l-e.
    Ram-ERG book Eva-DAT two-CL t send-PAST-3
    ‘Ram sent Eva two books.’
```

Hence, it is claimed that the Theme-Goal sequence (38b) can be derived from the underlying Goal-Theme word order (in (38a)) without any change in the meaning of the proposition.

On the contrary if the Q-Cl is associated with the Goal DP (as in (39a)), it cannot be left stranded in the base position. In such a case, if the Goal DP is raised higher in the structure leaving the Q-Cl behind the Q-Cl will automatically associate itself to the Theme argument, yielding a different meaning (39b). In (39a) the Goal is higher in the structure than the Theme. If an attempt is made to move the Goal higher leaving the Q-Cl stranded (as in (39b)), the Q-Cl will modify the Theme and not the Goal. In addition, we can have a reverse word-order where the Theme is preceding the Goal (as in (40a)) but a similar situation of change in meaning will arise if the Goal is shifted higher away from the quantifier (as in (40b)).

```
39) a. ram-e du-ta_i lora_i-loi pen potha-l-e.
    Ram-ERG boy-DAT pen send-PAST-3
    ‘Ram sent pens to two boys.’
b. *ram-e lora_i-loi du-ta_i t pen potha-l-e.
    Ram-ERG boy-DAT pen send-PAST-3
    ‘Ram sent his son two pens.’
```

```
40) a. ram-e pen du-ta_i lora_i-loi potha-l-e.
    Ram-ERG pen two-CL boy-DAT send-PAST-3
    ‘Ram sent pens for two boys.’
b. *ram-e lora_i-loi pen du-ta_i t potha-l-e.
    Ram-ERG boy-DAT pen send-PAST-3
    ‘Ram sent his son the two pens.’
```

Hence, according to the quantifier float facts only the Goal-Theme is the possible base-generated word-order and the Theme-Goal order can be derived by raising the Theme across the Goal argument.

Let us now consider quantifier stranding from an inanimate Goal as in (41).

```
41) a. ram-e du-khon_i skul_i-loi kitap potha-l-3.
    Ram-ERG two-CL school-to books send-PAST-3
    ‘Ram sent books to two schools.’
b. *ram-e [ skul_i-loi] du-khon_i t kitap potha-l-e.
    Ram-ERG school- to two-CL t book send-PAST-e
```
‘Ram sent books to two schools.’ (Intended)

3) **Quantifier scope**

Scope interaction arises between the Goal and Theme if both are quantified nominals. Animacy of the Goal and the Theme also plays an important role with scopal readings as illustrated from examples (42) to (49).

i) **Animate Goal - Inanimate Theme**

In examples (42) to (48), the animate Goal is higher than the inanimate Theme. Such orders are unambiguous and only linear scope of the Goal QP over the Theme QP is found.

42) tai kunuba e-zon satro-k prottek-khon sobi dekh-ua-l-e.
   3S some one-CL student-DAT each-CL picture see-CAUS-PAST-3
   ‘She showed some student every picture.’
   (Linear scope: *some* > *every*)
   Base Order: Goal-Theme

43) ram-e prottek-zon satro-k kiba e-khon sobi dekh-ua-l-e.
   Ram-ERG each-CL student-DAT some one-CL picture see-CAUS-PAST-3
   ‘Ram showed every student some picture.’
   (Linear scope: *every* > *some*)
   Base Order: Goal-Theme

44) tai prottek-zon bondhu-loi kiba gift potha-l-e.
   She every-CL friend-DAT some gift send-PAST-3
   ‘She sent every friend some gift.’
   (Linear scope: *every* > *some*)
   Base Order: Goal-Theme

45) tai kunuba e-zon bondhu-loi prottek-tu gift potha-l-e.
   She some one-CL friend-DAT every-CL gift send-PAST-3
   ‘She sent every gift to some friend.’
   (Linear scope: *some* > *every*)
   Base Order: Goal-Theme

ii) **Animate Theme - Inanimate Goal**

Scopal ambiguity is observed when the Goal QP is inanimate, irrespective of the order (Goal-Theme or Theme-Goal) and animacy of the Theme argument. In examples from (46) to (48) the Theme precedes the inanimate Goal. Ambiguity in the scopal interactions show that the Q-Cl of the Theme can scope over Q-CL of the Goal (showing that Theme-Goal is the base order) or the Goal Q-Cl can scope over the Theme Q-Cl (indicating that Goal-Theme is the base word-order). Similar results are obtained when the inanimate Goal precedes the Theme (as in (49)).

46) tai prottek-zon satro-k kei-khonman skul-oloi potha-l-e.
   she every-CL student-ACC Q-Cl school-to send-PAST-3
   ‘She sent every student to some schools.’
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(Linear Scope: every > some, Inverse Scope: some > every)

Base order: Goal-Theme and Theme-Goal

47) tai kunuba e-zon satro-k prottek-khon skul-oloi potha-l-e.
    ‘She sent some student to every school.’
    (Linear Scope: some > every, Inverse Scope: every > some)
    Base order: Goal-Theme and Theme-Goal

48) tai prottek-khon sithi kunuba e-zega-loi potha-l-e.
    ‘She sent every letter to some place.’
    (Linear Scope: every > some, Inverse Scope: some > every)
    Base order: Goal-Theme and Theme-Goal

49) tai prottek-khon gau-oloi kiba e-khon sithi potha-l-e.
    ‘She sent some letter to every village.’
    (Linear Scope: every > some, Inverse Scope: some > every)
    Base order: Goal-Theme and Theme-Goal

50) Summary of the tests

<table>
<thead>
<tr>
<th>TESTS</th>
<th>BASE STRUCTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaphor Binding</td>
<td>Theme &gt; Goal</td>
</tr>
<tr>
<td></td>
<td>Goal &gt; Theme</td>
</tr>
<tr>
<td>Quantifier Stranding</td>
<td>Goal &gt; Theme</td>
</tr>
<tr>
<td>Quantifier Scope</td>
<td>Animate Goal &gt; Inanimate Theme</td>
</tr>
<tr>
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<td>Inanimate Goal &gt; Animate Theme or</td>
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<tr>
<td></td>
<td>Animate Theme &gt; Inanimate Goal</td>
</tr>
<tr>
<td></td>
<td>Inanimate Goal &gt; Inanimate Theme or</td>
</tr>
<tr>
<td></td>
<td>Inanimate Theme &gt; inanimate Goal</td>
</tr>
</tbody>
</table>

5.2 Overt two-Goal structures

Utterances consisting of two Goal arguments are rare in the speech of EA speakers. Such utterances when produced contains an inanimate Goal representing a location to which the theme has displaced and an animate Goal representing the possessor of the Theme (as in (51)). In the unmarked constructions the animate Goal is always higher than the Theme and the inanimate goal and the Theme and the lower Goal can precede or follow each other (as in
(51a) and (b)). In addition both the lower Goal and the Theme together has to be raised (if any such movements occur) across the high Goal (as in (c)) and a sentence such as (51d) is difficult to construct in natural speech.

51)  

a. ram-e iva-r karone [ sithi-khon dilli-loi ] potha-l-e.  
   Ram-ERG Eva-GEN for letter-CL Delhi-DAT send-PAST-3  
   ‘Ram sent the letter to Delhi to Eva.’ (Intended meaning)

b. ram-e iva-r karone [ dilli-loi sithi-khon ] potha-l-e  
   Ram-ERG Eva-GEN for Delhi-DAT letter-CL send-PAST-3  
   ‘Ram sent the letter to Delhi to Eva.’ (Intended meaning)

c. ram-e [ dilli-loi sithi-khon ] iva-r karone potha-l-e  
   Ram-ERG Delhi-DAT letter-CL Eva-GEN for send-PAST3  
   ‘Ram sent the letter to Delhi to Eva.’ (Intended meaning)

d. ??ram-e sithi-khon iva-r karone dilli-loi potha-l-e.  
   Ram-ERG letter-CL Eva-GEN for Delhi-DAT send-PAST3  
   ‘Ram sent the letter to Delhi for Eva.’ (Intended)

One possible interpretation of (d) is that here, Eva is not the Goal but the REASON that instigated Ram to send the letter to Delhi respectively. Another example of this type is given in (e) below.

e. moi zurhat-oloi tum-ar karone sithi-khon potha-l-u.  
   1S Jorhat-to 2S-GEN for letter-khon send-PAST-1  
   ‘I sent the letter to Jorhat for you.’ (Intended)

5.3 Scopal interaction in two-Goal structures

In this brief sub-section, the scopal interaction test is conducted to find out the base word-order of the double Goal structures in EA. The results obtained from this test gives an important insight into the nature of the Goals studied in the one Goal ditransitive constructions in the previous section.

52)  

He someone-GEN for every place-to food send-Past-3  
‘He sent food for someone to every place.’

Linear Scope: Some > every  
Base order: high goal- low goal

53)  

He someone-GEN for village-to every-CL dress send-Past-3  
‘He sent each dress to the village for someone.’

Linear Scope: Some > every  
Base order: high goal -Theme

54)  

He sent every letter for Eva to some two places.’
Ambiguity between low goal and theme: some > every, every > some
Base Order: Theme-Low Goal, Low Goal-Theme

55) xi iva-r karone protyek-khon sithi kunuba du-zega-loi potha-l-e
   He Eva-GEN for every-CL letter some two-place-DAT sent
   ‘He sent a letter for Eva to two places.’
Ambiguity between low goal and theme: every > some, some > every
Base Order: Theme -Low Goal, Low Goal - Theme

The scopal interactions shown in the data set from (52) to (55) show that the High Goal should precede the Low Goal and the Theme, but Theme-Low Goal can have asymmetric hierarchy among themselves. The claim is that those patterns which point towards an unambiguous Goal-Theme base the Goal is the high ‘Possessor’ Goal, while the Goal - theme word-order, which give us ambiguity, can be proposed to have a Low Locative Goal. This indicates two base configurations for EA ditransitives:

a) High Possessor Goal – Theme
b) Theme – Low Locative Goal or Low Locative Goal - Theme

Hence, Assamese seem to have two base word-orders, GOAL\textsubscript{ANIMATE} higher than the THEME or the THEME higher/lower than the GOAL\textsubscript{INANIMATE} and hence two different syntactic structures. In the next section, a DOC structure for the Goal-Theme order and a Prepositional-Dative (P-Dative) structure for the latter (following Marantz (1993) and Miyagawa and TsujioKa (2004) among others) have been proposed. The IO in DOCs is animate while the IO in P-Dative is inanimate. The categorical status of the Goals also differs; in DOCs the Goal is a DP and in P-Datives the Goal is a PP.

6) The structure of Assamese ditransitives

The following two structures for the Assamese DOCs (in figure (56)) and the P-Datives (in figure (57)) are proposed in this study (following Larson (1988), Marantz (1993), Bruening (2001, 2010b) and Miyagawa and TsujioKa (2004)). I have presented a three layered VP-structure for DOCs. The vP introduces the subject argument, the VaP layer introduces the Goal DP and the Theme occupies the complement of V.

56) DOC in Assamese

![Diagram of DOC in Assamese](image)
The P-Datives, on the other hand, have a two-layered VP structure. The Goal argument is in the complement of P. The unmarked word-order of P-dative is shown in (57).

57) P-datives in Assamese

![Diagram of P-datives structure]

The structure can also rightly explain the scopal ambiguity observed in case of P-datives. The ambiguity arises because both Goal and Theme originate in the same VP, such that any one of them can move to a higher position out of the VP and take scope over the other. On the contrary, the Goal and the Theme in DOCs are not present in the same VP and the Goal is necessarily higher than the Theme in the base structure. Further, following Chomsky (1995), Miyagawa and Tsuioka (2004) and Bruening (2001, 2010b), I will propose that both the Goal and the Theme can move out of VP to a scope taking position higher in the trees. Since, they share the same head, movement of any of the internal argument across the other is unstoppable.

However, a significant problem arises with respect to the grammatical category of the case markers *loi* and *legi* in the Numeration. *loi* and *legi* behave as postpositions in P-dative structures and simply as dative case in DOCs. In order to resolve this issue, I have adopted the Distributed Morphology (henceforth, DM) approach (of Halle and Marantz (1993), Marantz (1997), Embick and Noyer (2001, 2007) and Embick (2000, 2015)).

7) An overview of the DM approach

This section of the paper provides a brief overview of non-lexicalist DM approach particularly concentration on the DM architecture and the nature of syntactic terminals as held by Halle and Marantz (1993, 1994), Embick and Noyer (2007), Embick and Marantz (2008) and Embick (2015).

7.1 Halle and Marantz (1993, 1994)

Halle and Marantz (1993: 114) adopt principles parameters grammar that has a deep structure (DS), Surface structure (SS), Phonological Form (PF), Logical Form (LF) and an additional level called the Morphological Structure (MS) at interface of syntax and phonology. The structure is represented in (58) below.
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The terminals are hierarchically arranged at each level of the grammar and each terminal contains a set of grammatical features which are drawn from a universal set provided by UG. In addition, all the syntactic terminals at LF, DS and SS are without any phonological features. The phonological features are added at MS via Vocabulary insertion. Halle and Marantz claim that the MS level has its own principles and properties that can manipulate the hierarchy of the terminals (also called ‘morphemes’) that the Syntax passes onto MS and thus can create Syntax-Morphology mismatches. Such movements may include head to head movement (like auxiliary verbs moving to Tense), fusion of sister terminal nodes into one node (for instance, single affix denoting case and number), fission of an existing node into two and merging of structurally adjacent nodes. These movements happen prior to Vocabulary insertion.

Vocabulary items (VI) insert phonological features to the terminal nodes at MS. Each VI contains a set of phonological features and a set of grammatical and semantic features. The set of grammatical features in a VI is only a subset of matching features at the terminal node to which it inserts the phonological features (via the process of Vocabulary insertion), that is, the Vis are underspecified. VIs may compete for inserting their own set of phonological features to the terminals. However, the VI that contains the maximum number of matching features will insert its phonological features to the morphemes. This type of vocabulary insertion is what they called context-free vocabulary insertion. The other type of vocabulary insertion that Halle and Marantz discuss is context-dependent or conditioned allomorphy, which is determined by the stated insertion contexts and phonological features. As for instance, the past tense allomorphs /-t/, /-d/ and 0 have the same grammatical feature [+past], but differ in contextual features (as shown in (59)).

7.2 Embick and Noyer (2007) and Embick (2015)

Embick and Noyer (2007) and Embick (2015) claim early insertion of Roots. According to Embick and Noyer (2007: 301), the list of syntactic terminals consisting of Roots and the abstract morphemes are accessed in the syntactic derivation. Roots like √CAT, √OX or √SIT contain phonological features but no grammatical or syntactic features and
hence, they are merged with categorizers. Only phonological features inserted in the functional morphemes are subjected to Late Insertion at PF. The Roots such as \( \sqrt{\text{CAT}} \) or \( \sqrt{\text{SIT}} \) are memorized by the speakers of English and are stored in a list of syntactic terminals along with the abstract morphemes which are drawn from a universal feature inventory. The Roots and the abstract (functional) morphemes, as Embick and Noyer states, are primitives of the Syntax and they are “the ultimate elements out of which words, phrases and sentences are composed”. The following figure in (60) provides a schematic representation of the different lists accessed at different stages of the grammar (taken from Embick 2015: 20). The Roots (which are devoid of any synsem features) and the functional morphemes or terminals (with synsem features but no phonological features) are inserted early in the derivation and the phonological exponents (or vocabulary) are inserted late in the PF branch by Vocabulary Items (VI). The VIs contain synsem features and phonological forms. These phonological forms are inserted in functional terminals by a VI if the VI has features that are matches all or a subset of the features of the functional terminal (Subset Principle).

60) **LISTS ACCESSED STAGES OF THE DERIVATION**

Access to Syntactic Terminals

\[ \text{Access to} \quad \text{Syntactic Derivation} \]

Access to The Vocabulary

\[ \text{Access to} \quad \text{The Vocabulary} \]

Access to The Encyclopedia

\[ \text{Access to} \quad \text{Interpretation} \]

7.3 **Category of the Root**

As mentioned in Embick and Noyer (2007), Embick and Marantz (2008) and Embick (2015) a ROOT is categorized by adjoining the Root to the category-defining head by head-movement thus creating a complex head, as shown in figure (61) taken from Embick (2015). Similarly, figure (62) shows categorization of the Root \( \sqrt{\text{CAT}} \) by the nominalizer n.
8) The problem: dual nature of loi and legi

As already discussed –loi and –legi behave as post-positions in a P-Dative structure and as case suffixes in the DOC structures. Here, I would propose that the categorization of –loi and –legi happens post-syntactically depending on the structure (PP or DP) in which they are inserted. I will assume them to be phonological exponents inserted by VIs at distinct terminal nodes at PF. Vocabulary Insertion of –loi and –legi in a PP and in a DP are described as follows.

8.1 loi/legi insertion in a PP structure

Svenonius (2007, 2012) decomposes spatial adpositions into two categories, namely Path and Place, where Path dominates Place structurally (as shown in (63)).

I will adopt Svenonius’s (2007, 2012) structure above to derive the structure of PPs in Assamese. The ditransitive verbs like ‘send’, ‘give’, ‘write’ and so on set a Theme in motion towards the Goal argument (Location) and the Goal argument is the termination point of the trajectory. The Goal argument is place/ location that the Theme is located after travelling the path/ trajectory.
I will then adopt Late Insertion of phonological exponents by VIIs at PF in DM and propose that legi/ loi are phonological features that are inserted to the functional p-node at PF. The VI that inserts its exponent is assumed to contain [P, +Path] feature set matching with the feature matrix of p and hence can insert its phonological exponent to p.

8.2 Insertion of loi/legi in a DP structure

The dative case in Assamese is an inherent case and therefore its insertion is assumed to be a post spell-out process. The dative case itself can be decomposed into a set of features. The feature specification of the dative case is [+Object, -structural, +oblique]. This dissociated feature set is first inserted to the functional node n of the DP structure (derived following Bhattacharyya (1999)) before vocabulary insertion. After this feature set is inserted, the Vocabulary Item (in (65)) that contains features matching with the features in the node n will insert its phonological exponent to the node. The diagram in (66) provides a clear picture of late-insertion of case morphemes in the structure.

65) Vocabulary Item: [+object, -structural, -oblique] ↔ legi/ loi
66) ram-ok legi or ram-oloi
   Ram-Ø DAT Ram-DAT

9) Conclusion

Two significant conclusions can be drawn from the present study, one with relation to the nature of variation observed between the two dialects of Assamese and second, with relation to the syntax-morphology interface. First, variation between Eastern and Western dialect of Assamese is in the Vocabulary (or speaker’s knowledge) which determines the insertion of a phonological exponent in the PF component of Grammar. It can be claimed that EA dialect has a Vocabulary Item with the phonological exponent loi and the WA has a Vocabulary Item with the phonological exponent legi. The dialect specific vocabulary item will insert its phonological expression on specific terminals at in the morphological component of the PF branch. The study also provides a clear idea about the syntax-
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morphology interface. Insertion of dative case depends on the structure that the syntax passes on to the Morphological component.

References


More on Labeling: Merge with Percolation

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Abstract

To interpret the categorization (or ‘part-of-speech’) of a syntactic object (SO), conceptual notions of “labeling”, or the “labeling algorithms” are introduced in the literature of generative syntax (Chomsky 2005; Cecchetto & Donati 2010 among others). However, we argue that a revised Principle of Feature Percolation (hence FPP), in the spirit of Lieber (1980) and Cole, Hermon and Sung (1993), is an alternative way of categorizing linguistic items and it should be done at each merge. It is shown that s-selection features and categorial features (binary specification of [V] and [N]) already serve the purpose of labeling from lexical representations to phrasal representations, which demonstrate the process of categorization of Merge (X, Y) \{H \{X, Y\}\}. Data from English and Mandarin Chinese are examined so as to testify the minimalist treatment. We compare several approaches by which labeling can be done: (a) through merge (Chomsky 1995), (b) through movement / or minimal search (Chomsky 2013, Epstein et al. 2014, and Rizzi 2012) and (c) through probing (Cecchetto & Donati 2010). It is also demonstrated in this paper that empirically, a feature-percolation analysis saves not only the failure of minimal search in Merge (XP, YP) discussed in the literature (Chomsky 2013), but also the Merge (X, Y) problem (Cecchetto & Donati 2010). We also derive the constructions such as: VP Ellipsis, VP fronting…etc. Theoretically, this approach is well-motivated by the compositionality found in linguistic items, and it could be a more economical way of labeling. Empirically, more structures should be testified with this configuration and mechanism.

Key words: labeling, part-of-speech, categorization, syntactic operation, Projection Principle.

* This paper is accomplished during the supports of : Research Institute for the Humanities and Social Science, National Science Council (NSC 103-2811-H-002-012), and National Science Council’s Grant for Hiring Special Excellent Personal, by National Taiwan University. I am grateful for the help of Niina Zhang, Adam Cheng, Luthur Liu, Jonah Lin, Li-May Sung, David Pesetsky and the proofreader of this article Grainger Steele Lanneau III and Joelle Chevrier. This article has been presented in two conferences, including the Japanese Society for Language Sciences 18th Annual International Conference (JSLS-2016) at Tokyo University, Japan, and The Annual Meeting of Linguistic Society of New Zealand (LSN-2015), at University of Otago, New Zealand (oral). I am thankful for all the comments and suggestions given by the audience in these two occasions.
1. Introduction

1.1 Labeling on Merge

At the first stage of Minimalism (cf. also Chomsky 1995), labeling is a part of the definition of Merge. Categorization is naturally derived from the operation of Merge, the primitive structure building process, as in (1). The advantage of this approach is that it preserved the insight of Projection Principle, so that features of lexical item remain in the higher nodes. It also captures the idea of endocentric for syntactic elements, or even what is called “compositionality” of linguistic items.

\[(1) \text{Merge accompanies labeling}
\]
\[a. \text{Merge } (X, Y) \rightarrow \{Z \{X, Y\}\}, \text{ where } Z = X \text{ or } Y\]
\[b. \text{hit } (=Z)\]
\[\text{hit } (=X) \quad \text{John } (=Y)\]

\[(2) \text{Merge without labeling} \text{ }^{2}\]
\[\text{Merge } (X, Y) \rightarrow \{X, Y\}\]
\[\text{hit } (=X) \quad \text{John } (=Y)\]

However, the drawbacks are that: firstly, it is not clear whether new linguistic object (such as \(Z\) in (1)/\(3a\)) is a new SO or other combination of the daughter nodes \(3b\). Secondly, if this process yields newly-labeled objects in structure building, a violation of Inclusiveness Principle may be triggered. And if we must avoid this violation, \(3c\) is another possible alternative. In the case of \(3c\), the mother node is not another SO, but only the set of original daughter nodes. In order for this to work, it seems that labeling may be delayed until Spell-Out point where all the categories are determined all together. However, if that is so, we don’t know how this SO can undergo further Merge during structure building. All the operations in the derivation would lose syntactic units (constituency) to target on. We have to stop this discussion here, but further discussion of this option is given in section 2.3 of this paper.

\[(3) \text{a. Merge } (X,Y) \rightarrow \{Z \{X,Y\}\}\]
\[\text{b. Merge } (X,Y) \rightarrow \{? \{X,Y\}\}\]
\[\text{c. Merge } (X,Y) \rightarrow \{X.Y\}\]

1.2 Labeling by Minimal Probing

Except for the head-head merge discussed in the last section, head-phrase merge is also considered in the literature. Chomsky (2005) proposed two algorithms (4)(5) that govern the

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2 Chomsky (2013) argues that Merge \((X, Y)\) yields \(\{X, Y\}\) with no label projection or linear order, and independently of the character of \(X\) and \(Y\).

3 The question marked here indicates that the categorization is not yet determined, at least before the Spell-Out point.
phrase structure building, and developed a mechanism of minimal search.

(Chomsky 2005)

(4) In \( \{H, \alpha\} \), \( H \) a lexical item (LI), \( H \) is the label

(5) If \( \alpha \) is internally merged to \( \beta \) forming \( \{\alpha, \beta\} \), then the label of \( \beta \) is the label of \( \{\alpha, \beta\} \).

Example (4) means that the head should project, while (5) is designated for internal merge only. We can simply translate the algorithm (4) and (5) into the description of (6)(7), with a necessary filter (7) which makes the unlabeled item crashed. After Chomsky (2005), Cecchetto & Donati (2010) re-examined the two algorithms, and replace them with only one Probing Algorithm, so that interface filter (7) is not necessary.

(6) Labeling algorithm: The category created by Merge receives the label of the closest head.

(7) Labeling must be complete at the interfaces.

It is suggested by Chomsky (2013) that, for labeling, minimal computation restricts options to the results that has considerable empirical support. According to him, if Merge takes a head \( H \) and a phrase \( XP \) as its input, the label of the resulting SO can be determined un-ambiguously due to minimal search as in the following (8). However, the head-head Merge is left unaccounted again in his mechanism, since there is no “Merge with labeling” in this approach, in compare with (1) and (9).

(8) Labeling by minimal search: head-phrase merge

\[
\begin{align*}
\text{a. } & \text{Merge (H, XP) } \rightarrow \{H, XP\} \\
\text{b. } & \text{? } = H(\text{via minimal search}) \\
& H \quad \text{XP} \\
& \quad \triangle \\
& \quad \ldots X \ldots
\end{align*}
\]

(9) Labeling by minimal search: head-head merge

\[
\begin{align*}
\text{a. } & \text{Merge (X, Y) } \rightarrow \{X, Y\} \\
\text{b. } & \text{? } (\text{via minimal search}) \\
& X \quad Y
\end{align*}
\]

As mentioned by himself (Chomsky 2013), there is a case which cannot be saved through the minimal search. It is when the inputs of merge are two different phrasal categories, namely \( (XP \ YP) \). Chomsky (2013) provided two ways of solving the problem, namely labeling with movement (10), and labeling with feature sharing (11).

(10) *minimal-probing (i) movement solution

\[
\begin{align*}
\text{a. } & \text{Merge (XP, YP)} \\
\text{b. } & \text{movement} \\
\text{c. } & \text{[XP YP]} \\
\text{d. } & XP, \ldots [\_ t, YP] \\
\text{e. } & XP, \ldots [Y t, YP]
\end{align*}
\]
In (10), we assume that the labeling of the new object is not determined until movement occurs. The lower copy of XP is invisible to minimal search, the label of the only visible element YP counts as the label of the SO \{XP, YP\}. And Chomsky (2013) further suggested that this account provides a motivation for apparently unmotivated movements, too.

Although the way of thinking is clear, the detailed derivation of the part-of-speech is not yet mentioned in the latest generative literature. And it is still rather not concise, labeling is possibly related to (a) movement (Chomsky 2013; Rizzi 2012) (b) feature sharing as demonstrated in (11) (c) as an output constraint in Spell-Out or (d) probing of a functional head above the designated category. In that sense, the process of labeling is treated on a par with other syntactic operation, and can be too complicated.

(11) *minimal-probing (ii) feature-sharing solution
   a. Merge (XP, YP)
   b. feature sharing
   c. \[ XP[F] YP[F] \]
   d. \[ F XP[F] YP[F] \]

The organization of this paper is as the following: Section 2 explains both theoretical-internal and the theoretical-external (or empirical) motivations for the theory of labeling. Section 3 is dedicated to the mechanism we employed, and deal with the structure buildings of lexical items and sentences. Constructions like relative clauses, VP fronting, and VP ellipsis are under special consideration. Section 4 mentions the related residues that are worthy of discussing or need further researches. Section 5 concludes the article.

2. Categorization Motivated

2.1 Theoretical-Internal Considerations

2.1.1 Theory-Internal Considerations

A claim is widely accepted in the field of Distributed Morphology (hence DM) that lexical categories do not exist as primitives. Lexical items are in a certain sense compositional, as they are put together in the syntactic derivation by combining a categorizing, functional, head and a root. Roots have no grammatical category, but they can never appear ‘bare’; they must always be categorized by virtue of being in a local relationship with one of the category-defining functional heads, following the assumption in ((12)b), based on Embick (2010) and Marantz (1997):

(12) a. [Functional Structure [Root]]
   b. CATEGORIZATION ASSUMPTION: Roots cannot appear without being categorized; Roots are categorized by combining with category defining functional heads.

We agree in the respect that functional categories are important for the properties of their complements. But it may not be the case that the compositionality within the complements is nothing but blank. Empirical facts in 2.2.1, and its derivation in 3.1 will explain our idea on
the nature of the roots.

2.1.2 Syntax

It is easily observable that some words seem to belong together to the exclusion of other words, because they share certain phonological, semantic, morphological and especially distributional properties that are not shared by others. The idea that “lexical items behave similarly in various ways belong to the same category” is therefore, a reasonable assumption. The result is that linguists admit the classification (13), and they suggest that it should apply to phrases as well.

(13) a. Word categories: N, V, A, P
    c. Phrasal categories: NP, VP, AP, PP
    d. Content words vs. function words
    e. Lexical categories vs. functional categories

Furthermore, it is a convention for generative linguists to distinguish and decompose categories with feature combination 0. A two-binary-feature system helps to distinguish at least four types of categories. The value of [+/-N] feature is determined by its capability of taking NP complement (substantive). The categories with [+/-N] features can take NP objects. The value of [+/- V], on the other hand, depends on the possibility of being a predicate in a sentence (being predicative). The advantage of this feature compositional analysis of syntactic categories is that it allows the expression of cross-categorial similarities among syntactic categories. Natural classes can be formed in accordance with the feature specification, so that certain syntactic processes would classify nouns and adjectives together and other process would classify adjectives and verbs together.

    b. V = [-V, +N]             d. P = [-N, -V]

An issue emerged at this point is how the four-way distinction given in 0 captures the properties of functional categories. Literature does not help too much about this issue. Functional categories, such as D, v, T, and C alternate with lexical elements on the structure building. We may assume at this point that they have specific features to serve their c-selection needs. [+D], [+v], [+T], and [+C] are the features already available when structure is built.

2.2 Empirical Considerations

2.2.1 Empirical Considerations: Word Categories

Empirically, ‘Parts of Speech’ can mainly be observed in its distribution and can be realized on the morphological representation. We can also use syntactic means, such as conjugation and declension, to test their properties. The possible morphological evidences for categorization include: inflectional affixation (15) and derivational affixation (17)(18). Plural

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4 Since a two-feature system already predicts four-way distinctions (no under-specification of a feature is allowed). Unless it is necessary for the empirical facts, we don’t employ more features for the classification of syntactic items.
markers are assumed to attached to only the N [+N, -V] category, as in (15)a. The case in (15)b, however, shows that V [-N, +V] category can be affixed with the (subject-verb)-agreement marker, tense/aspectual marker, as well as voice marker. Finally, adjective [+N, +V] constituents are compatible with the comparative and the superlative formation, as in (15)c.

(15) a. book, books
   b. write, writes, wrote, written, writing
   c. tall, taller, tallest

Except for the inflectional morphemes, derivational affixes can also define the categorization of certain lexical items. For example, we can make the following general statements (16) concerning the suffix -ize, as illustrated in publicize, generalize, naturalize, computerize, etc. The verb-hood of any word suffixed with -ize is evidenced by the fact that it may be conjugated in the way described in (15)b.

(16) a. The suffix -ize turns a noun or adjective into a verb.
   b. The stem to which -ize can be suffixed is not a verb (as evidenced by the fact that it cannot be conjugated as such), but either an adjective or a noun.

We can also state generalizations about the possible categories of the stems to which endings may be affixed. For example, -ness is always attached to an adjective, -able to a verb, -like to a noun ...etc. Hence, English morphology provides strong evidence for the existence of different lexical categories like N, V, and A. Other similar affixes can be instantiated in the following (17) and (18). When verbs [+V, -N] are attached with -able morpheme, [-N] feature is replaced with [+N], and lead to a [+V, +N] (thus, adjective) category. When adjectives [+V, +N] are attached with -ness, [+V] is replaced with [-V] feature, and result in a [+N, -V] (nominal) category. With this observation, adjective forming morphemes (17) are assumed to provide [+N] feature, while the noun-forming ones are responsible for demotion of [V] feature and turning it to [-V].

(17) Adjective-forming morpheme [+N]: -able, -ous, -like, -ical
(18) Noun-forming morpheme [-V]: -ness, -ity, etc.

Other than analogy, the most obvious syntactic evidence for categorization is distribution. Words of the same class share the same distributional pattern. They exhibit mutual substitutability (19) or complementary distribution (20). The category of elements that can occur in the empty part of (19)a is wh-elements indicating constituent questions; the ones shown in the empty part of (19)b are verbal; the elements in the slot (19)c are nouns; and finally those in (19)d are adpositions.

(19) Mutual substitutability
   a. _____ you get lost?
   b. They should not _____ this X.
   c. They saw a _____.
   d. The book is right ____ the bed.
(20) Complementary Distribution
a. *I like the a girl that you kissed yesterday.
b. I like the one girl that you kissed yesterday.
c. *I like Dylan's this book.
d. *I like Dylan's a book.
e. I like John's one hat.
f. *I like John's the hat.
g. *I like the John's hat.
h. *I like John's these hats.
i. I like John's blue hat.

Two elements are said to be in complementary distribution if they appear in the same position and in different (never repeat) environments. Based on the facts shown in (20), one may reasonably conclude that expressions like John's, the, a, that, this, and some are members of the same category (called "Determiner"), whereas the numeral one and the adjective blue fall outside of this category.

Of course other evidence also can be found. We can state the following generalization about these words, given in (21): With iambic stress these words are verbs, whereas with trochaic stress they are nouns. The correctness of this generalization is supported by morphological and distributional evidence of the type just discussed in (15) and (19).

(21) permit, increase, decrease, transfer, torment, extract, abstract, etc.

2.2.2 Phrasal Categories

In the last subsection, we reviewed the empirical supports for the categorizations of lexical items, and it is the same principles that go with the phrasal categories. The distributional facts shown in (22) demonstrate the same distributional need for the categorization of lexical items (19).

(22) Distributional Evidence.
   a. I would like to ____. (VP)
   b. ____ arrived yesterday. (DP)
   c. They finally agreed on _____. (DP/VP)

Just like the case in lexical categories, morphological evidences are available for the definition of phrasal categories. One simple example is the possessive markers in (23), which marks NP elements. Only NP constituents can be suffixed by -'s.

(23) The possessive marker –'s:
   a. My father's friend has a coyote for a pet.
   b. The King of England's head is bald.
   c. The man over there's friend betrayed him.
2.3 Why not at the interface?

An alternative analysis for operations (like labeling) is to attribute it to the interface. At the generative modal, the point which serves as the merge of two interfaces (CI component and SM component) is the Spell-Out. “Constraint on the surface representation”, like OT, is exciting development in the generative tradition, but we find it not feasible for the phenomena we are dealing with.

(24) \{hit, Mary\} \rightarrow \{hit \{hit Mary\}\}

If we put off the determination of categories to the Spell-Out point (where the interface of PF and LF happens), the whole derivation (i.e. the operations of remerges, insertions, or replacements) is blind about the typology of SOs. We know that is not true, because derivations like VP fronting, VP ellipsis, and so on must target certain type of intermediate categories. What is good about the feature-based labeling mechanism is that it can solve the empirical realization of Merge (XP YP) as well as the Merge (H, YP).

3 Analysis

3.1 Proposal

It is proposed in this paper that the labeling mechanism can be simplified into a modified-“Feature Percolation Theory”, which can be applied on morphology as well as syntax.\(^5\) This approach is compatible with the feature account developed in generative tradition to capture the categorizations (Chomsky 1995, and Huang, Li, and Li 2009), as discussed (13)\(^0\) in section 2.1.2. It also preserve the insights of endocentric (as well as compositional) nature of SOs.

(25) **Feature Percolation Principle (FPP):**\(^6\)

a. Categorial features of the mother node and the features of the daughter nodes will be identical.

b. Feature percolation is a local operation.\(^7\)

c. If the features of two daughter node are diverse, feature competition occurs, and the mother node will have the simplest feature bundle of one of its daughter.

Percolation, a mechanism proposed earliest by Lieber (1980) and Williams (1981), copies features on one of the members of a syntactic construction (usually features of the head) to the node that immediately dominates both members. In other word, a structurally complex SO inherits the properties of its head. Later in Cole, Herman & Sung (1993), feature

\(^5\) In the recent development of DM, it is possible that the distinction between Morphology and Syntax is no longer so clear. And our proposal is compatible with the trend.

\(^6\) In an early version of FPP proposed by (Cole, Hermon, & Sung 1993), it is stated in the second part of the principle that “if the features of the daughter nodes conflict, the mother node will have the features of the head node”. However, we have no way to determine which one is the ‘head’ when two SOs merged. There would be a looking-ahead situation in the configuration of Merge (X, Y).

\(^7\) This condition is highly different from the Feature Percolation Condition proposed by Cole et. al (1993:110 (43)). For us, labeling of each node on the structure is strictly local, so that endocentric nature and Inclusiveness Principle are respected.
percolation is used to resolve several blocking effect of long distance logophors on their index determination. Person feature ([1st][2nd]...etc...) can percolate on the tree structure and predict the possible interpretations of this special type of anaphor ‘self’. Their discussion on Chinese and Korean logophors shows that person features can go up to the IP domain. If the NP₂ in [Spec CP] does not agree on person, the percolation would be blocked and another NP₁ in the higher domain cannot bind ‘self’ in the object position.

In this study we propose a different version of Feature Percolation Principle (25). According to the first principle of FPP(25)a, features pass from the daughter node to the mother node. Then the second principle, (25)b, states that features only pass between two mother-daughter nodes, and it derives by derivation. It makes the process more precise, yet not too powerful. An alternative is to limit the domain of percolation into certain maximal projection, so as to account for index of long distance reflexives. However, it is undesirable to mix the interpretation of categorization with the referential realization of anaphor, such as a feature percolation version of Binding Principles (cf. Cole, Hermon, and Sung (1993)). In the next section, we will start to derive (bottom-up) the categorization of each element merged on the tree by means of FPP (25).

### 3.2 Structure Building of the Analysis

In this section, I’d like to demonstrate the mechanism of our proposal, and the starting point is the composition of lexical items within DP. A feature-based approach (25) to the syntactic ‘part-of-speech’ can be demonstrated firstly by the morphological combination of the following lexical item in (26). The word ‘nominal’ is merged with the suffix ‘-ize’ and its [-N] feature, the simplest feature bundle, percolates to the intermediate node V [+V,-N]. The intermediate V element is then merged with the suffix ‘-ation’, to form its mother node ‘nominalization’ as N [-V, +N]. Our analysis predict the behavior of ‘nominal’ as A, ‘nominalize’ as V, and ‘nominalization’ as N in their distribution.

(26) Lexical domain: ‘nominalization’

```
N[-V, +N]
  V[+V,-N] -ation [+N,-V]
    Adj -ize [-N]
  nominal [+N, +V]
```

From NP to DP is a big gap for us because the first member of the functional elements should be introduced in our structure building. For the principle mentioned in (12), repeated here in (28), we can say that functional features should be available for the building of DP. Thus the set of elements illustrated in (27) is not only introduced, they can also win in the competition of labeling when they take lexical categories as complement. Here I have to note that the specification of [C] is also binary as [+/-Q].

(27) Functional features: [D][T], and [C].

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8 The inflectional- morphological differences between Chinese and Italian also help to distinguish the typological different behaviors on the blocking possibility.

9 For the feature specification of the functional features other than C, I leave it open at this moment. Only
(28) a. [Functional Structure [Root]]
b. CATEGORIZATION ASSUMPTION: Roots cannot appear without being categorized;
Roots are categorized by combining with category defining functional heads.

(29) a. specification of DP. b.

\[ \text{DP} \rightarrow \text{V} \]

\[ \text{D} \rightarrow \text{NP}_{[V, +N]} \]

\[ \text{the books} \rightarrow \text{the books} \]

Lieber (1980) and Williams (1981) used to have an example. The English verb ‘stand’ is a
strong verb, which can be indicated by assigning the diacritic feature [+ablaut] to this verb.
The complex verb ‘understand’ also is a strong verb. This can be accounted for if one
assumes that the feature [ +ablaut] will percolate up to the node dominating
both with and stand, as illustrated below:

(30) a. b. (Lieber 1980 & Williams 1981)

\[ \text{V} \rightarrow \text{understand} [ +abl] \]

\[ \text{P} \rightarrow \text{V} \]

A schematic representation of a sentence building can be represented as in (31). In the verbal
domain, two Internal Merge have taken place: V had adjoined to little v, and the subject DP
has been internally merged to the specifier of TP. Little v head merged to V forming a verbal
complex. This is why v does not actually change the labeling of VP, even feature of
functional element [v] is available to merge (27). Here we maintain the feature specification
of verb phrase [ +V, -N] for the lack of empirical evidence for the realization of [v].

(31) Sentential domain: ‘John hit Mary’.

\[ \text{TP} \rightarrow \text{DP} \rightarrow \text{vP} \rightarrow \text{VP} \rightarrow \text{DP} \rightarrow \text{T'} \rightarrow \text{T} \rightarrow \text{John} \rightarrow \text{hit} \rightarrow \text{Mary} \]

when it is needed by the empirical facts, should we specify them as either plus or minus (binary).
Empirical evidence shows that Tense marking may appear in some position higher than vP. It is usually admit that T is then the head of a sentence (or a proposition) (cf. also Adger 2003). The merge of TP is important in that it showed a variation on the typology of labeling. TP should be labeled as sentential element rather than a DP constituent of subject. (32) indicates that feature of T [+T], and its function on the structure.

(32) Sentential domain: the label of propositions.

```
TP\[T\]
\r
DP_{[D]} \rightarrow T'_{[T]}
\r
T_{[T]} \rightarrow vP_{[N,-v]}
```

Except for the derivational algorithm mentioned above, one representational filter (33) must exist to make sure that there are no un-categorized lexical objects in a construction. Our filter would serve the same function, and in the same spirit of (12) and (7).

(33) At the Spell-Out point (check out point for syntactic items), all the node in a grammatical tree structure should be labeled

To solve the puzzle (of Merge (XP, YP)) proposed by Chomsky (2013), we can provide a derivation for a wh-construe, as demonstrated in the following (34). The first step is to merge the result of (31)(32) with a Complementiser carrying [Q] feature.

(34) a. Step 1. This is a structure building beyond TP. Merge of C head, which select a TP complement.

```
? \rightarrow not yet determined

C_{[-Q]} \rightarrow TP_{[T]}
\r
\rightarrow \ldots
```

b. Step 2.

```
CP_{[-Q]} \rightarrow feature of C head percolated onto its XP

C_{[-Q]} \rightarrow TP_{[T]}
\r
\rightarrow \ldots
```

a. Step 3

```
CP_{[-Q]} \rightarrow Spell-Out

C_{[+Q]} \rightarrow TP_{[T]}
\r
\rightarrow \ldots
```
3.3 Derivation of more Constructions

As we have discussed in the last section, the categorial result of wh-construe is finalized by the Merge (DP-CP) in the final step of (34). The empty TP complement makes the CP stranded with simplest feature combination on its head. If a DP-CP merge happens in the full-fledged CP construction, the story can be the opposite. It is observed in the relative construction, as shown in (35).

(35) The man, I like ti.

Relative clause in English is external headed, which means that one of the constituent in the TP of (35) is remerged as a head modified by the (latter) gapped TP. Here, when Merge (DP, CP) occurs, CP is still full-fledged, and the obvious complexity renders the fail of its [Q]
feature percolation. The [D] feature is then relatively simpler for the feature competition\(^{10}\). It results in the realization of DP on the top of the tree, in contrast with the clausal nature in \(wh\)-construe.

The second case under consideration is the VP Fronting construe. Examples are given in (36) by Adger (2003:161). In these examples, Tense feature may be marked on a position outside the VP as well as on the verb itself. If there is no modal, the sentence is simple-tensed sentence, then the tensed VP cannot be fronted, as you can see from (36)c. Instead, an untensed verb from is used in the fronted VP(36)d and (36)b, and tense marking appears on the verb \(do\), which is stranded in the same position that modal would be.

(36) a. *Enkidu do freed animals. 
   b. Enkidu said \([he would free the animals] and [[free the animals] he will[...]]\). 
   c. *Enkidu said \([he freed the animals] and \{freed the animals\} he did\). 
   d. Enkidu said \([he freed the animals] and [[free the animals] he did[...]]\).

The derivation above VP is illustrated in the following (37). When the inputs are VP and T, thus Merge(VP, T), the feature [T] percolates onto the ?\(_1\) projection, which yield a TP. Then the subject is merged in according with the principles mentioned in the last section (31). What is special about the labeling of this construction is that it provides a case of Merge (VP, TP). Which one’s feature bundle get its way to the top? Between the two candidates for percolation, TP seems to be more complicated. According to the third rule of FPP (25) (mentioned in 3.1), \([+V, -N]\) of VP wins the competition, and is to be realized on \(?P_2\). However, if we consider the site of base-generated VP as empty, the result is the other way around. [T] feature wins and get to go upward. Given the fact that the fronted VP carries no Tense information as is shown in the discussion of (36), for a proposition needs the anchoring of tense information, we know that [T] feature percolation is available to ensure the correct result. Thus [T] of TP percolates onto the maximal projection and realized it as a finite CP.

(37)

\[
\begin{array}{c}
\text{free the animal} \\
\text{he} \\
\text{did[TP]} \\
\text{\(2\)} \\
\text{\(4\)} \\
\text{\(<\text{freed the animals}>\)} \\
\end{array}
\]

\[
\text{\(\rightarrow \text{not yet determined}\)} \\
\text{\(\rightarrow \text{realized as TP}_{[T]}\)} \\
\text{\([T] \text{ feature percolated, and surfaced as TP.}\)}
\]

Again the derivation of the whole VP fronting construe is given in (38). The theoretical implication about the analysis of VP fronting is that, feature bundles of the fronted (or Spell-out) constituents are erased immediately after the remerge (or Spell-out). The structure has to be light at the bottom, in order to ensure the percolation of the correct feature.

\(^{10}\) The idea here is different from Chomsky (2013)'s labeling by minimal search.
The final case under special consideration is the VP Ellipsis (Adger 2003:162), as the examples given in (39). What is filled in (38) is just the bare VP, with no tense marking. Here we need to note that PF deletion applies after all the derivation (after Spell-Out point), operations such as internal merges and replacement has to happen way before that. So when the percolation happens during the core syntax, VP is still visible.

(39) a. Gilgamesh loved Ishtar and Enkidu did […] too.
   b. Gilgamesh fears death and Shamash does […] as well.

(40) PF component

The discussion here seems to suggest that derivation could go wrong in this construction. However, the deletion domain of VPE (40) happens to overlap with the lower Spell-out domain (namely VP)\(^{11}\). So the [T] feature percolate onto TP as well as IP, not because VP is PF deleted and lighten the structure under TP, but because VP is spelt out as a phase domain. Other realizations of categorial features remain the same with the simple declarative sentences discussed in 3.2.

3.4 Headness

It is not a new idea that syntactic items are headed. When merge happens, the two merged elements don’t weight the same for the combination. However, in the generative tradition, we have only 2 criteria to capture the intuitions of heading and to pick out heads (Adger 2003:76)

\(^{11}\) According to Chomsky (1995, and 2005), the Spell-out domain is the complement of phase heads -- C and v. So VP and IP are spelt out cyclically.
(41). 

**Criteria for head** (Adger 2003:76)

a. The head of a constituent condition the distribution of the constituent of which it is a part.

b. The head of a constituent is the most important element of the constituent semantically.

This criterion (41) is vague in several respects. For example, the definition of “importance” is not precise enough. Therefore, Adgar (2003) further elaborate the idea of ‘important’ into the explanation as in (42). Another approach is to stipulate the direction of the headness. Languages are parameterized as either right or left headed; and for each language, the headness has to be consistent among all phrasal categories. This principle can be a stipulation since it is not easy to explain adequately the reasons for syntactic headness.

(42) a. semantically important
   b. determine its distribution
   c. determine the agreement relation (for nominals)

In generative morphology, a right-hand rule specifies that the right-most morpheme in a morphological structure is always the head. It is considered broadly general and a universal principle of morphology. Recently, Kayne (1994) has reduced the X-bar theory to a single axiom (Linear Corresponding Axiom). For him, languages are universally left-headed, it is the left-hand element that provides the primary syntactic and/or semantic information. Another breakthrough was Bare Phrase Structure theory, which does not distinguish left from right of heading.

However, the projection of syntactic information from which element onto the output word is understood in our study as feature percolation. The direction of the head is not distinctive\(^\text{12}\), so that it is no longer a problem for our theory. Now we can use the simplicity of the feature bundles to define the node that “project”. There is no need for other independent stipulated principles since Features-specification is already employed in the categorization for SOs.

4 Residual Issues

4.1 Mislable\(^\text{13}\)

In this section, we should start to think about the unsolved problem as well as some residues of our analysis. One of the issues is the ambiguity of labeling, or called mislabel. Constructions like these reflect the cross-categorial parallelism between DP and CP in some sense. English Gerund (43) has long been treated as a kind of nominalization, where clausal constituent grammatically functions as a DP (44). This kind of empirical fact, therefore, serves as a positive evidence for the label of functional features, such as [D]. The morphological realization –ing on the seemingly verbal element *swim* provides the [D]

\(^{12}\) In this respect, our theory is compatible with the theory of Bare Phrase.

\(^{13}\) It is noted by Cecchetto & Donati (2010) that Binding Principle C effect is a result of mislabeling.
feature. A final merge of a [D] feature transfer the verbal element into a nominal, which result in its behaviors as DP.

(43) \[^{\text{VP}}_{\text{DP}}\text{Swimming}\] is fun.
(44) \([\text{DP} \text{John’s} \ [\text{NP} \text{[NP analysis of the problem]]}]\)

Another occurrence of the ambiguous label is the Japanese headless relative clause (45). The word order of this example is the same with the declarative sentence of Japanese. There is no Accusative marking on the relativized nominal, which can serve the identification of a DP object in (45). But the interpretation and syntactic function of the whole utterance is unambiguously the same with \(\text{hon}\) ‘book’, a nominal.

(45) Japanese headless relative clause
\begin{align*}
\text{kono-hon-wa watashi-ga kata-no ja-nai} \\
\text{this-booTOP I-NOM bought-NO BE-NOT}
\end{align*}
‘This book is not the one which I bought.’

Furthermore, there are more of similar cases in Chinese dialects. Chinese is special in that the categories of Adjective and Verbs are not distinguishable. The (a) example in (46) is from Mandarin, while the (b) example is Southern-Min dialect. Adjectives can serve as the main predicate (46), just like verbal elements do\(^\text{14}\). The predicative adjective of (46)a can also undergo the typical test for verbal element – namely the A-not-A morphological formation of verb (47).

(46) a. \(\text{她很[A美]}\) b. \(\text{伊真水}\)
\begin{align*}
\text{ta hen mei} & \quad \text{yi jin shi} \\
\text{she DEG beautiful} & \quad \text{she DEG beautiful} \\
\text{‘She is very beautiful’} & \quad \text{‘She is very beautiful’}
\end{align*}

(47) \(\text{她美不美?}\) (Mandarin)
\begin{align*}
\text{ta mei-bu-mei} & \\
\text{she beautiful.not.beautiful} & \\
\text{‘Is she beautiful?’}
\end{align*}

However, the most interesting case for our theory of labeling is the example (48). Here \(\text{水shui}\) ‘beautiful’ is the adjective predicate mentioned in (46)b, but it functions as the complement of possessive verb \(\text{有u}\) ‘have’ in (48). Similar patterns can be found across languages (49). For something to be possessed, it should be understood as a nominal, rather than an adjectival. It is reasonable to assume that \(\text{水shui}\) has undergone nominalization, too. We would argue for a D layer projected under the main predicate \(\text{有u}\) ‘have’, and above the nominalized \(\text{水shui}\) ‘beauty’.

\(^{14}\) Since we do distinguish V \([+V,-N]\) from ADJ \([+V,+N]\), and they share the feature specification related to predicate function \([+V]\). There is no problem at this point.
(48) 伊有 [N/V/N/V 水] [Southern Min]
   yi u shui
   she have beautiful/beauty
   ‘She is beautiful.’

(49) a. ina da tsawo [Hausa language]
   1SG have beauty
   ‘I am beautiful.’

   b. oi na mai aonega-mu [Motu language]
   2SG NA have/ with wisdom-2SG.GEN
   ‘you are wise’ (from Wetzer 1996)

If we are on the right track, the nominalization cases in this section suggest a D-layer above the verbal or adjectival elements. They are not and should not be mislabeling. Changes on the categories are just to introduce a new functional head in the structure building. As for whether it’s always nominalization in natural language, but not verbalization, nor adjectivization? Is there any reason for the asymmetry? We expect further studies specifically on this issue.

4.2 The Status of ADJ and ADV

The second remaining question is how to define the category of adjectives or adverbs. It seems that the two categories are problematic for the approach of defining ‘part-of-speech’ (as mentioned in 2.1.2). Attempts were made to offer a categorial specification of adjectives in terms of binary categorial features [+/- N/V] (49). Recently, Baker (2003) has also emphasized that the standard view of categories is under-developed, and leaves linguists ill-equipped to do typological work of categorization. However, to my knowledge, (49) has nothing to say about adverbs: from this perspective are adverbs not defined as a lexical category?

(49) a. [+N, -V] = noun
    b. [-N, +V] = verb
    c. [+N, +V] = adjective
    d. [-N, -V] = adposition

Baker (2003) suggested that only the first three categories (49) constitute universal lexical categories, the forth one being functional. These categories can be defined by their grammatical functions as follows: nouns have a referential index, verbs have specifiers/subjects, and adjectives basically lack both these properties. Nothing is said, once again, concerning the characterization of adverbs.

The issue could be bigger that do we have to distinguish adjectives from adverbs? Are they part of the same category? Looking carefully at the distribution of adjectives and adverbs, there is a great deal of overlap between them. The similarities between adjectives and adverbs are listed in the following:
More on Labeling: Merge with Percolation

(50)  
a. Feature definition: ADJ [+V, +N], but nothing mentioned about adverbs.  
b. Semantics: they both are used to attribute properties onto certain subject.  
c. Distribution: ADV and ADJ are in complementary distribution.  
d. Morphology: they both can be modified by “very”, and they both take “-ly” suffix in English. In Chinese, suffix “-de” can be added onto both adjectives and adverbs.

Adverbs typically take -ly; however, there are a number of clear adjectives that take this suffix, too. (ex. The friendly cub). Both ADJ and ADV can be modified by the word ‘very’, and they both have the same basic function – to attribute properties to the item they modify. In fact, the only major distinction between them is syntactic: Adjectives appear inside NPs, while adverbs appear elsewhere. This can be said to have a complementary distribution. When two elements are in complementary distribution linguistically, we normally think of them as variants of the same basic category. We might extend this analysis to ‘parts-of-speech’ by assuming one “super-category” labeled “A” that has two sub categories in it. The feature specification for “A” (including ADJ and ADV) remains as [+V, +N]. And the category A might provide a better analysis and might better motivated scientifically.

4.3 Split Categories

There is a bunch of literatures on the split of syntactic categories, as listed in the following (51). They convincingly show that the periphery of certain XP should be split into several functional projections (for functional elements). However, just like the nature of the Hierarchy of Projection, we allow “structure building” to be alternated between functional projections and lexical ones, but not split ones. There is no possible way for a labeling theory to account for split categories, either. So we may have to say that for the economy of maximal projections, the solution for split categories is awaiting for further studies.

(51)  
a. The split IP hypothesis (Pollock 1989, Cinque 2002, etc.)  
b. The split DP hypothesis (Li 1999, Longobardi 1994, etc.)  
c. The split CP hypothesis (Rizzi 1997, Nishigauchi 1998, etc.)  
d. The VP Shell hypothesis (Larson 1988, etc.)

5. Conclusion

Syntactic categorization is the basic assumption for most of the syntactic operation, and it is also observed in many syntactic phenomena. The mechanism of labeling (categorization) has undergone a big change after Chomsky’s (2013) revolutionary proposal about labeling. In this paper, a novel alternative (to Merge (X,Y) → {X,Y}) is proposed by means of the readily-existed Principle of Feature Percolation (FPP). It is demonstrated in this study that FPP can derive the label of all elements in the structure building process from lexicon to proposition.
References

1. Introduction

Typical Sluicing involves wh-movement to Spec of CP, followed by TP-ellipsis (Ross 1969). The relevant examples are provided below:

(1) a. They studied a Balkan language, but I don’t know which_{TP} [they studied_{TP}].  
    b. They attended a lecture on a Balkan language, but I don’t know which_{TP} [they attended a lecture about_{TP}].

However, VP-ellipsis in the same environment is severely degraded (Lasnik 2001).

(2) a. ?? They studied a Balkan language, but I don’t know which_{TP} [they did].  
    b. * They attended a lecture on a Balkan language, but I don’t know which_{TP} [they did].

Merchant (2008) suggests MaxElide in order to explain the ungrammaticality of the examples like (2).

(3) MaxElide

Let XP be an elided constituent containing an A'-trace. Let YP be a possible target for deletion. YP must not properly contain XP (XP \not\subset YP).

MaxElide is refer to the phenomenon that deletion of the smaller constituent leads to ungrammaticality when the larger constituent can be deleted. In this vein, it correctly predicts that VP-ellipsis in (2a-b) are degraded because the biggest elidable element is TP but what is elided is the smaller constituent, VP. Considering the examples like (2), we can assume that there is general ban on wh-extraction out of VP ellipsis sites. However, such an assumption is too strong, as shown by the following examples.

(4) a. I know what I LIKE and what I DON’T <like t>.  
    b. I know which books she READ, and which she DIDN’T <read t>  
    c. What VP Ellipsis CAN do, and what it CAN’T.  

    (Johnson 2001)

(5) a. GREEK, you should take; DUTCH, you shouldn’t <take t>.  
    b. I know which books ABBY read, and which ones BEN did <read t>  

    (Merchant 2008: 30)
The difference between (4)-(5) and (2) is the presence in the former of an element in the elided clause which contrasts with some element in the antecedent clause. This behavior follows from the widely-accepted ideas that contrasting material cannot be elided, hence no longer constituent will be a possible target for ellipsis. Simply put, it seems that some kind of contrast is required in the cases where VP ellipsis is allowed. When such contrast is absent, as in (2), VP ellipsis is not permissible (Merchant 2008). A number of recent articles have analyzed the interaction between MaxElide and contrastive focus (e.g., Lasnik and Park 2013, Griffiths and Liptak 2014, among others). Before we provide an analysis, we will first consider Lasnik and Park’s (2013) analysis on MaxElide.

2. Previous analyses
2.1 Lasnik and Park (2013)

As Lasnik and Park (2013) observed, unfortunately, MaxElide makes an incorrect prediction about examples like (6) and (7), where the contrasting material occurs outside a VP ellipsis site. As mentioned before, no larger element will be a possible target for deletion in this case. As a result, MaxElide doesn’t apply and VP ellipsis is not blocked. Contrary to the prediction, VP ellipsis sentences are ungrammatical as in (6) and (7).

(6) *ABBY wants to hire someone who speaks a Balkan language, but I don’t know what kind of language [VP want to hire someone who speaks t].
(7) *It DID appear that a certain senator had resigned, but which senator [VP appear that t resigned] is now hush-hushed.

(Lasnik and Park 2013 (16) & (17))

Furthermore, MaxElide cannot account for the acceptability of the following examples:

(8) *ABBY said they heard about a Balkan language, but I don’t know what kind of language [VP say they heard about t].
(9) *ABBY heard a lecture about a Balkan language, but I don’t know what kind of language [VP hear a lecture about t].

The examples such as (8) and (9) do not violate locality nor MaxElide, these would be predicted to be fine, contrary to fact. Under this environment, the domain of application of MaxElide is troublesome in accounting for these examples.

Lasnik and Park (2013) put forward an analysis suggesting that legitimate wh-extraction out of an elided VP should be analyzed as undergoing A-movement first before making additional A’-movements. As mentioned before, Merchant’s formulation in (3) is that an elided VP constituent does not contain an A’-trace. In other words, it can hold an A-trace within it. In this regard, the gist of Lasnik and Park’s analysis is that the first step of movement out of an elided VP should be an instance of A-movement. In doing so, the examples (4), repeated as (10), are acceptable because it involves an initial case of A-movement.

(10) a. I know what I LIKE and what I DON’t <like t>.
   b. I know which books she READ, and which she DIDN’T <read t>
They argue that not the VP but the category immediately dominating VP, that is, vP can be a parallelism domain for ellipsis. As in ellipsis clause, the wh-expression moving from the elided VP leaves an intermediate trace its periphery, as in (11a), and also in the antecedent clause a correlate expression takes scope at the periphery of VP, as in (11b).

(11) a. [ellipsis clause …. A t [vP(ellided) x t y]]

b. [antecedent clause …. [vP t [vP x f(B) y]]]

As illustrated in (11), this can structurally parallel in terms of the vP domain. In so doing, it can safely satisfy the parallelism condition on ellipsis (see Lasnik and Park 2013 for further discussion).

Parallel reasoning applies to the example in (12). The proposal that when extraction takes place out of elided VP, it has to leave a variable at its periphery as presented below. This analysis can account for all the relevant data such as (12).

(12) *They said they heard about a Balkan language, but I don’t know which Balkan language they did [vP t [vP say [CP they heard about t]]].

(Lasnik and Park 2013: 29)

The intervening embedded CP prevents the intermediate trace at the matrix Spec of vP position from being analyzed as the head of an A-chain. This induces degradeness of (12).

It seems that there is the requirement for contrastive focus outside an elided VP at some point. According to Merchant (2008), contrastive focus falls on a certain expression such as the subject DP, the auxiliary verb and the sentential negation. If contrast focus were removed in the sentences, the resulting VP ellipsis sentences become degraded substantially, as shown in (13) and (14). This is the appositive antecedent-contained deletion (ACD) construction.

(13) a. Dulles suspected Philby, who JOHN did not [vP suspect t]
b. Dulles suspected Philby, who JOHN did [vP suspect t], as well.

(Lasnik and Park 2013: 31)

(14) #a. Dulles suspected Philby, who John did not [vP suspect t]
#b. Dulles suspected Philby, who John did [vP suspect t], as well.

Let us consider more data such as (15) and (16). As Merchant (2008) said, the auxiliary verb can bear contrastive focus. Given the observation presented so far, the contrast is easily predictable, as follows:

(15) a. ?Dulles DOES praise Philby, who1 he DID [vP praise t] as well.
b. ? You SHOULD praise Philby, who1 you surely WILL [vP praise t].

(Lasnik and Park 2013: 34 & 35)

(16) a. # Dulles does praise Philby, who1 he did [vP praise t] as well.
b. # You should praise Philby, who1 you surely will [vP praise t].

And similarly when we remove contrastive focus in (15), these sentences become pretty degraded. We can safely conclude that an instance of A-movement is responsible for the
presence of contrastive focus outside of an elided VP, as argued by Lasnik and Park (2013). We will argue in the next section that this direction is on the right track.

2.2 Griffiths (2017)

Recently, Griffiths (2017) claims that MaxElide under- and overgenerates VP ellipsis constructions. He claims that MaxElide constraints are sometimes ruling out acceptable sentences and ruling in unacceptable sentences. In this sense, Griffiths provides the following set of data directly cited from Schuyler (2001).

(17) a. *We heard that [John will kiss someone], but we don’t know [WHO₁ he will [kiss₁]]
   b. *I know WHO John likes, but not WHAT₁ he does [like₁].
(18) *We know that John kissed a girl, but we don’t yet know [WHICH girl₁] he did [kiss₁]
(19) * I think you should adopt ONE of these puppies, but I don’t know [WHICH one₁] you should [adopt₁].

(Schuyler 2001: 27)

As noted by Griffiths, MaxElide incorrectly predicts that these examples (17-19) would be fine because smaller constituent is only possible target for deletion. He says that MaxElide overgenerates VP ellipsis here. However, we should point out the fact that the inappropriate dataset is testify to failure of MaxElide. In other words, irrelevant examples to MaxElide are given in his study. According to Rooth (1992), a relation of appropriate contrast should be obtained and we adopt Rooth’ notion. As illustrated in (17), an A’-moved item itself cannot bear a focus. Also, NP restrictor should get a focus instead of a wh-element, as in (18)-(19). It seems that the notion of Appropriate Contrast is not established. Crucially, the focal status of the element affects acceptability which is unrelated with MaxElide constraint.

Let us consider Griffiths’ main argument. Griffiths (2017) suggests a prerequisite for VP ellipsis as follows: The λ-binder of the rebound variable asymmetrically c-commands an F-marked item at LF. He said that sentences that fit the LF schema in (20) are acceptable.

(20) …. [ λx … [ … Y₁… [XP …. x … ]] ] ] … intervention focus

The example (21) is acceptable because it fits LF schema as in (20). In other words, the NP restrictor of the A’-moved item, i.e., Boy, is focused.

(21) I know which GIRL he kissed, but I don't know [which BOY]₁ [TP he did [kiss₁]].

If the condition in (20) is not satisfied, the sentences become unacceptable, as shown in below (17-19 are repeated as 22-24).

(22) a. *We heard that [John will kiss someone], but we don’t know [WHO₁ he will [kiss₁]]
   b. *I know WHO John likes, but not WHAT₁ he does [like₁].
(23) *We know that John kissed a girl, but we don’t yet know [WHICH girl₁] he did [kiss₁].
(24) * I think you should adopt ONE of these puppies, but I don’t know [WHICH one₁] you should [adopt₁].

Griffiths suggests other unacceptable cases. If the sentence fits LF schema as in (25), the
sentences become unacceptable.

(25) * ...[ YF .... [ λx .... [ NP/N' .... x ... ]] ] ... superordinate focus

In the case of sentences that fit the ‘superordinate focus’ schema, the results are bad, as it contains an F-marked element outside of rebound phrase. This assumption can apply to the following examples:

(26) a. *Sue KNOWS the girl {who} Joe kissed, but she doesn’t RESPECT the girl {who} he did [kiss t].
   b. *Sometimes he’s DIFFICULT to please, but most of the time he’s EAST [OP1 to [please t]].
   c. *John LIKES Beth’s boyfriend, but Pete HATES [Beth’s [t-boyfriend].

(Griffiths 2017: 28)

We can see that contrastive focus outside a moved element is a culprit for the unacceptability of the sentences in (26).

To summarize: The contrasting material or contrastive focus on the head of the moved wh-phrase can occur outside a VP-ellipsis site. The presence of a contrastive focus on the path to a moved wh-phrase is required for VP-ellipsis.

Let us consider another set of examples for Griffiths (2017). In the sense of MaxElide, there are cases where it is violated. It should be pointed out that, because there are two elidable VPs in (27) sentences, the acceptability of (27) cannot be captured by MaxElide, as smaller VP ellipsis is observed.

(27) a. I know who JO thinks he’ll kiss and also who BO [thinks he will [kiss t]].
   b. I know who JO’s likely to kiss and also who POLLY’s likely to [kiss t].
   c. I know who BILL hopes to kiss and also who BOB [hopes to [kiss t]].
   d. I know who JOHN wants her to kiss and also who BILL [wants to [kiss t]].

(Griffiths 2017: 26)

We have shown that although Griffiths’ analysis is theoretically interesting and desirable in that it attempts to account for the distribution of acceptability, it faces some problems. In this study, we will deal with some of the relevant data such as (27) can be accounted for only if we assume that these sentences involve an initial step of A-movement (Lasnik and Park 2013).

3. Towards an analysis

Considering Griffiths’ examples in (27), the question is whether it is necessary to revise Lasnik and Park’s (2013) notion of MaxElide. Here we attempt to accommodate Griffiths’ examples in (27) by keeping up with Lasnik and Park’s reformulation of MaxElide. In means that we hold on to the analysis of the movement to the periphery of the VP as an example of A-movement.

To argue how this assumption works, let us consider some related phenomenon. There is another comparable construction involving Pseudogapping or Object Shift, as noted by Johnson (2001). In this line of analysis, we observe that (27) examples are assimilated to (28),
where there are cases where A-movement out complex kind of VP is possible (Johnson 2001). Interestingly, the evidence from examples in (28) shows that extraction out of elided complex VP can be a kind of A-movement/A-scrambling.

(28) a. ?While I wouldn’t like him to eat cookies, I would Δ fruit.
   b. ?While I think you need to examine yourself, you don’t Δ anyone else.
   c. While Truman doesn’t want to visit every city, he does Δ Barcelona.

(Johnson 2001: 83)

Johnson argues that in these cases, VP ellipsis is fed by long-distance A-scrambling. Furthermore, there is another occasion which is suggested by Merchant (2008). He said that it is possible to extract out of complex VP containing the embedded finite clause when the matrix and the embedded subject, i.e., Beth and she, can be co-indexed.

(29) ABBY₁ said she₁ took GREEK, but I don’t remember what language BETH₂ did [say she₂ took].

(Merchant 2008: 31f)

Notably the movement out of the complex VP must be A-movement/A-scrambling, as shown by the parallelism between (27) (repeated in 30) and (31).

(30) a. I know who JO thinks he’ll kiss and also who₁ BO [thinks he will [kiss₁]].
   b. I know who JO’s likely to kiss and also who₁ POLLY[’s likely to [kiss₁]].
   c. I know who BILL hopes to kiss and also who₁ BOB [hopes to [kiss₁]].
   d. I know who JOHN wants her to kiss and also who₁ BILL [wants to [kiss₁]].

(Griffiths 2017: 26)

As we predicted, the higher/larger VP constituent is also possible target for ellipsis, as in (31). Both sentences are totally acceptable.

(31) a. I know who JO thinks he’ll kiss and also who₁ BO does.
   b. I know who JO’s likely to kiss and also who₁ POLLY does
   c. I know who BILL hopes to kiss and also who₁ BOB does.
   d. I know who JOHN wants her to kiss and also who₁ BILL does.

In addition, the following set of data also supports the claim that A-movement/A-scrambling is required for extraction out of complex VP. As noted by Johnson (2001), A-scrambling is restricted to certain kinds of clauses: it is blocked from adjunct clauses, and from adjunct infinitival TPs, as in (32a-c).

(32) a. *I know who JOHN stopped to ask and also who₁ BILL stopped to [ask₁].
   b. *JOHN stopped to ask for directions, and BILL also stopped to [ask for directions].
   c. *I don’t know which puppy you SHOULD agree to adopt, but I know [which one] you should NOT agree to [adopt₁].

(Griffith 2017: fn. 9)

The parallel acceptability can be observed. In these cases, the complex VP constituent in (32)
cannot be elided, as shown in (33).

(33) a. *I know who JOHN stopped to ask and also who BILL did.
    b. *JOHN stopped to ask for directions, and BILL also did.
    c. *I don’t know which puppy you SHOULD agree to adopt, but I know [which one] you should NOT.

Given the observation so far, we check that the extraction out of the complex VP also requires A-movement. To wit, let us consider the representation of (34) and (35). We claim that VP ellipsis sentences that fit one of the schema in (34) are acceptable, as in (27), whereas those that fit the schema in (35) are unacceptable. The requirement in (34) amounts to saying that the element moving from the elided (simple or complex) VP to the periphery of the VP count as a case of A-movement. After that, we can observe the additional steps of A'-movement, as schematically represented below:

(34) a. \[\text{ellipsis clause (complex VP) ... } X_F \ldots [vP \ t_1 [\text{who} \ {\text{who}_2 \ [vP_2 t_1]]]} \]
    \[A'-\text{movement} + A-\text{movement} \]
    b. \[\text{ellipsis clause (simple VP) ... } X_i \ldots [vP \ t_1 [\text{who} \ t_1]] \]
    \[A'-\text{movement} + A-\text{movement} \] (Lasnik and Park 2013)

(35) \[\ldots [\text{ellipsis clause ... } X_F \ldots [vP \ t_1 [\text{who} \ t_1]]] \]
    \[wh-\text{movement} + A'-\text{movement} \]

The assumption of (35) leads us to say that the extraction out of an elided VP as an instance of A'-movement is responsible for the ungrammaticality like (32a), repeated as (36).

(36) *I know who JOHN stopped to ask and also who BILL stopped to [ask \ t_1]

In sum, the important purpose of current study is that the initial step of movement out of the complex VP involves A-movement, as suggested by Lasnik and Park (2013) for a similar proposal.

4. Conclusion

As dictated by MaxElide, movement to the periphery of the VP to be elided cannot be A'-movement but is A-movement. The extraction to the edge of an elided VP as an instance of A-movement is required to meet identity in ellipsis, which in turn calls for the presence of apparent contrastive focus outside of it. To the extent that our analysis is successful, we can accommodate Griffiths’ examples in (27) by keeping up with Lasnik and Park’s reformulation of MaxElide.
References

Composite Probing and Feature Split: the Case of English Locative Inversion

Tim Chou

Abstract

The goal of this article is two-fold. First, I show that the mixed A/A'-properties associated with the fronted locative phrase in English locative inversion have not received a principled account in the minimalist framework. For one thing, the feature inheritance system does not derive the fronting of the locative phrase as an instance of discourse-driven A-movement because discourse-features are assumed to stay on C in English (Miyagawa 2017). For another, barring analyses based on representational stipulations (e.g., minimal domains), no existing analyses provide a principled account for the featural basis that gives rise to (i) the syntactic primacy of the locative phrase to move to spec,TP across the theme DP, and (ii) the ensuing information-structural properties. Second, I propose an integration of van Urk’s (2005) composite probing mechanism and Martinović’s (2015) feature split hypothesis to derive English locative inversion without appealing to language/construction-specific rules. After showing the step by step derivation of English locative inversion, I explore four conditions where the composite probe in English has to split: to facilitate Full Interpretation, to avoid defective intervention, to keep the φ-probe active for further probing, and to mark clause-typing and selectional requirements.

1 English locative inversion

1.1 The landing site of the fronted locative phrase

The major dispute in the generative literature on the derivation of ELI concerns the landing site of the fronted locative phrase. Some argue that it targets spec,TP as in (1) (i.e., it is an A-movement; see Bresnan 1994, Levin & Rappaport 1995, Collins 1997, Culicover & Levine 2001, and Dogget 2004). Some contend that the fronted locative phrase raises directly to the topic position in the left periphery (i.e., it is an A'-movement), with spec,TP occupied by a null expletive (i.e., the Null Expletive Hypothesis, NEH, henceforth) (e.g., Kuno 1977; Lawler 1977; Bruening 2010; Postal 1977, 2004; Coopmans 1989), as shown by (2).

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1 One obvious problem of the A-movement analysis depicted in (1) is whether the movement of the locative phrase targeting spec,TP across the theme DP violates locality. I will go over different approaches to this problem in the next section.

2 Some proponents for the A-movement assume that the locative subject, after moving to spec,TP, subsequently undergoes extraction to the left periphery. See section 1.3 for discussion of the motivation for this further fronting.
(1) The A-movement approach to ELI

[TP [Down the hill] T [vP rolls the baby stroller t]].

(2) The A’-movement approach to ELI (coupled with NEH)

[CP [Down the hill] [TP pro[there] [vP rolls the baby stroller t]]].

The A’-movement + NEH approach shown by (2) maintains that locative inversion like (3a) differs from the existential-there construction like (3b) only in the overt pronunciation of the expletive there. The NEH provides a straightforward account for why in both locative inversion and existential-there construction, the verb agrees with the postverbal DP, rather than with there or the fronted locative phrase.

(3) a. [CP [Down the hill] [TP pro[there] rolls the baby stroller t]].
   b. [CP [Down the hill] [TP there rolls the baby stroller t]].

However, this unification of ELI and the existential-there construction faces several difficulties. The first problem is the postulation of a null expletive in ELI because English is not a pro-drop language. Thus, NEH is a construction-specific stipulation because one would have to say that null subject pro is allowed in ELI, but crucially not in other constructions in this language. Second, if ELI does involve a null expletive there, we expect locative inversion to display the definiteness effect, a typical property of existential-there construction illustrated in (4a). However, this prediction is not borne out, as evidenced by the contrast between (4b) and (4c) (see Green 1985: 126; Wu 2008: 57). As a result, proponents of NEH is forced to stipulate that only the overt expletive is subject to the definiteness effect.

(4) Problems of the NEH analysis: definiteness effect
   a. There seems to be {a/*the/*every} professor in the lecture hall.
   b. *Into the lecture hall there entered the professor that I met at the conference yesterday.
   c. Into the lecture hall entered the professor that I met at the conference yesterday.

The third problem confronting NEH concerns the suppression of a WCO violation, as exemplified by the contrast in (5). Culicover & Levine (2001: 289-290) notes that locative inversion shows the typical property of A-movement in suppressing a WCO violation, as illustrated by (5a). The contrast between (5a) and (5b) poses a critical challenge for NEH because NEH assumes that the locative phrase in both undergoes direct A’-movement to the left periphery and that the only difference between them is the pronunciation of the expletive.

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3 In response to this problem, Brueining (2010: 79) proposes the following licensing condition on English null expletive.

(i) a. An expletive in Spec,IP can only be null when it is associated with a fronted phrase (adjoined to IP or moved to spec,CP).
   b. The feature [Special Purpose] on IP blocks association between an expletive in Spec,IP and a fronted phrase.

Admitting that he does not have a principled account for why (i) holds, Brueining holds the view that the human language faculty allows for language-specific sets of rules that are more ad hoc and construction specific than generative syntacticians generally assume.
there. This minimal difference should not give rise to the difference in the suppression of WCO violation.

(5) Problems of the NEH analysis: WCO
   a. [Into every dog’s cage], peered its owner there.
   b. *[Into every dog’s cage], there peered its owner there.

Thus, NEH encounters at least the problems enumerated in (6). In view of these difficulties, I conclude that the unification of ELI and the existential-there construction is not tenable (see Bresnan 1994: 99 for further argument against NEH).

(6) a. The presence of a null expletive in a non-pro-drop language
   b. The stipulation between the overt expletive and the null one with respect to the definiteness effect
   c. The suppression of WCO

Turning to the arguments for the A-movement approach to ELI illustrated in (1), Bresnan (1994: 95-96) notes that raising applies to both common subject DPs and the fronted locative phrase as in (7).

(7) Arguments for the A-movement approach: Raising (Bresnan 1994: 95-96)
   a. [Over my window] seems to have crawled an entire army of ants.
   b. [On that hill] appears to be located a cathedral.

Second, the extraction of both common subject DPs and the fronted locative phrase exhibits that-trace effects as in (8) (cf. Bresnan & Kanerva 1992: 121; Bresnan 1994: 97).4

(8) Arguments for the A-movement approach: that-trace effects (Bresnan 1994: 97)
   a. It’s [in these villages] that we will believe can be found the best examples of this cuisine.
   b. *It’s [in these villages] that we will believe that can be found the best examples of this cuisine.

In view of the data reviewed in this section, I maintain that the A'-movement + NEH approach is not tenable, and the landing site(s) of the movement of the locative phrase in ELI must include spec,TP (which makes it an instance of A-movement, in the traditional positional approach to the A/A'-distinction; cf. Chomsky 1981; Chomsky 1993, 2007, 2008; Chomsky & Lasnik 1993; Miyagawa 2010, 2017).5 This conclusion brings us to the other

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4 Notice that that-trace effects exhibited by ELI provide a further argument against its unification with the existential-there construction because that-trace effects vanish under there-insertion as shown in (i) (Bresnan 1994: 98-103):

(i) [In which of these towns] do you believe that *(there) can be found a museum of Indian art?

However, Bruening (2010: 51-52), citing Postal’s (2004) observation of as-parentheticals, denies the relevance of that-trace effect for the subject status of the locative phrase in ELI.

5 Culicover & Levine (2001: 291-306) and Rizzi & Shlonsky (2006), following Levin & Rappaport Hovav (1995), argue that ELI is not a unitary phenomenon because locative inversion is available with both
prominent issue in the generative literature on the derivation of ELI. Does the fronting of the locative prepositional phrase (PP) across the theme DP violates locality? Assuming the fronting of the locative PP in ELI is an A-movement targeting spec,TP as in (9), the movement of PP across a c-commanding DP should be banned by the relativized minimality constraint. This is because both PP and DP are grammatically eligible to move to merge with T, and DP is closer to T than PP is (see Rizzi 1990). In the next section, I review previous analyses that aim at avoiding this locality problem in the derivation of ELI.

(9) \[
\text{[CP } \text{TP PP T } \text{vP v } \text{[VP DP [V tPP]]}\]
\]

1.2 Locality
Following Collins (1997) and Hale & Keyser (1993), I assume that in the derivation of ELI like (10a), the locative PP originates from a position lower than that of the theme DP as shown in (10b).

(10) a. Down the hill rolls the baby stroller.
   b. \[
   \text{[CP C [TP T } \text{vP v+rolls } \text{[VP the baby stroller t\text{roll down the hill}]}}\]

How could the locative PP raise to the spec,TP in ELI over the thematic subject sitting at the edge of vP, which is the canonical element moving to this position in English? There are two ways for the derivation of ELI in the generative literature to circumvent the locality problem. First, Doggett (2004) posits that the EPP feature on v in ELI raises the locative PP to outer spec,vP where it asymmetrically c-commands the theme DP and thereby becomes closer to spec,TP (than the theme DP is) as in (11).

(11) \[
\text{[TP ___ T } \text{vP PP vEPP } \text{[VP DP [V tPP]]}\]
\]

Indeed it is desirable to have a derivational stage of ELI in (11) where the locality problem does not arise for the further movement of the locative PP to spec,TP, but appealing to EPP on v makes the movement to the edge of vP a construction-specific rule. Another approach that makes movement of the locative PP to spec,TP possible is based on Chomsky’s (1995, 2001) notion of equidistance. Some have argued that the movement of XP to WP across a c-commanding YP does not violate minimality under an appropriate condition on syntactic representations, called “minimal domain” (see Ura 1996, Collins 1997, unaccusatives and unergatives (contra Bresnan & Kanerva 1989 and Bresnan 1994). In addition, they show that there are different syntactic derivations associated with each. Specifically, they contend that the locative phrase undergoes A-movement to spec,TP only in ELI with unaccusatives (=light inversion), whereas in ELI with unergatives like (i), the locative phrase undergoes direct topicalization to the left periphery, and the theme first moves to spec,TP and then undergoes heavy NP shift/extraposition to the right edge of the sentence, as in (ii).

(i) Above them pranced the horses on the Parthenon frieze.
(ii) \[
\text{[TopP [Above them]}_1 \text{[TP ___2 T } \text{vP ___2 pranced ___1]} \text{[the horses on the Parthenon frieze]}_2\]
\]

They call ELI with unergative verbs “heavy inversion” because it is more acceptable if the theme is phonologically heavy. The focus of this paper is on the motivation for the A-movement of the locative phrase in light inversion. See Doggett (2004), Holler & Hartmann (2012), Salzmann (2013), and Diercks (2017) for further discussion of heavy inversion and its problems.
Bruening 2001, Anagnostopoulou 2003, and Wu 2008). However, Doggett (2004) argues that equidistance is not only conceptually *ad hoc* and unnecessary, but it also makes wrong predictions in a variety of constructions, including passivization in applicatives, movement to multiple specifiers, and Agree with multiple specifiers. Relatedly, Carstens & Diercks (2013), based on morphosyntactic evidence centering around the agreeing *wh*-phrase *rieena* ‘how’ in the Bantu language Lubukusu, point out that equidistance is not an empirically adequate solution to the locality problem. Thus, the empirical difficulties of equidistance noted by Doggett (2004) and Carstens & Diercks (2013), together with the stipulative nature of minimal domains as a representational notion, weakens the validity of the equidistance-based approach to the locality issue in the derivation of ELI.

Now, without the help of either EPP on *v* or the representational notion of equidistance based on minimal domains, the locality problem of the A-movement of the locative PP remains. One possible way out of this problem is to assume that ELI is in fact a subcase of predicate inversion, according to which the theme DP and the locative PP form a small clause with the latter as predicate as in (12) (see Hoekstra & Mulder 1990; den Dikken 2006; Broekhuis 2008; Hartmann 2008). With (12) as the basis of the derivation of ELI, the theme DP and the locative PP are hierarchically equal, and hence the fronting of the locative PP to spec,TP does not cause a locality problem.

(12) The small clause analysis of the basis of the derivation of ELI

\[
[\text{TP} \ T \ [\text{vP} \ v \ [\text{VP} \ V \ [\text{SC} \ DP \ PP]]]]
\]

However, even though the locality problem disappears under (12), the question of the motivation of the movement of the locative phrase to spec,TP arises. In a feature-based system under the minimalist framework, what is the feature (either on T or on the locative PP) that triggers the A-movement of the locative PP (instead of the theme DP)? Neither Case nor *φ*-features would work for obvious reasons, and we are left with the brute force EPP on T postulated in the GB era. One clear downside of this approach under the current minimalism framework is that EPP, as a representational stipulation, is not an independent principle and can (or should) be deduced from independent principles in the grammar (e.g., structural requirement of agreement/Case and/or general locality constraints on the syntactic derivation) to develop an explanatory theory of syntactic computation (see Epstein & Seely 2006; Epstein *et al.* 2005; Bošković 2002, 2007). Going back to (11) as the basis of the derivation of ELI, we still need a trigger that can bring the locative PP, crucially not the theme DP, to spec,TP to derive ELI. I argue that the missing piece here is the information-structural properties associated with the fronted locative PP in ELI.

### 1.3 Information-structural of the fronting locative phrase in ELI

One intriguing aspect of ELI widely noted in the previous analyses is that the fronted locative phrase exhibits topicality, a typical property associated with A’-movement. For example, Briner (1994) notes that the fronted locative PP in ELI represent relatively more familiar information in the discourse. In this section, I review examples illustrating the topic traits of

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6 Due to space limitations, I refer readers to Doggett (2004) and Carstens & Diercks (2013) for a detailed discussion of the empirical failure of the proposed theory incorporating the postulates of “minimal domain” and “equidistance.”
the fronted locative PP, and I will argue that the A-movement of the locative PP in ELI to spec,TP is driven by discourse considerations.

First, numerous researchers point out that the fronting of the locative PP patterns with topicalization in that they appear to create an island for further extraction (Stowell 1981; Culicover 1993: 99; Bresnan 1994: 87; den Dikken 2006: 100; Rizzi & Shlonsky 2006: 344).

(13) The fronted locative PP forms a topic island
   a. *When did he say that into the room walked Jack t_i;
   b. *When did to Lee Robin give the pencil t_i;
   c. *When did this book everyone read t_i;

Second, topicalization and ELI cannot apply in non-finite contexts, like the complement clause of ECM verbs, as illustrated by (14).

(14) Topicalization and ELI cannot occur in non-finite contexts
   a. *I expect [on this wall to be hung a portrait of our founder]. (Bresnan 1994: 108)
   b. *I expect [this book, John to read]. (Stowell 1981)

Third, I add a novel observation supporting the semantic parallelism between topicalization and ELI. Hooper & Thompson (1973) summarize the contexts where root transformations (such as topicalization) are allowed to occur. They notice that all of the root transformations involve emphasis of some sort, and hence these operations can occur in environments compatible with emphasis. Specifically, clauses with the meaning of assertion are compatible with emphasis, whereas emphasizing a phrase is not appropriate in non-asserted clauses whose information is presupposed. Given this observation, Hooper & Thompson (1973: 473-474) propose the following classification of predicates based on the compatibility of assertion and their complement clauses.

(15) Hooper & Thompson’s classification of predicates

<table>
<thead>
<tr>
<th></th>
<th>Non-factive</th>
<th>Factive</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>say</td>
<td>D</td>
</tr>
<tr>
<td>B</td>
<td>suppose</td>
<td>resent</td>
</tr>
<tr>
<td>C</td>
<td>be (un)likely</td>
<td>be surprised</td>
</tr>
<tr>
<td>D</td>
<td>resent</td>
<td>E</td>
</tr>
<tr>
<td>E</td>
<td>realize</td>
<td>etc.</td>
</tr>
<tr>
<td>etc.</td>
<td>etc.</td>
<td>etc.</td>
</tr>
</tbody>
</table>

Specifically, Hooper & Thompson (1973) point out that the complements of predicates A, B, and E can express assertion, and hence they are compatible with root transformations (including topicalization), as exemplified by (16). On the other hand, predicates C and D themselves express assertion, whereas their complements cannot, which renders them incompatible with topicalization, as shown in (17).

(16) Topicalization allowed in assertive complements
   a. I exclaimed that this book, I will never read. (A)
   b. I think that this book, he read thoroughly. (B)
   c. I found out that this book, no one is willing to read for the assignment. (E)

(17) Topicalization prohibited in non-assertive complements
   a. *It’s likely that this book, everyone will read for the assignment. (C)
b. *He was surprised that **this book, I had not read. (D)**

Notice that ELI shows the same distribution with respect to this classification: it is allowed in the assertive complements of predicates A, B, and E, whereas the non-assertive complements of predicates C and D prohibit it.

(18) ELI allowed in assertive complements
   a. I exclaimed that **down the hill** is rolling down a baby carriage. (A)
   b. I think that **in front of the auditorium** will stand a statue of Kobe Bryant. (B)
   c. I found out that **on the path** had fallen the thickest blanket of snow this year. (E)

(19) ELI prohibited in non-assertive complements
   a. *It’s likely that **in front of the auditorium** will stand a statue of Kobe Bryant. (C)
   b. *He was surprised that **on the path** had fallen the thickest blanket of snow this year. (D)

Now the issue comes down to why the fronting of locative PP as an instance of A-movement exhibits topicality, which is generally viewed as an A'-property. Before I go on to review previous accounts for this mixed A/A'-properties of the fronted locative PP in ELI, I hasten to point out one obvious problem of aligning the fronted locative PP with the usual topicalized phrase. Rizzi & Shlonsky (2006: 344) note that the fronted locative PP in ELI is not licensed exclusively by topicality; rather, it is also compatible with wh-questions or focus, as evidenced by (20).

(20) a. In what room is sitting my old brother?
   b. IN THE LIVING ROOM is sitting my old brother (, not in the bedroom).
   c. IN THE LIVING ROOM, but not in the bedroom, were hanging portraits of GWB.

If wh-question represents a type of information seeking device, and the answer to a wh-question is often identified as focus, then it seems implausible to analyze such locative fronting as solely involving topicalization. I will discuss how the fronting of the locative PP can be licensed by either topicality or focus in the next section.

Coming back to the mixed A/A'-characteristics of the locative PP in ELI, one account for this is to assume that the fronted locative in ELI does not stay in spec,TP, the canonical subject position, and must continue to move to the left periphery (see Stowell 1981, Rizzi & Shlonksy 2006, and Wu 2008 for proposals along this line of reasoning). For example, Stowell (1981) argues that the locative PP first moves to spec,TP to satisfy EPP, and then moves on to the left periphery. He motivates this further movement by invoking the Case Resistance Principle. Specifically, the preposition head P is a Case assigner, so P and its projection cannot remain in a case assignment position due to Case Resistance. Since spec,TP is the locus of nominative assignment, the locative PP must evacuate it. However, the Case Resistance Principle is no longer upheld under the current minimalist framework to motivate this further movement to the left periphery from spec,TP. Such movement is usually assumed to be triggered by a topic feature under the feature-based minimalist program (especially in the cartographic approach to the CP domain). In addition, if the locative PP has to end up in the left periphery in the derivation of ELI, why does it bother to stop by spec,TP, given that the theme DP is able to move to this canonical subject position. Does the movement of the locative PP to spec,TP serve any purposes other than Case or Agreement?
In this connection, Rizzi & Shlonsky’s (2006) motivates the A-movement of the locative PP in ELI in terms of Rizzi’s (2003) Subject Criterion. In particular, they argue that there is a functional head Subject, distinct from and higher than T, that must be locally c-commanded by an element (a specifier or a head) bearing φ-features to satisfy the Subject Criterion. This is usually satisfied by the movement of the thematic subject in English. They propose that the Subject Criterion can also be satisfied by merging a nominal functional head immediately above the Subject head. For example, they posit that merging a Finite head endowed with some nominal quality (say unvalued φ-features) would satisfy the Subject Criterion as in (21).

(21) Merging a nominal Finite head to satisfy the Subject Criterion

Finite[φ] [Subj [TP T …]]

Relatedly, they maintain that one possible nominal feature that could render the Finite head nominal is a locative feature, as in (22a). Crucially, this special locative Finite head requires the movement of the locative phrase to its specifier to license this special featural endowment, as in (22b). This step of movement yields the A-properties of the locative PP in ELI. Next, they reason that Finite is not a criterial head, which would not assign any special interpretive property to the phrase occupying its specifier, so the locative phrase must keep moving to a criterial position (say a Topic position) to acquire a proper interpretation as in (22c).

(22) Merging a locative Finite head to satisfy the Subject Criterion

a. Finite[Locaive] [Subj [TP T …]]

b. [Fin Down the hill Finite[Locaive] [Subj [TP T …<down the hill>]]]

c. [Top Down the hill [Fin <Down the hill> Finite[Locaive] [Subj [TP T …<down the hill>]]]]

This line of analysis based on the nominal/referential properties of locative PP finds its support in Grimshaw’s (1991) and van Riemsdijk’s (1990, 1996) proposal that locative PPs are extended nominal categories. However, one critical issue arises when we take into consideration the φ-completeness of the head or the phrase locally c-commanding the Subject head. In particular, note that Grimshaw (1991) and van Riemsdijk (1990, 1996) also point out that locative PPs, though more referential than other prepositional phrases, do not contain a full set of φ-features (i.e., unlike genuine nominal categories, they are φ-defective). Therefore, it is dubious to maintain that the Subject Criterion can be equally and fully satisfied by merging a locative-bearing Finite head.

1.4 Interim Summary

The discussion thus far can be summarized in (23).

(23) a. The A’-movement + NEH approach to ELI is not tenable, and to explain the A-movement characteristics of the fronted locative PP in ELI, the raising of the locative PP in ELI must target (at least) spec,TP.

b. Neither EPP on v nor the notion of equidistance provides a conceptually and empirically adequate analysis for why the raising of the locative PP to spec,TP does not violate the locality constraint.

c. The mixed A/A’-characteristics of the locative PP in ELI have not received a satisfying analysis.
Note that the fundamental problem of the derivation of ELI within the generative framework is not so much about whether the locative PP eventually moves to the left periphery; rather, what is at issue is the featural basis that gives rise to (i) the syntactic primacy of the locative PP to move over the theme DP to spec,TP in (24), and (ii) the ensuing discourse properties associated with the fronted locative PP.

(24) \[ TP \text{ PP T} \quad [vP \text{ v DP } \text{<PP>}] \]

Considering the numerous difficulties associated with ELI, Bresnan (1994) points out that the derivation of ELI is overly problematic for the Chomskyan approach to Universal Grammar which assumes all human languages are built based upon uniform underlying structures and identical syntactic operations like movement. Under current minimalist framework, Miyagawa’s (2010, 2017) extension of Chomsky’s feature inheritance hypothesis to discourse features seems to be a plausible mechanism to provide the featural basis of the fronting of the locative PP in (24), but as noted in the beginning of the paper, Miyagawa (2017) holds that discourse features stay on C in English.

In the next section, without appealing to feature inheritance, I show that ELI is derivable under the current minimalist framework under two assumptions in (25) and (26):

(25) Van Urk (2015): Functional heads can carry both A and A’-probes that act in concert to jointly identify the same goal for movement (=composite probing, following Coon & Bale 2014), and such movement would display mixed A/A’-properties.

(26) Martinović’s (2015): C-to-T feature inheritance should be replaced by the hypothesis that C and T actually start out as one single head (=C/T, for expository convenience) with a hierarchically ordered feature set in the derivation. These features sometimes can stay bundled on one C/T head, and other times they have to split over two C and T heads (see also Bobaljik & Thrainsson 1998; Fortuny 2008; Georgi & Müller 2010; Müller 2010; Manetta 2011; Erlewine to appear).

2 The Proposal

2.1 The derivation of ELI: In search of a full match with the composite probe

The nub of the problem of the derivation of ELI lies in the paradoxical mixture of A/A’-properties of the fronted locative PP. Specifically, how does the locative PP move to an “A-position” and display characteristics generally associated with an “A’-position?” In this connection, van Urk (2015) argues that the “positional” approach to the A/A’-distinction in (27a) should be abandoned in favor of the featural approach in (27b).

(27) Two approaches to the A/A’-distinction
   a. Positional approach
      A and A’-properties derive from general properties of the head that host the moved phrase. (Chomsky 1981; Chomsky 1993, 2007, 2008; Chomsky & Lasnik 1993; Miyagawa 2010, 2017)
   b. Featural approach
      A and A’-properties derive from properties of the attracting feature.
The proponents of the positional approach to the A/A’-distinction reason that the A/A’-distinction can only be established in a structural/configurational fashion. However, the presence of the left periphery is not a necessary condition to create an A’-position. A case in point is the famous mixed A/A’-characteristics of spec,TP in Spanish and other Romance languages (see Torrego 1984, Uriagereka 1988, Ordóñez 1997, and references therein). To empirically justify the theoretical shift from the positional approach to the featural one, van Urk (2015: 19) notes that all instances of A’-movement in Dinka are accompanied by case and φ-agreement, as illustrated by topicalization in (28).

(28) Topicalization in Dinka is accompanied by case alternation and φ-agreement
   a. Áyén a-cé ______ cuîn câam nê pâal.
      Ayen 3SG-PRF.SV food eat.NF P knife
      ‘Ayen has eaten food with a knife.’
   b. Cuîn a-cî ì Ayén ______ câam nê pâal.
      food 3SG-PRF.OV Ayen eat.NF P knife
      ‘Food, Ayen has eaten with a knife.’
   c. Pâal à-cênê ì Ayén cuîn câam nê ______.
      Knife 3SG-PRF.OBLV Ayen food eat.NF P
      ‘With a knife, Ayen has eaten food.’

In addition, A’-movement in Dinka suppresses WCO (29), feeds Binding Principle A (30), and lacks reconstruction for Binding Principle C (31), all are canonical properties associated with A-movement.

(29) A’-movement in Dinka suppresses WCO (van Urk 2015: 110)
   Dhùk ébèn i a-cîj ì thɔ̀ ëk-dè ______ kâac.
   boy every 3sg-prf.ov goat.cs-sg.3sg bite
   ‘Every boy, his goat bit.’

(30) A’-movement in Dinka feeds Binding Principle A (van Urk 2015: 111)
   Bòl i a-cîj [dp âkèkôgl-tí ë rît-dè] ______ piɔ̀ lìc.
   Bol 3S-PRF.OV story-that P self-sg.3SG criticize.NF
   ‘Bol, that story about himself has criticized.’

(31) A’-movement in Dinka lacks reconstruction for Principle C (van Urk 2015: 114)
   [dp Månh ë Màyèn kù Áyènî çîkêî ______ tînj.
   brother.cs P Mayen.GEN and Ayen PRF.3PL see.NF
   ‘The brother of Mayen and Ayen, they have seen.’

In short, the movement to the same position (the traditional “A’-position” in the left periphery) in (28) - (31) displays both the particular information-structural properties and the properties typically associated with the A-position. In view of these Dinka data (as well as a whole array of similar phenomena in Bantu and Austronesian languages), van Urk reasons that the A/A’-

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7 The abbreviations used in the glosses for the Dinka data are: 3=3rd person, CS=construct state, GEN=genitive, NF=non-finite, OV=Object Voice, OBLV=Oblique Voice, P=preposition, PL=plural, PRF=perfect, SG=singular, and SV=Subject Voice.
8 All the fronted nominals carry the Absolutive case, a case that they cannot bear when they are not fronted to the clause-initial position. See van Urk (2015: ch.3) for details.
distinction should be deduced from the probing feature(s) involved in the relevant Agree and movement operations. That is, movement operations based on \( \phi \)-features would exhibit A-properties, while those driven by \( \delta \)-features (Topic, Focus, Wh, Q, etc.) would show A’-properties. Crucially, van Urk points out that if we follow Coon & Bale’s (2014) composite probing mechanism (i.e., joint probing by more than one set of unvalued features), it is possible that unvalued \( \phi \)-features and unvalued \( \delta \)-features would “team up” on one single functional head and initiate joint probing to converge on one single goal carrying matching \( \phi \)-features and \( \delta \)-features. Consequently, the featural approach to the A/A’-distinction predicts that the ensuing movement based this composite probing would be associated both with the benefits of A-movement and those of A’-movement. This is precisely what we find in the movement to the left periphery in Dinka. Thus, van Urk posits that C in Dinka is endowed with both unvalued \( \phi \)-features and \( \delta \)-features that probe in unison to converge on one single goal that carries both matching \( \phi \)-features and \( \delta \)-features.

Additionally, patterns of the omnivorous agreement in languages like Nez Perce (Deal 2014) and Kaqchikel (Preminger 2011) suggest that different components of \( \phi \)-features (i.e., person, number, and gender) may either form a “flat” probe that can be satisfied by any bundle of \( \phi \)-features regardless of value, or be relativized to specific features (e.g., such as [Participant] and [Plural]). Building upon this flat/relativized pattern of \( \phi \)-agreement, van Urk (2015: 107) reasons that the same language-specific variation of feature structure applies to the structure of A’-features (e.g., Topic, Focus, Relative, etc.) on the composite probe as well. That is, A’-probes may be flat or relativized (Rizzi 1997, Abels 2012) as depicted in (32) and (33), respectively.

\[(32) \text{Flat A’-probe on C (which can be satisfied by any A’-features)}\]

\[CP \xrightarrow{C_{[A', \phi]}} TP\]

\[(33) \text{Relativized A’-probe on C (which can be satisfied only by certain specific A’-feature)}\]

\[CP \xrightarrow{C_{[\text{Topic}, \phi]}} TP\]

Van Urk shows that the A’-features on the composite probe on C in Dinka exemplify a flat A’-probe because the agreement correlation associated with topicalization in (28) extend to relativization, as evidenced by (34). This suggests that the A’-probe on the composite probe on C in Dinka is a flat and non-selective probe that can be satisfied by either a topic or a relativized operator.

\[(34) \text{Relativization in Dinka is accompanied by } \phi \text{-agreement (van Urk 2015: 104)}\]

\[a. \text{Yè kòc-kó} \quad [\text{CP } Op \text{ C-kè-thèl}]?\]
\[\text{be people.CS-which.PL PST-3P-cook.SV}\]
\[\text{‘Which people were cooking?’}\]

\[b. \text{Yè kòc-kó} \quad [\text{CP } Op \text{ C-kè-cìi } \text{Ayèn kàam gàlâm}]?\]
\[\text{be people.CS-which.PL PST-3P-PRF.OV Ayen GEN 3PL give.NF pen}\]
\[\text{‘Which people had Ayen given a pen to?’}\]
With the composite probing mechanism in hand, I argue that the derivation of ELI under the minimalist framework is possible if we integrate the composite probing hypothesis with Martinović’s (2015) C/T head split hypothesis which assumes that C and T start out as one single head with hierarchically organized feature sets in the derivation. These feature sets sometimes stay bundled on one compact C/T head, and other times they have to split and reproject, giving rise to the separation of two different C and T heads (see Georgi & Müller 2010 for reprojection as a structure-building process). Integrating these two hypotheses, I propose that the C/T head in English carries both unvalued φ-features and unvalued δ-features that initiate composite probing to converge on a goal with a full match with both features. Crucially, a full match for such composite probing can be established in the derivation of ELI, as in (35), where the locative PP is optionally assigned a Topic feature.

(35) \( C/T_{\text{[uφ & uδ]}} \quad [vP \quad V \quad DP_{[φ, uCase]} \quad PP_{[φ-def, Top]}] \)

The locative PP raises to merge with C/T in (36) based on the composite probing relation in (35), giving rise to its mixed A/A’-properties, à la van Urk (2015). This relativized probing analysis also avoids the minimality problem discussed in section 1.2. The intervening DP does not induce minimality effect because it does not contain the relevant feature set that can fully satisfy the composite probe.

(36) \( PP_{[φ-def, Top]} \quad C/T_{[uφ & uδ]} \quad [vP \quad V \quad DP_{[φ, uCase]} ] \quad <PP> \)

Note that due to the locative PP’s φ-defectiveness, the φ-features on C/T have to probe again to target the φ-complete subject DP to value both C/T’s φ-features and DP’s Case feature as in (37), completing the derivation of ELI.

(37) \( PP \quad C/T_{[uφ & uδ]} \quad [vP \quad V \quad DP_{[φ, uCase]} ] \quad <PP> \)

Crucially, recall that Rizzi & Shlonsky (2006: 344) note that the fronted locative PP is also compatible with wh-questions or focus, as in (20). Thus, the unvalued δ-probe on English C/T is not exclusively valued by the Topic feature; rather, other A’-features like Wh or Focus feature are also capable of valuing the δ-probe on English C/T, as in (38). This suggests that the δ-probe on English C/T, like that on C in Dinka, is a flat probe that can be satisfied by any A’-features, including Topic, Focus, or Wh.

(38) \( C/T_{[up & uδ]} \quad [vP \quad V \quad DP_{[φ, uCase]} \quad PP_{[φ-def, Wh/focus]}] \)

This parallel treatment finds support from another well-known observation about ELI: the fronting of the locative PP patterns with topicalization in that they appear to create an island for further extraction (Stowell 1981; Culicover 1993: 99; Bresnan 1994: 87; den Dikken 2006: 100; Rizzi & Shlonsky 2006: 344). This is because once the flat δ-probe is valued, further δ-related movement is rendered inapplicable.

\(^9\) In the next section, I will discuss when and how the composite probe would split in English to derive the general topicalization to the left periphery.
ELI forms a topic island

a. *When did he say that into the room walked Jack <when>?  
b. *When did to Lee Robin give the pencil <when>?  
c. *When did this book everyone read <when>?

Following van Urk’s (2015) reasoning, the composite probing approach to the fronting of the locative PP in ELI predicts that this instance of movement would exhibit the benefits of both A-movement and A’-movement. This is precisely what we saw in section 1. The benefits associated with A’-movement include those information-structural characteristics discussed in section 1.3. In the remainder of this section, I show how some of the A-characteristics associated with the fronted locative PP in ELI can be explained under the composite probing analysis.

First, recall that Culicover & Levine (2001: 289-290) note that topicalization of the locative PP in (40a) induces WCO, whereas the fronting of the locative PP in ELI as in (40b) does not, casting doubt on the null expletive analysis.

WCO in topicalization and ELI

a. *[Into every dog’s cage] its owner peered.  
b. [Into every dog’s cage], peered its owner t_i.

Based on Sauerland’s (1998) and Ruys’ (2000) work on WCO, van Urk (2015: 376) holds that movement based on δ-features involves quantification over choice functions, while that based on φ-features always involves abstraction over individuals. This analysis provides an account for the contrast between A-movement and A’-movement with respect to WCO illustrated in (41).

Every pitcher_i seemed to his_i coach [ ___ to be reliable].

b. *Which pitcher_i did his_i coach trust ___?

The binding relation in (41b) is ungrammatical because pronouns denote variables over individuals, and hence they cannot be bound by abstraction over choice functions created by the δ-based wh-movement. By contrast, the φ-based A-movement of every pitcher in (41a) involves abstraction over individuals, so the binding relation in this context is acceptable. On the basis of Sauerland’s (1998) and Ruys’ (2000) approach to WCO, the contrast in (40) suggests that the fronting of the locative PP in (40b) must be partially based on φ-features so that it displays the benefits of an A-movement in that it involves abstraction over individuals which allows every dog to bind its.

Second, the contrast in (42) shows that A-movement is not forced to reconstruct when violation of Principle C is at stake. If the fronting of the locative PP in ELI exhibits the benefits of A-movement, we expect it not to be forced to reconstruct to avoid Binding Principle C violation. This prediction is born out, as evidenced by (43).

Only A’-movement must reconstruct for Binding Principle C

a. *Which side of Alex_i does he_i dislike ______?  
b. That side of Alex_i seemed to him_i [____ to be well-hidden].

ELI does not reconstruct for Binding Principle C
[On John’s table], seem to him to lie some confidential documents.

I follow van Urk to adopt Takahashi & Hulsey’s (2009) Wholesale late Merge (WLM) to explain the contrast in (42). Specifically, WLM is available for any movement chain, but NPs may undergo late Merge only when they can get Case at the higher copy position. Thus, even though in principle the wh-DP in (42a) may undergo late Merge at the higher copy position, no Case is available at this position. As a result, the wh-DP is not allowed to be late Merged at this position where it can circumvent Principle C violation. By contrast, in (42b) the higher copy position is a Case position for the raised DP, so late Merge of the DP is allowed, saving the derivation from a Principle C violation. Turning to the lack of reconstruction of ELI in (43), because the nominal complement within the locative PP receives Case from the preposition, WLM is always available for the movement of the locative PP, and hence no Principle C violation is incurred in (43).

Third, to derive the successive-cyclic raising of ELI in (44), I assumed that the C/T in the embedded clause is φ-defective. That is, the embedded C/T contains an unvalued δ-feature and an incomplete set of unvalued φ-features, which work together to initiate composite probing and find the full-matching locative PP as in (45).

(44) Successive-cyclic raising of ELI (Bresnan 1994: 95-96)
[On that hill] appears ___ to be located a cathedral.

(45) C/T\[uφ-def & uδ\] to be located \[a cathedral\]\[φ, uCase\] [on that hill]\[φ-def, Top\].

Next, although the unvalued φ-features on the embedded C/T are defective, they still need to be valued by a φ-complete goal. Thus, the φ-features on C/T probe again to target the φ-complete subject DP to value C/T’s defective φ-features as in (46). However, the Case feature on the theme DP is not valued because the φ-features on the embedded C/T are defective.

(46) [On that hill]\[φ-def, Top\] C/T\[uφ-def & uδ\] to be located \[a cathedral\]\[φ, uCase\] <on that hill>.

The derivation proceeds to the matrix clause in (47), where the locative PP is identified and attracted by the composite probing of the matrix C/T. Finally, in (48), the matrix φ-features on C/T and the Case feature on the theme DP get valued, completing the derivation of successive-cyclic raising of ELI.

(47) C/T\[uφ & uδ\] appears [on that hill]\[φ-def, Top\] C/T\[uφ & uδ\] …… \[a cathedral\]\[φ, uCase\] …. 

(48) [On that hill]\[φ-def, Top\] C/T\[uφ & uδ\] appears \:<on that hill> …… \[a cathedral\]\[φ, uCase\] …. 

\[uφ\] probes again

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Note that although in principle WLM freely applies to the nominal complement within the locative PP, it is not an obligatory operation, as evidenced by the satisfaction of Principle A in (i).

(i) [Beside each other] sat two handsome young boys. (Chung & Kim 2002: 150)
As the re-probing operations in (37), (46), and (48) make clear, the φ-defectiveness of the locative PP is crucial for the derivation of ELI because C/T is forced to probe again to value both its own φ-features and the Case feature on the theme DP. However, this re-probing operation does not always lead to a successful derivation of ELI. Consider the non-occurrence of ELI in ECM contexts illustrated by (49).

(49) Non-occurrence of ELI in ECM contexts (Bresnan 1994: 108)
*I expect [on this wall to be hung a portrait of our founder].

On a par with the embedded C/T in (45), the φ-features on the embedded C/T in (49) are defective, and the composite probe finds and attracts the locative PP as in (50).

(50) C/T[φ-def & δ] [vP DP[φ, uCase] V PP[φ-def, Top]]

Then the unvalued φ-features probe again to get valuation in (51), but the theme DP’s Case fails to get valued because the embedded C/T is φ-defective.

(51) PP[φ-def, Top] C/T[φ-def & δ] [vP DP[φ, uCase] <PP>]

Crucially, the introduction of the matrix ECM verb in the derivation in (52) cannot value the Case on the embedded theme DP due to Chomsky’s (2000) Intervention Constraint, in the sense of (53ii).

(52) v+expect[φ] [C/TP PP[φ-def, Top] C/T[φ-def & δ] [vP Subj[φ, uCase] <Obj/PP>]]

(53) The Intervention Constraint (cf. Chomsky 2000: 123)
α > β > γ (where the relation > designates c-command)
AGREE (α, γ) fails when α is a probe and β is a closer matching goal to α than γ is, even if β (i) is inactive due to a prior Agree with some probe, or (ii) is defective in the relevant features under Agree.

In this section, I argue that the mixed A/A’-characteristics of the fronted locative PP in ELI follow from van Urk’s (2015) composite probing mechanism which allows φ-features and δ-features to be fused on one single head to work in concert to identify a goal that carries both φ-features and δ-features. Crucially, the movement based on such composite probing would display the benefits associated with both A- and A’-movements. In the next section, I advance my proposal of feature splitting of the composite probe to account for the general topicalization targeting the left periphery in English as well as the absence of do-support in question formation.

2.2 Feature splitting
Although the composite probing mechanism is able to derive ELI, it is an undeniable fact that topicalization almost always targets the left periphery in English as in (54).

(54) [CP This book, [TP John [v*P really likes <this book>]]]
Therefore, an obvious challenge to the composite probing analysis of ELI is that the φ- and δ-features have to split over C and T heads in English transitive sentences to derive object topicalization as in (55a), crucially not (55b).

(55) C/T split in object topicalization
   a. \[
   \text{CP} \, \text{This book, [TP John [v*P really likes <this book>]]}
   \]
   b. *\[
   \text{C/TP} \, \text{This book [v*P John really likes <this book>]]}
   \]

To maintain the composite probing analysis of ELI, I follow Martinović’s (2015) single head thesis which posits that C and T actually start out as one mega-head hosting a hierarchically organized featural structure (with the hierarchical order as a point of parametric variation). Importantly, the features on this C/T head sometimes can stay bundled and act in concert throughout the derivation, and other times they have to split over two C and T heads (see also Bobaljik & Thrainsson 1998; Fortuny 2008; Georgi & Müller 2010; Müller 2010; Manetta 2011; Erlewine to appear).

Now the crucial issue is when the composite probe on English C/T has to split, giving rise to the presence of two separate heads. Due to space limitation, I briefly explore four conditions under which the proposed composite probe in English is forced to split: to mark clause-typing and selectional requirements, to avoid defective intervention, to keep the φ-probe active for further probing, and to facilitate Full Interpretation.

First, interpretive considerations of clause-typing and selectional requirements provide another motivation for the split of the complex featural structure on C/T, as illustrated by the interrogative/declarative complement clauses in (56).

(56) a. John wonders whether Mary wants to eat ice cream.
   b. John thinks that Mary wants to eat ice cream.

This is because clause-typing usually requires specific morphological marking in embedded clauses, as exemplified by whether/that in (56). The split of the relevant feature (i.e., Force feature in (56)) enables the clause to mark clause-typing on the left-periphery.11

Second, I argue that the attraction of the topic object DP by the composite φ+δ probing cannot be implemented because the φ-complete object DP would render the composite probe inactive for further probing, and hence the Case feature on the subject DP would be left unvalued, as in (57).

(57) \[
\text{C}/T_{[\text{up]} \text{[v*P} \text{Subj[φ, uCase]} \text{v*} \text{Obj[φ, Top]]}}\]

I assume that this is precisely when a composite probe has to split, as in (58), where T initiates φ-probing, and C initiates δ-probing, simultaneously and independently of each other, deriving (55a).

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11 Relatively, see Pesetsky & Torrego (2001, 2004) on treatment of that, do, will, and other C morphemes as the spell-out of some T head moved to C.
Another condition that would force splitting of the English composite probe is when the expletive *there* is selected to join the derivation of ELI. Following Chomsky (2000), I assume that expletive *there* is a $\varphi$-defective nominal (which is unable to value $\varphi$-features on C/T) so that the agreement in existential *there* construction varies with the associate $\varphi$-complete DP, as illustrated by (59).

(59)  
a. There **rolls** a baby stroller down the hill.
   b. There **roll** three baby strollers down the hill.

In addition, I adopt Deal’s (2004) analysis of expletive *there* in assuming that it is first merged in the specifier of vP, as shown in (60).

(60)  
\[ \text{[vP } \text{there}_{[\varphi-\text{def}]} \text{ V } \text{[vP DP}_{[\varphi, \text{uCase}]} \text{ V } \text{PP}_{[\varphi-\text{def}, \delta]} \text{ ]} \]

Next, the C/T hosting the composite probe enters the derivation in (61), where the composite probe finds the locative PP bearing both $\varphi$- and $\delta$-features.

(61)  
\[ \text{C/T}_{[\varphi \text{uCase} \& \ \delta]} \text{ [vP } \text{there}_{[\varphi-\text{def}]} \text{ V } \text{[vP DP}_{[\varphi, \text{uCase}]} \text{ V } \text{PP}_{[\varphi-\text{def}, \delta]} \text{ ]} \]

As discussed above, the $\varphi$-probe on C/T has to probe again as in (62) because the locative PP is $\varphi$-defective. However, the re-probing in (62) fails because of the defective intervention induced by the $\varphi$-defective *there* sitting at the edge of vP.

(62)  
\[ \text{PP}_{[\varphi-\text{def}, \delta]} \text{ C/T}_{[\varphi \text{uCase} \& \ \delta]} \text{ [vP } \text{there}_{[\varphi-\text{def}]} \text{ V } \text{[vP DP}_{[\varphi, \text{uCase}]} \text{ V } \text{<PP>]} \text{ ]} \]

Thus, there is no way for composite probing to yield a convergent derivation of ELI if expletive *there* participates in the derivation. As a result, the composite probe is forced to split as shown by the first step in (63). In addition, T initiates $\varphi$-probing, and C initiates $\delta$-probing, simultaneously and independently of each other.

(63)  
\[ \text{C}_{[\delta]} \text{ [TP } \text{there}_{[\varphi-\text{def}]} \text{ T}_{[\varphi \text{uCase} \& \ \delta]} \text{ [vP DP}_{[\varphi, \text{uCase}]} \text{ V } \text{PP}_{[\varphi-\text{def}, \delta]} \text{ ]} \]

Importantly, because expletive *there* cannot value the $\varphi$-features on T, the $\varphi$-probe has probe again, as in (64b), deriving a sentence with both expletive *there* and a topicalized locative PP as in (64a).

(64)  
a. Down the hill there **rolled** a baby stroller.
   b. **PP**$_{[\varphi-\text{def}, \delta]}$ C$_{[\varphi]}$ [TP there$_{[\varphi-\text{def}]}$ T$_{[\varphi \text{uCase}]}$ [vP <there> V [vP DP$_{[\varphi, \text{uCase}]}$ V <PP>]]
The fourth condition which the composite probe has to split is when no phrases in the derivation are assigned a $\delta$-feature, as in (65).

(65) \[ C_{[u]} \xrightarrow{T_{[\delta, w_t]} \ [y_{vp} \ A \ \text{baby stroller}_{[\theta, w_{case}]} \ \text{roll down the hill}]} ] \\
[1] \text{Feature split} \quad [2] \varphi\text{-probing} \\

To be more specific, I argue that the unvalued $\delta$-feature has to split from the composite probe because it cannot find a matching goal in the derivation. One obvious problem is how narrow syntax handles the presence of the unvalued $\delta$-feature that would never find a goal in the derivation. In this connection, I follow Preminger’s (2011, 2014) proposal that failure of ridding of unvalued features in narrow syntax via Agree does not cause a problem at the interfaces (see Epstein et al. 2010, and Carstens 2010, 2011 for the same approach to the existence of unvalued features). In other words, Chomsky’s Full Interpretation in (66) cannot be viewed as an inviolable “hard constraint”. Rather, it should be considered as a goal that narrow syntax computation strives to achieve. That is, most if not all operations taking place in narrow syntax can be regarded as an effort to “facilitate” Full Interpretation.


“...Every element of PF and LF, taken to be the interface of syntax (in the broad sense) with systems of language use, must receive an appropriate interpretation - must be licensed in the sense indicated.”

Under this view of unvalued features and Full Interpretation, feature splitting in (65) is an effort to create a syntactic object with one single compact element $C_{[u]}$ bearing nothing but unvalued feature(s), which can be “wholesale disregarded” to achieve optimal satisfaction of the requirements imposed by the interfaces.

3 Conclusion

Considering the numerous difficulties associated with ELI, Bresnan (1994) holds the view that the derivation of ELI is overly problematic for the Chomskyan approach to Universal Grammar. With the recent advancement of the understanding of the featural link between C and T, I argue that it is possible to derive ELI based on two conceptually necessary and fundamental operations in the generative syntactic theory: Agree and Merge. Not appealing to language/construction-particular rules or representational stipulations, I conclude that the mixed A/A'-properties associated with the fronted locative PP have not received a principled account, and the crucial issue comes down to the featural basis that gives rise to (i) the syntactic primacy of the locative phrase to move over the theme DP to spec,TP, and (ii) the ensuing discourse properties associated with the fronted locative phrase.

I show that the composite probing mechanism, together with a featural approach to the A/A'-distinction, readily provides an account for these two crucial questions related to the derivation of ELI under the minimalist framework. Even though placing the $\delta$-feature on T is counter-intuitive in English, Martinović’s (2015) feature splitting hypothesis makes it possible to keep the $\delta$-feature on T in English to derive ELI, and split it to derive the general topicalization to the left periphery in this language.
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A Uniform Analysis of ECM/Transitive and Bridge Verb Constructions*

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1. Introduction

Chomsky (2015) and Epstein, Kitahara and Seely (EKS) (2016) discuss the transitive/ECM construction (1) and the bridge verb construction (2) under Chomsky's (2013; 2015) labeling theory:

(1) a. Transitive Construction
   John likes the dog.
   b. ECM Construction
   They expected John to win.

(2) Bridge Verb Construction
   a. He thought [that it was somehow going to work out to his benefit].
   b. I think [that God is on your side].

They claim that these two constructions should be analyzed differently as to whether there is a copy of root (R) that induces $\phi$-agreement with an element in its Spec. Contrary to what Chomsky and EKS claim, this paper proposes a uniform analysis of ECM/transitive and bridge verb constructions, where not only the transitive/ECM construction but also the bridge verb construction has a copy of R that induces $\phi$-agreement. Under our analysis, labeling requires that the CP complement of a bridge verb should either have its Spec position realized as expletive it, or undergo displacement leaving a variable behind. It is shown that our analysis is supported by wh-extraction, proper binding condition, parasitic gap, and word order facts. Our uniform analysis is theoretically desirable in that it makes $v^*P$ phases completely parallel to CP phases with respect to feature inheritance: (i) Feature inheritance from a phase head to the head of its complement, i.e. from $v^*/C$ to R/T, always takes place (contra EKS), and (ii) inherited features on R/T are always visible to labeling (contra Chomsky).

The organization of this paper is as follows. Section 2 investigates two previous analyses of the transitive/ECM and bridge verb constructions, i.e. Chomsky (2015) and EKS (2016). Section 3 proposes a uniform analysis of the transitive/ECM and bridge verb

* This is a revised version of the paper presented at SICOGG 20. I would like to thank the audience at the conference for their valuable comments and discussion. Remaining errors and omissions are, of course, the sole responsibility of the author. This work is supported in part by the Japan Society for the Promotion of Science under grant Scientific Research C 18K00666.
constructions. Section 4 presents supporting evidence for our uniform analysis. Section 5 makes a concluding remark.

2. Previous Analyses

This section investigates two previous analyses of the transitive/ECM and bridge verb constructions under Chomsky’s (2013; 2015) labeling theory, *i.e.* Chomsky (2015) and EKS (2016). It is shown that under their analyses, the transitive/ECM and bridge verb constructions are analyzed differently in that the former has a copy of R that induces ϕ-agreement with an element in its Spec while the latter does not.

2.1. Labeling Algorithm

Before turning to previous analyses, let us explicate Chomsky (2013; 2015)'s labeling algorithm (LA) (3) that licenses syntactic objects for interpretation at the interfaces:

(3) Labeling Algorithm (LA) (Chomsky 2013, 2015)

LA is a special case of minimal search.

(4) a. $SO_i = \{v, VP\}$
   b. $SO_j = \{\alpha DP, \{v, VP\}\}$
   c. $SO_k = \{DP, \{T, \{\alpha DP, \{v, VP\}\}\}\}$

According to Chomsky’s LA (3), when a syntactic object (SO) is of {H, XP} type as shown in (4a), where H is a head and XP is a non-head, its label can be easily identified by minimal search; LA (3) selects H as the label. When a syntactic object is of symmetric {XP, YP} type as shown in (4b), on the other hand, its label cannot be determined by LA (3), since minimal search is ambiguous, locating the two heads X and Y. If nothing happens to SO in (4b), it has no label and thus cannot be interpreted at the interfaces. There are two ways in which this syntactic object can be labeled. First, a syntactic object can be modified for labeling by raising one of its immediate constituents, either XP or YP, so that there is only one visible head, X or Y, which counts as its label. Second, when XP and YP share a prominent feature via agreement, that feature is the label.

As an illustration of how LA (3) works, let us consider (5), which is the structure of a clause under the predicate-internal subject hypothesis:

(5) a. $SO_i = \{v, VP\}$
   b. $SO_j = \{\alpha DP, \{v, VP\}\}$
   c. $SO_k = \{DP, \{T, \{\alpha DP, \{v, VP\}\}\}\}$

In (5a), minimal search identifies v as the label of $SO_i$. In (5b), which is of symmetric {XP, YP} type, minimal search is ambiguous, locating two heads D and v. As mentioned above, one way to label α (=SO_j) in (5b) is to raise the subject DP, which results in (5c). At this stage, α is labeled as v. This is because Chomsky argues that α does not contain every occurrence of the subject DP so that the subject DP is taken not to be within α in (5c). In other words, the lower copy of the subject DP, part of the discontinuous element, is invisible to minimal search. Minimal search identifies the only visible head v as the label of α. Then, $SO_k$ as a whole, which is also of symmetric {XP, YP} type, is labeled in terms of agreement; the subject DP and T share ϕ-features, which are identified as the label of $SO_k$. 
2.2 Chomsky's (2015) Analysis

Chomsky (2015) analyzes the transitive/ECM constructions (1a, b) (repeated here as (6a, b)) as represented in their matrix v*P phase structures (7a, b), where R is root and v* is a phase head:

(6) a. Transitive Construction
John likes the dog.
b. ECM Construction
They expected John to win.

(7) a. Transitive Construction
[SUBJ(John) [<R(LIKE), v*> [α (= {ϕ, ϕ}) OBJ(the dog)] R(LIKE) [β t]]]]
b. ECM Construction
[SUBJ(They) [<R(EXPECT), v*> [α (= {ϕ, ϕ}) SUBJ(John) R(EXPECT) β t ...]]]

In (7a), R is root LIKE, and ti is the copy of the object (OBJ) the dog. The object the dog undergoes internal Merge to the Spec of R. Given feature inheritance from a phase head to the head of its complement, R inherits ϕ-features from v*, and the object then agrees with R. Although R is universally too weak to label, α is labeled as {ϕ, ϕ} through ϕ-agreement between R and the object, thereby valuing the Case feature of the object. Chomsky assumes that v*, which is affixed to R in internally pair-Merged <R, v*>, is invisible for labeling. Since v*, being invisible, no longer functions as a phase head, the phase head status is activated on the copy of R and the complement of R, i.e. β, undergoes Transfer. (7b) proceeds exactly like (7a) except that the embedded subject (SUBJ) John, instead of the object the dog, undergoes internal Merge to the Spec of R. It should be noted that in (6), the copy of R in α is visible to labeling.

The bridge verb construction (2) (repeated here as (8)), on the other hand, is analyzed as represented in its matrix v*P phase structure (9) under Chomsky's analysis:

(8) Bridge Verb Construction
a. He thought [that it was somehow going to work out to his benefit].
b. I think [that God is on your side].

(9) [SUBJ [<R(THINK), v*> [α R(THINK) β (= CP) C ...]]]

In (9), since β (= CP) does not have any ϕ-features, no element induces ϕ-agreement with R. We cannot label α as {ϕ, ϕ}; α is not assigned any label. To avoid this labeling problem, Chomsky stipulates that the copy of R in (9) is invisible to labeling so that α can be labeled as CP. It should also be noted that since v* becomes invisible by internal pair-Merge of R to v*, the unvalued ϕ-features on v* do not induce crashing at the interface.

2.3 Epstein, Kitahara and Seely's (2016) Analysis

Epstein, Kitahara and Seely (EKS) (2016) argue that Chomsky's analysis is paradoxical, since the copy of R is visible to labeling in the ECM/transitive construction but invisible in the bridge verb construction. In other words, there is an asymmetry with feature inheritance from a phase head to the head of its complement in that the inherited ϕ-features on a R-copy
are visible to labeling in the transitive/ECM construction but not in the bridge verb construction. To eliminate this paradoxical asymmetry with a R-copy, EKS propose that in the bridge verb construction, R (THINK) and v* should be taken directly from the lexicon and externally pair-Merged as <R, v*>. <R, v*> is then externally set-Merged with β (=CP) as shown in (10). Since there is no copy of R in (10), there does not arise any problem of (in)visibility of R's copy:

(10) [SUBJ [<R(THINK), v*] [β(=CP) C ...]]]

EKS argue that external pair-Merge of heads, though a new type of rule application, is entailed by the theory. In the minimalist program, there are four types of rule application, i.e. external and internal set-Merge, and external and internal pair-Merge. They claim that although only external pair-Merge of non-heads has been employed to create adjunction structures (Chomsky 1995; 2004), there is nothing to ban external pair-Merge of heads.

EKS further argue that external pair-Merge of R and v* is only possible when there is no need to transmit the ϕ-features of v* for Case valuation as in the case of the bridge verb construction. In the transitive and ECM constructions like (6a, b), on the other hand, if R and v* are externally pair-Merged, the Case feature of the object the dog in (6a) and that of the embedded subject John in (6b) remain unvalued, which causes their derivations to crash. Hence, in the transitive and ECM constructions like (6a, b), external set-Merge of R and its complement applies first, and then internal pair-Merge of R to v* takes place, as represented in (7a, b).

Although EKS eliminates the paradoxical asymmetry with the visibility of a R-copy, there is still an asymmetry with feature inheritance in that feature inheritance from a phase head to the head of its complement, i.e. from v* to R, takes place in the transitive/ECM construction but not in the bridge verb construction.

3. A Proposal

Although Chomsky (2015) and EKS (2016) differ from each other in their analyses of the bridge verb construction, both of them agree in that the transitive/ECM and bridge verb constructions should be analyzed differently, i.e., a copy of R induces ϕ-feature agreement in the transitive/ECM construction whereas no such agreement-inducing copy of R appears in the bridge verb construction. Contrary to their view, I propose a uniform analysis of the transitive/ECM and bridge verb constructions. More specifically, I argue that there is a copy of R that induces ϕ-feature agreement not only in the transitive/ECM construction but also in the bridge verb construction. It is shown that the proposed analysis is theoretically desirable in that it eliminates the asymmetry with feature inheritance, claiming that feature inheritance from a phase head to the head of its complement, i.e. from C/v* to T/R, always takes place.

I propose that the bridge verb construction should have "transitive-like" and "ECM-like" derivations. I argue that the CP complement of a bridge verb either (i) has its Spec position realized as expletive it as shown in (11) (the "ECM-like" derivation), or (ii) undergoes displacement leaving a variable behind as shown in (12) (the "transitive-like" derivation). Expletive it or a variable left by CP displacement induces ϕ-agreement with R by moving to the Spec of R, yielding {ϕ, ϕ} labeling:
(11) a. He thought it that it was somehow going to work out to his benefit.  
(Kim and Sag 2005: 252)  
b. I think it that God is on your side.  
(Kim 2014: 341; COCA 2012 SPOK)  
c. I thought it that it would be nearly impossible for the filmmakers to sustain such a level of excitement through the rest of the movie.  
(Kim and Sag 2005: 262)  
d. They suspected it that he was a spy.  
e. I never supposed it that they would help.  
(Rothstein 1995: 523)

(12) a. He thought it[CP that it was somehow going to work out to his benefit].  
b. I think it[CP that God is on your side].  
c. I thought it[CP that it would be nearly impossible for the filmmakers to sustain such a level of excitement through the rest of the movie].  
d. They suspected it[CP that he was a spy].  
e. I never supposed it[CP that they would help].

Let us first consider (11), where expletive it appears in the embedded Spec of C. The matrix $v^*P$ phase structure of (11a), for example, is represented in (13), which is basically the same as the ECM structure (7b):

(13) $\text{SUBJ(He)} [\langle R(\text{THINK}), v^* \rangle [\alpha(=\{\phi, \phi\}) \text{iti} [R(\text{THINK}) [\beta(=\text{CP}) \text{iti} [C ...]]]]]

In (13), expletive it is base-generated in the Spec of C and then undergoes internal Merge to the Spec of R, where it agrees with R's $\phi$-features inherited from $v^*$. $\alpha$ is labeled as $\{\phi, \phi\}$ through $\phi$-feature agreement between R and expletive it, which values the Case feature of it. Let us now turn to (12), where the CP complement undergoes displacement. The matrix $v^*P$ structure of (12a), for example, is represented in (14), which is parallel to the transitive structure (7a):

(14) $\text{SUBJ(He)} [\langle R(\text{THINK}), v^* \rangle [[\alpha(=\{\phi, \phi\}) \text{iti} [R(\text{THINK}) \text{iti} [\text{CP} ...]]]]]

In (14), the CP complement undergoes displacement, leaving variable $ti$ behind, as advocated by Stowell (1981). Given that the variable left by CP displacement is a DP (which is called the DP requirement), variable $ti$ in (14) undergoes internal Merge to the Spec of R. Then, $\phi$-feature agreement between R and variable $ti$ takes place and the Case feature of the variable is valued; $\alpha$ is labeled as $\{\phi, \phi\}$ through $\phi$-feature agreement. Hence, both the transitive/ECM and bridge verb constructions can be accommodated under the labeling theory without stipulating any asymmetry with feature inheritance.

Before leaving this section, let us explicate the DP requirement concerning the variable left by CP displacement. The DP requirement is supported by the fact that CPs can only leave traces in positions where DPs are otherwise allowed (see Williams 1981, Webelhuth 1992, Postal 1998, Alrenga 2005, Davies and Dubinsky 2010, Takahashi 2010, Moulton 2013, 2015 inter alia). Although adjectives like happy and passive/unaccusative verbs like be expected can take CP complements as shown in (15), they do not allow those CP complements to undergo displacement as shown in (16). This follows from the DP
requirement that the variables left by CP-displacement is a DP, since these adjectives and passive/unaccusative verbs do not take DP complements as shown in (17):

(15) a. I am happy [CP that it will finally rain]. (Moulton 2013: 256)
    b. It was expected [CP that the Giants would lose]. (Alregna 2005: 176)

(16) a. * [CP That it will finally rain], I am happy t. (Moulton 2013: 256)
    b. * [CP That the Giants would lose], it was expected t. (Alregna 2005: 193)

(17) a. * I am happy [DP that].
    b. * It was expected [DP the Giant's loss].

There have been proposed two types of account of the DP requirement, i.e. the DP shell account (Davies and Dubinsky 2010; Takahashi 2010) and the null operator account (Alrenga 2005). Under the DP shell account, English has a covert definite determiner which can take a CP as its complement, as represented in (18):

(18) [DP DET [CP ... ]]

When a CP complement appears to undergo overt movement, the DP consisting of a covert D and its CP complement actually moves. The derivation of (12a), for example, would proceed as represented in (19):

(19) He thought [DP t] [DP DET [CP that it was somehow going to work out to his benefit]].

Under the null operator account, on the other hand, a CP complement is base generated in the right peripheral position. A null DP operator originates in the complement position of a bridge verb and then undergoes null operator movement to the Spec of C to be associated with the base-generated CP complement. The derivation of (12a), for example, would proceed as represented in (20):

(20) [CP OP; [He thought [DP t]] [CP that it was somehow going to work out to his benefit]].

I do not investigate which account of the DP requirement should be preferable, since the issue is outside the scope of this paper. I simply assume for an expository purpose that the variable left by CP displacement is a DP.

The DP requirement gives us an account of the contrast between (15) and (16, 17). In (15), adjectives like happy and passive/unaccusative verbs like be expected are accompanied by the intransitive/unaccusative light verb v but not by the transitive light verb v*. Since the intransitive/unaccusative light verb v does not have any φ-features, there are no φ-features to be inherited by R. Hence, the derivation of (15) does not yield crashing at the interface without CP displacement. The derivations of (16) and (17), on the other hand, result in crashing at the interface. Since R does not have any inherited φ-features, there is no way of valuing the Case feature of the trace left by CP-displacement, which is a DP by the DP requirement, in (16) or that of the DP complement in (17).
4. Evidence for our Uniform Analysis

This section presents evidence in favor of our uniform analysis of the transitive/ECM and bridge verb constructions. Specifically, I adduce arguments for the proposal that the CP complement of a bridge verb either (i) has its Spec position realized as expletive *it* (the "ECM-like" derivation), or (ii) undergoes displacement leaving a variable behind (the "transitive-like" derivation).

4.1 Evidence for Expletive *It* in the Spec of C

Let us first look at evidence supporting our claim that the CP complement of a bridge verb can have its Spec position realized as expletive *it* as represented in (13) (repeated here as (21)):

(21) [SUBJ(He) [<R(THINK), v*>] [[α (=ϕ, ϕ)) it] [R(THINK) [β (=CP) ti [C ...]]]]]

First, while *wh*-extraction is allowed out of the CP complement of a bridge verb as shown in (22), it is not allowed when expletive *it* appears as shown in (23) (see, among others, Stroik 1996):

(22) a. To whose benefit did he think [that it was somehow going to work out]?  
   b. How did he think [that it was somehow going to work out to his benefit]?  
(23) a. *To whose benefit did he think [it that it was somehow going to work out]?  
   b. *How did he think [it that it was somehow going to work out to his benefit]?

In (22a), for example, the *wh*-phrase *to whose benefit* undergoes successive cyclic movement from its original position to the matrix Spec of C through the embedded Spec of C. The derivation of (22a) proceeds as represented in (24):

(24) a. [CP to whose benefit1 [C that [TP it was somehow going to work with ti]]]  
   b. [<R(THINK), v*> [[RP [R(THINK) [CP t2]]] [CP to whose benefit1 [that [TP it was somehow going to work with ti]]]2]]  
   c. [<R(THINK), v*> [[RP to whose benefit1 [R(THINK) [CP t2]]] [CP t’1 [that [TP it was somehow going to work with ti]]]2]]  
   d. [CP to whose benefit1 [C-did [TP he [[<R(THINK), v*> [RP t”1 [R(THINK) [CP t2 ]]]] [CP t’1 [that [TP it was somehow going to work with ti]]]2]]]

The *wh*-phrase *to whose benefit* undergoes movement to the embedded Spec of C within the embedded CP phase (24a). Then, within the matrix RP phase, the CP complement clause undergoes displacement to the right edge of the matrix RP, and the *wh*-phrase *to whose benefit* undergoes further movement to the matrix Spec of R, as shown in (24b, c). It should be noted that we claim that CP displacement to the right edge of the matrix RP and *wh*-movement from the embedded Spec of C to the matrix Spec of R take place simultaneously within the matrix RP phase (see, among others, Chomsky 2008 for simultaneous applications of movement operations within a phase). Although *wh*-extraction takes place out of a displaced domain in (24c), there is no "freezing effect" thanks to the simultaneous applications of CP displacement and *wh*-movement. Finally, the *wh*-phrase *to whose benefit* undergoes movement from the matrix Spec of R to the matrix Spec of C within the matrix CP
phase, as shown in (24d). Hence, we can correctly predict that (22a) is acceptable. In (23a), on the other hand, expletive *it* originates in the embedded Spec of C and then undergoes movement to the Spec of the matrix R. Since the copy (trace) of expletive *it* stays in the embedded Spec of C, it prevents the *wh*-phrase *to whose benefit* from moving through the embedded Spec of C as represented in (25), which results in an island violation:

(25) [CP *to whose benefit* [C-did [TP he [[<R(THINK), v*> [RP *t*1 *it*2 [R(THINK) [CP *t*2 [that [TP it was somehow going to work with *t*1]]]]]]]]]]]

Second, movement of a *that*-clause over expletive *it* is not allowed, as exemplified by (26):

(26)*[That it was somehow going to work out to his benefit], he thought it.

Under the proposed analysis, (26) is assigned structure (27):

(27)*[CP *t*1 That it was somehow going to work out to his benefit]2, he [[<R(THINK), v*> [RP *it*1 [R(THINK) [CP *t*2 ]]]]]

In (27), the copy (trace) of expletive *it* in the embedded Spec of C is not c-commanded by its antecedent, *i.e.* expletive *it* in the matrix Spec of R. This violates the Proper Binding Condition on a par with (28) (see Fiengo 1977 and Saito 1985 *inter alia*):

(28)*[*t*1 to have left angrily]2, Bill believes John1 quite sincerely *t*2.

Third, when adverbials like *obviously* and *seriously* modify bridge verbs like *think*, the adverbials must appear after expletive *it*, as shown in (29):

(29) a. He thought *it obviously* that it was somehow going to work out to his benefit.
    b. I think *it seriously* that God is on your side.

Let us consider (29a) as an example. Under our analysis, the structure of (29a) is represented in (30):

(30) He [[<R(THINK), v*> [RP *it*1 [obviously [R(THINK) [CP *t*1 [that [TP it was somehow going to work out to his benefit]]]]]]]]

In (30), expletive *it* is base-generated in the embedded Spec of C and then undergoes movement to the matrix Spec of R, crossing the adverbial *obviously*. Hence, our analysis can correctly predict that expletive *it* precedes matrix adverbials like *obviously* and *seriously* in the bridge verb construction.

4.2 Evidence for CP Displacement

Let us turn to evidence supporting our claim that the CP complement of a bridge verb undergoes displacement, leaving a variable, as shown in (14) (repeated here as (31)):
First, the CP complement of a bridge verb licenses a parasitic gap (PG) as exemplified by (32):

(32) He thought \( t_1 \) [before mentioning \( PG_1 \) to his wife] \([CP \text{ that it was somehow going to work out to his benefit}]_1\).

In (32), the CP complement that it is was somehow going to work out to his benefit licenses the parasitic gap within the adjunct clause. Given that a parasitic gap is only licensed by so-called "A'-movement" (see Engdahl 1983 and Chomsky 1986 inter alia), this shows that the CP complement undergoes "A'-displacement." This is in contrast with (33), which indicates that the CP complement that it is was somehow going to work out to his benefit cannot license a parasitic gap when expletive it appears:

(33)*He thought it [before mentioning \( e_1 \) to his wife] \([CP \text{ that it was somehow going to work out to his benefit}]_1\).

Recall that under our analysis, when expletive it appears in the bridge verb construction, ϕ-feature agreement takes place between R and expletive it. There is no need for the CP complement to undergo displacement, leaving a variable which induces ϕ-feature agreement with R. Hence, no CP displacement takes place in (33), which results in a failure of parasitic gap licensing.

Second, the proposed analysis predicts that when a parasitic gap is licensed in the bridge verb construction, wh-extraction should be allowed out of the CP complement. This prediction is borne out as shown in (34):

(34) a. To whose benefit\( _2 \) did he think \( t_1 \) [before mentioning \( PG_1 \) to his wife] \([CP \text{ that it was somehow going to work out } t_2]_1\)?

b. How\( _2 \) did he think \( t_1 \) [before mentioning \( PG_1 \) to his wife] \([CP \text{ that it was somehow going to work out to his benefit } t_2]_1\)?

Legitimacy of a parasitic gap in (34) indicates that the CP complement undergoes "A'-displacement." Under our analysis, the derivations of (34a, b) proceed in the same way as those of (22a, b). Hence, we can correctly predict that when a parasitic gap is licensed, wh-extraction out of the CP complement is allowed.

Third, the CP complement of a bridge verb must follow other subcategorized complements as exemplified by (35) (see, among others, Stowell 1981):

(35) a. He thought \([CP \text{ that it had been his fault all along}] [PP \text{ to himself}]\).

b. He thought \([PP \text{ to himself}] [CP \text{ that it had been his fault all along}]\).

The contrast between (35a) and (35b) indicates that the CP complement that it had been his fault all along must follow the PP complement to himself. This ordering between the CP and PP complements straightforwardly follows from our analysis where the CP complement
is forced to "A'-displacement" to the right edge of RP phase in the bridge verb construction because of labeling.

5. Conclusion
This paper has proposed a uniform analysis of transitive/ECM and bridge verb constructions. I have argued that there is a copy of R that induces \( \phi \)-feature agreement not only in the transitive/ECM construction but also in the bridge verb construction. It was shown that the bridge verb construction has "transitive-like" and "ECM-like" derivations; the CP complement of a bridge verb either (i) has its Spec position realized as expletive \( \text{it} \) (the "ECM-like" derivation), or (ii) undergoes displacement leaving a variable behind (the "transitive-like" derivation). Expletive \( \text{it} \) or a variable left by CP displacement induces \( \phi \)-agreement with R by moving to Spec-R, yielding \( \{ \phi, \phi \} \) labeling. The proposed analysis is theoretically desirable in that it eliminates the asymmetry with feature inheritance from \( v^* \) to R assumed in Chomsky (2015) and EKS (2016), making \( v^*P \) phase completely parallel to CP phase with respect to feature inheritance. It was also shown that the proposed analysis receives support from the \( \text{wh} \)-extraction, proper binding condition, parasitic gap, and word order facts.

References


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1. Introduction

The goal of current work is to identify the novel type of subjunctive mood selection in Korean. Traditionally, mood refers to the linguistic strategies signaling modality and allowing speakers to express their attitude toward what they are saying. Among the various types of mood (indicative, subjunctive, interrogative, imperative, etc.), the study of subjunctive mood has been extensively conducted in a variety of European languages (Greek, Portuguese, Italian, Catalan, Spanish, French). Korean subjunctive has been developed by pioneering studies of Yoon (2011, 2013), who establishes empirical and theoretical correlations between subjunctive and evaluative negation (EN). However, as far as our knowledge goes, the precise nature of complementizer and its relations with subjunctive mood in Korean have yet to be discussed. In this paper, our study mainly focuses on subjunctive marking occurring in the subordinator C.

Korean employs overt particles to mark questions and interrogative complementizers. As shown below, we have the ordinary question marker \textit{ni} in (1) and ordinary interrogative complementizer \textit{ci} in (2):

\begin{verbatim}
(1) onul-i con-uy sayngil-i-ni?
Today-Nom John-Gen birthday-be-Q
‘Is today John’s birthday?’

(2) onul-i con-uy sayngil-i-n-ci kwungkumha-ta.
Today-Nom John-Gen birthday-be-Pres-whether wonder-Pres-Decl
‘I wonder \textbf{whether} today is John’s birthday.’
\end{verbatim}

The criteria of questions and interrogative complementizers in Korean are further subdivided into ordinary vs. modalized which is marked by the single particle \textit{nka} (Kang and Yoon, to appear). As illustrated below, \textit{nka} has a hybrid use of modalized question marker in (3) and modalized interrogative complementizer in (4). By using \textit{nka}, the speaker expresses her epistemic uncertainty on the given proposition in question:

\begin{verbatim}
(3) Context: Mari was not sure whether John’s birthday is today or tomorrow. With full uncertainty, Mari says:
onul-i con-uy sayngil-i-nka?
Today-Nom John-Gen birthday-be-NKA
‘\textbf{Maybe} today is John’s birthday, \textbf{maybe not}?‘
\end{verbatim}
Mood selection in Korean: epistemic subjunctive and attitude predicates

(4) onul-i con-uy sayngil-i-nka kwungkumha-ta.
    Today-Nom John-Gen birthday-be-whether.SUBJ wonder-Decl
    ‘I wonder if today might be John’s birthday.’

Just like an epistemic modal, nka specifies the weakest commitment to the possibility of proposition. In this vein, the semantic contribution of nka is analyzed as an inquisitive disjunction and/or nonveridical equilibrium operator (Kang and Yoon, to appear). The nka morpheme is assumed to be truly inquisitive since it questions the speaker’s belief and knowledge.

In this paper, we focus on the modalized question variant nka in the embedded clause, which have generally received less attention. As revealed in the translation, the sentence in (4) contains an epistemic modal ‘might’ in the subordinate clause, whereas ci in (2) does not exhibit such modal property. The effect is achieved by application of nka in the embedded clause. This brings us to the main question of the present work, as follows: First, what is the semantic contribution of nka? Second, how its behavior is different from the ordinary interrogative ci-complementizer? Given these questions, we want to explore the empirical dimension and figure out how the distinct behaviors in Korean and other languages relate to each other. As will be seen in detail soon, we argue that nka is a grammatical category of sub-type of subjunctive in the interrogative complement clause. In this vein, from now on, we term it as a subjunctive-interrogative complementizer (SUBJ.Q-Comp, henceforth), and gloss it as ‘whether.SUBJ’.

The behavior of nka SUBJ.Q-Comp is distinct from the cross-linguistic subjunctive in many aspects. For reasons to be made clear soon, we provide three core properties as follows: First, Korean subjunctive mood can appear in the interrogative complement clause. Second, as revealed in (2) and (4), nka SUBJ.Q-Comp and ci Q-Comp does not exhibit complementary distribution of predicates in mood selections. It is contrasted with the strict selection in other languages. Third, as a subjunctive particle, the addition of nka produces a semantic contribution and manifests epistemic weakening on the proposition. We treat nka exhibiting speaker/subject’s epistemic uncertainty in her doxastic space. In this vein, the function of nka in the embedded clause is suggested as an epistemic subjunctive. Building on the basic assumption that the subjunctive morphemes have presuppositions that they have the subject’s nonveridical private space, we aim to capture the semantic role of nka under the general theory of nonveridical subjectivity (Giannakidou and Mari 2017). Our claim will be further supported by corpus study on the type of predicates selecting nka SUBJ.Q-Comp and ci Q-Comp. Developing such an account will provide us with an empirically more adequate perspective.

The paper proceeds as follows: In Section 2, we review the theoretical backgrounds on subjunctive mood selection and examine the contrast between Korean and other languages. In Section 3, we discuss the core properties of nka by observing the types of predicates that take nka SUBJ.Q-Comp and ci Q-Comp. In Section 4, we conduct corpus study. In Section 5, we present the semantic analysis of nka-complementizer, which is sensitive to epistemic subjunctive mood. We conclude in Section 6 with the theoretical implications.

2. Subjunctive mood selection: Korean vs. other languages

In traditional grammar, the selection of mood reflects the degree of belief and speaker’s commitment on the truth of the proposition: indicative is selected by the strong commitment on the truth of the proposition (i.e., realis) whereas subjunctive is selected by the weak
commitment (i.e., irrealis). Subjunctive mood selection refers to the phenomena where modal predicates expressing the weak commitment select subjunctive. Subjunctive mood is generally marked in the embedded clauses by means of overt verbal inflections in Latin and Romance languages, or sentential particles such as the subordinator C in Modern Greek and Balkan languages. For example, as shown below, the desire verbs *veut ‘want’ in French and *thelo ‘want’ in Greek obligatorily select subjunctive on the verbs in an embedded clause in (5) or on the complementizer in (6) respectively (Giannakidou and Mari 2017, (2b), (5)):

(5) a. Marc sait que le printemps *soit/est arrivé [French]
   Marc knows that the spring be-SBJV-3sg/be-IND-3sg arrived
   ‘March knows that spring has arrived.’
b. Marc veut que le printemps soit/*est long.
   Marc wants that the spring be-SBJV-3sg/be-IND-3sg long
   ‘March wants spring to be long.’

(6) a. O Pavlos kseri *na/oti efije i Roxani. [Greek]
   The Paul knows-3SG that-SUBJ/that-IND lef-3SG the Roxani
   ‘Paul knows that Roxanne left.’
b. Thelo na/*oti kerdisi o Janis.
   want-1sg that.SBJV/that.IND win.NONPAST-3SG the John
   ‘I want John to win.’

The valid types of modal predicates, however, vary across language and it is hard to simply generalize the categorization of subjunctive selecting verbs. Table 1 summarizes the observations with respect to the cross-linguistic mood selection (Marques 2004, pp. 105):

<table>
<thead>
<tr>
<th>Context where the proposition $P$ occurs</th>
<th>Veridical</th>
<th>Non-veridical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reality</td>
<td>Non-epistemic</td>
<td>Epistemic</td>
</tr>
<tr>
<td>be good that $P$</td>
<td>know that $P$</td>
<td>imagine that $P$</td>
</tr>
</tbody>
</table>

| Romanian, Hungarian, (Modern) Greek       | INDICATIVE | SUBJ. |
| Portuguese                               | INDICATIVE | SUBJ. |
| Italian, Catalan, Spanish, French        | SUBJ. | INDICATIVE | SUBJ. |

Table 1. modal contexts and selection of indicative or subjunctive in complement clauses

1 In line with many previous works (Villata 2008; Anand and Hacquard 2013, a.o.), our fundamental assumption is that subjunctive triggering verbs have modal force with ordering source as follows (Villata 2008, pp. 481):

(i) A proposition $p$ that is the complement of the matrix predicate requires the subjunctive mood if the matrix predicate introduces an ordering relation between propositions and compares $p$ to its contextually available alternatives.
The followings are the list of subjunctive verbs in Greek and Italian (Giannakidou and Mari 2017: (71), (72)):

(7) Subjunctive verbs in Greek
   a. volitionals: *thelo* (want), *skopevo* (plan)
   b. directives: *dhiaitazo* (order), *simvulevo* (advise), *protino* (suggest)
   c. modal verbs: *prepi* (must), *bori* (may)
   d. permissive: *epitrepo* (allow), *apagorevo* (forbid)
   e. implicatives: *katorthono* (manage), *anagazo* (force)

(8) Subjunctive verbs in Italian
   a. volitionals: *volere* (want)
   b. directives: *ordinare* (order), *consigliare* (suggest)
   c. modal verbs: *e necessario* (must), *e possibile* (may)
   d. permissive: *impedire* (forbid)
   e. doxastic: *credere* (believe), *pensare* (think)

Although the above languages exhibit flexibility in the modal predicates triggering subjunctive and reveals distinct marking strategies, what they have in common is that i) they exhibit complementary distributions between indicative and subjunctive, ii) mood appears in a declarative complement, and iii) subjunctive marking does not provide additional meaning but reflect modal properties of the context in which it occurs.

As mentioned above, just like Greek, Korean subjunctive *nka* is formally marked at the level of subordinator C where the embedded clause is introduced. Likewise, all the predicates selecting *nka* should allow the inference that their complement clause is not taken to be true. The grammar of mood selection in Korean, however, appears to make a crucial distinction from above languages as follows: First, group of verbs that select the subjunctive in Korean does not have uniform characterization with other languages. Consider the following list for Korean subjunctive verbs that license evaluative negation (EN) (Yoon 2011, 2013). Here, *epistemic uncertainty* is a sub-characteristic of subjunctive in Korean:

(9) A subtype of subjunctive verbs (Yoon 2013: (50))
   a. volitional: *hyimangha* ‘hope’, *kitayha* ‘hope’
   b. verbs of fear: *twuryeweha* ‘fear’, *kekcengha* ‘worry’
   c. directives: *chwungkoha* ‘advise’, *ceyanha* ‘suggest’
   d. verbs of uncertainty: *molu* ‘not;know’, *kwungkumha* ‘wonder’

Second, the addition of *nka* comes with a semantic effect. As shown below, in (10), when *nka* combines with the desire verb *siph* ‘want’, the speaker makes the non-commitment to the truth of the proposition, and meaning change occurs into epistemic uncertainty. It is contrasted with the indicative proposition in (11), which is associated with an assertive speech act. The occurrence of indicative proposition is infelicitous because, in a given context, the speaker does not assert a true proposition but considers a set of possibilities of the given propositional content:

*Context: Mary didn’t feel good today. She had a fever and nausea. John, Mary’s friend, asked her if she is ok. Given her symptom, Mary inferred that she might have caught a cold. But at the same time, she was unlikely to catch a cold. She might have an upset stomach since*
she ate a food after the expiration date last night. With full uncertainty about her inference, Mary says:

(10) amato kamki-i-nka siph-ta.
    maybe cold-be-whether.SUBJ want-Decl
    ‘Maybe it seems like a cold.’
    ‘I conjecture whether it might maybe be a cold.’

(11) #kamki-i-ta.
    cold-be-Decl
    ‘It is a cold.’

When nka occurs in embedded context, it does not entail the truth of proposition in subordinate clause. It is further supported by following examples. Nka cannot combine with veridical verb al ‘know’ in (12). When combining with the morphologically negative verb mol(u) ‘not;know’, it gives rise to dubitative reading in (13):

(12) #kamki-i-nka a-n-ta.
    cold-be-whether.SUBJ know-Pres-Decl
    ‘lit. I know that it is a cold.’

(13) kamki-i-nka molu-keyss-ta.
    cold-be-whether.SUBJ not.know-Mod-Decl
    ‘I doubt if it is a cold.’

The example in (13) is clearly the case of the verb doubt which expresses an attitude of non-belief. Nka manifests properties analogous to what an irrealis assertion denotes.

Third, Korean subjunctive mood exhibits flexible selection. In the selection or predicates, the ordinary Q-Comp and subjunctive Comp are not in complementary distribution but they share certain types of predicates they co-occur. As shown below, they both co-occur with kwungkumha ‘wonder’:

(14) a. kamki-i-nka kwungkumha-ta.
    cold-be-whether.SUBJ wonder-Decl
    ‘I wonder whether it might be a cold.’
b. kamki-i-n-ci kwungkumha-ta.
    cold-be-Prej-whether wonder-Decl
    ‘I wonder whether it is a cold.’

The above properties lead us to assume that we need a more flexible notion of subjunctive mood selection. In the next section, we observe the selection patterns of nka SUBJ.Q-Comp and ci Q-Comp.

3. Nka in the inquisitive clause and attitude predicates

Traditionally, interrogative predicates requiring clausal complements fall in different categories depending on the kind of complements that they can embed. These contrasts in embedding are widely supported by cross-linguistic data (Karttunen 1977; Lahiri 2002). For example, in English, a verb like believe in (15) takes only declarative complements while a verb like wonder takes interrogative complements in (16):
(15)  a. Mari believes that today is John’s birthday.
    b. *Mari believes whether today is John’s birthday.
(16)  a. *Mari wonders that today is John’s birthday.
    b. Mari wonders whether today is John’s birthday.

Above data reveal that there is a syntactico-semantic dichotomy in assigning different semantic values to questions and assertions. However, not all predicates exhibit such a complementary distribution. For example, a factive verb *know* takes both declarative and interrogative complement:

(17)  a. Mari knows that today is John’s birthday.
    b. Mari knows whether today is John’s birthday.

For the classification of question embedding predicates, we build on the Lahiri (2002)’s category as follows (Lahiri 2002, pp. 286-287):

<table>
<thead>
<tr>
<th>Predicates that take interrogative complements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rogative</td>
</tr>
<tr>
<td>wonder, ask, investigate...</td>
</tr>
<tr>
<td>Responsive</td>
</tr>
<tr>
<td>Veridical</td>
</tr>
<tr>
<td>know, remember, forget,</td>
</tr>
<tr>
<td>discover, show, tell,</td>
</tr>
<tr>
<td>be surprised, amaze...</td>
</tr>
<tr>
<td>Non-veridical</td>
</tr>
<tr>
<td>be certain, agree on,</td>
</tr>
<tr>
<td>conjecture about...</td>
</tr>
</tbody>
</table>

Rogative predicates are predicates that take interrogative complements and do not license declarative complements. Responsive predicates are characterized by the two following properties: First, they take both declarative and interrogative complements:

(18)  a. Mari knows that today is John’s birthday.
    b. Mari and Bill agree that today is John’s birthday.

Second, they express a relation between the holder of an attitude and a proposition which is an answer to the embedded question.

(19)  a. “Mari knows whether today is John’s birthday” is true iff Mari knows p, where p is the true answer to “is today John’s birthday?”
    b. “Mari and Bill agree on whether today is John’s birthday” is true iff Mari and Bill agree that p, where p is a possible answer to “is today John’s birthday?”

Given the above observations, Lahiri divides responsive predicates into two classes (adapted from Égré and Spector 2007), as follows:

(20)  a. *Veridical-responsive*: Responsive predicates that express a relation to the actual true answer
b. Non-veridical responsive: Responsive predicates that express a relation to a potential answer

Veridical-responsive predicates express a relation between an attitude holder and a proposition. Here the proposition is the actual complete answer to the embedded question. The sentence “Mari knows that today is John’s birthday” entails that Mari has a true belief as to whether today is John’s birthday. On the other hand, non-veridical responsive predicates express a relation between an attitude holder and a proposition that is simply a potential complete answer to the embedded question. The sentence “Mari and Bill agree on whether today is John’s birthday” is true even if Mari and Bill both believe that the today is John’s birthday while in fact it isn’t.

Then let’s consider Korean data. Traditionally, in Korean, the declarative complementizer ko and the interrogative complementizer ci has been known to form a split morpho-syntactic system corresponding to English that and whether respectively. Just like English complementizers, ko and ci exhibit the complementary distribution with verbs in terms of Lahiri’s typology. As shown below, the declarative complementizer ko can occur in complement clauses of the declarative verb mit ‘believe’ in (21a), but not of the rogative verb kwungkumha ‘wonder’ in (21b). On the other hands, the interrogative complementizer ci can occur in complement clauses of the rogative verb kwungkumha ‘wonder’ in (22a), but not of the declarative verb mit ‘believe’ in (22b):

    Mari-Top today-be John’s birthday be-Decl-that believe-Pres-Decl
    ‘Mari believes that today is John’s birthday.’

    b. #Mari-nun onul-i con-uy sayngil-i-n-ci mit-nun-ta.
    Mari-Top today-be John’s birthday be-Pres-whether believe-Pres-Decl
    ‘#lit. Mari believes whether today is John’s birthday.’

(22) a. #Mari-nun onul-i con-uy sayngil-i-la-ko kwungkumha-ta.
    Mari-Top winner-Nom John’s birthday be-Decl-that wonder-Decl
    ‘#lit. Mari wonders that today is John’s birthday.’

    b. Mari-nun onul-i con-uy sayngil-i-n-ci kwungkumha-ta.
    Mari-Top winner-Nom John’s birthday be-Pres-whether wonder-Past-Decl
    ‘Mari wonders whether today is John’s birthday.’

Further, ci co-occurs with the veridical responsive factive verb a(l) ‘know’ in (23b), and implies that the subject Mari knows the true answer to “is the winner John?”:

(23) a. Mari-nun onul-i con-uy sayngil-i-la-ko a-n-ta.
    Mari-Top today-be John’s birthday be-Decl-that know-Pres-Decl
    ‘Mari knows that today is John’s birthday.’

    b. Mari-nun onul-i con-uy sayngil-i-n-ci a-n-ta.
    Mari-Top today-be John’s birthday be-Pres-whether know-Pres-Decl
    ‘Mari knows whether today is John’s birthday.’

As an interrogative complementizer, ci is also compatible with the non-veridical responsive predicate hwaksinha ‘be certain’ in (24b), and implies that the subject Mari is certain the potential answer to “is the winner John?”:
Mood selection in Korean: epistemic subjunctive and attitude predicates

Mari-Top today-be John’s birthday-be-Decl-that be.certain-Past-Decl
‘Mari was certain that the winner is John.’
b. Mari-nun onul-i con-uy sayngil-i-n-ani-n-ci hwaksinha-ss-ta.
Mari-Top today-be John’s birthday-be-D ecl-whether Neg-Pres-whether be.certain-Past-Decl
‘Mari was certain whether today is John’s birthday (or not).’

The above data leads us to assume that the type of predicates taking Korean *ci* are equivalent to English *whether*.

The SUBJ.Q-Comp nka shows the similar distributional restriction to the the Q-Comp nka. Further, it is incompatible with declarative verb *mit* ‘believe’ whereas compatible with rogative predicates. For example, as shown in (25b), nka-questions can appear with the verb kwungkumha ‘wonder’ whereas it exhibits distributional restrictions in that they never co-occur with the declarative verbs in (25a):

Mari-Top today-be John’s birthday-be-whether.SUBJ believe-Past-Decl
‘#lit. Mari believed if the winner might be John.’
b. Mari-nun onul-i con-uy sayngil-i-n-ka kwungkumha-ss-ta.
Mari-Top today-be John’s birthday-be-whether.SUBJ wonder-Past-Decl
‘Mari wondered whether today might be John.’

In light of the above data, we might assume that the nka are acceptable only if they display the semantics of embedded question just like *ci*, which is not true. In fact, *ci* and nka exhibit distinct distributional restrictions in crucial aspects: First, nka never co-occurs with the veridical responsive verbs. As shown below, for example, the occurrence of nka is strictly restricted with the verb *a(l)* ‘know’:

(26) #Mari-nun onul-i con-uy sayngil-i-nka a-n-ta.
Mari-Top today-be John’s birthday-be-whether.SUBJ know-Pres-Decl
‘intended: Mari knows whether the winner is John.’

Nka cannot take the veridical responsive predicates, which presupposes the true answer.

Second, nka is incompatible with other non-veridical responsive predicates other than ‘conjecture’-type predicates. As shown below, the non-veridical responsive predicate chuchukha ‘conjecture’ can take the declarative clause in (27a), interrogative clause in (27b), and nka-clause in (27c):

Mari-Top today-be John’s birthday-be-Decl-that conjecture-Past-Decl
‘Mari conjectured that today is John’s birthday.’
b. Mari-nun onul-i con-uy sayngil-i-n-ci (ani-n-ci) chuchukha-ss-ta.
Mari-Top today-be John’s birthday-be-Decl-whether Neg-Pres-whether conjecture-Past-Decl
‘Mari conjectured whether today is John’s birthday (or not).’

c. Mari-nun onul-i con-uy sayngil-i-(ani)-nka
   Mari-Top today-be John’s birthday-be-Neg-whether.SUBJ
   chuchukha-ss-ta.
   conjecture-Past-Decl
   ‘Mari conjectured whether today might be John’s birthday.’

On the other hand, the nka-clause cannot take the non-veridical responsive predicate such as hwaksinha ‘be certain’, which is unexpected from declarative and ordinary interrogative complementizer, as shown in (28):

(28) #Mari-nun onul-i con-uy sayngil-i-(ani)-nka
   Mari-Top today-be John’s birthday-be-Neg-whether.SUBJ
   hwaksinha-ss-ta.
   be.certain-Past-Decl
   ‘lit. Mari was certain whether today is John’s birthday.’

Summing up, ci and nka takes the distinct categorization of predicates as follows:

(29) a. Predicates that take ci-complement       b. Predicates that take nka-complement

Then it raises the following interim question: why nka select only rogative and non-veridical responsive (conjecture) predicates they do?

As a SUBJ.Q-Comp, the addition of nka in embedded clauses produces a weakening, nonveridicality effect. By doing this, it specifies the degree of certainty about the proposition in embedded question and gives rise to epistemic uncertainty or doubt interpretation. Let’s see the example below. As mentioned above, the non-veridical responsive predicates taking nka express a relation between the holder of an attitude and a proposition which is a possible answer to the embedded question. Given that the semantics of embedded questions comprises all potential answers, the employment of an interrogative complementizer introduces both positive and negative cases as equal possibilities of p or ¬p. If the speaker chooses nka, she additionally expresses the subject’s weakest commitment to the possibility of propositional content:

(30) a. Mari-nun onul-i con-uy sayngil-i-nka
   Mari-Top today-be John’s birthday-be-whether.SUBJ
   chuchukha-ss-ta.
   conjecture-Past-Decl
   ‘Mari conjectured whether today might be John’s birthday.’

b. Mari conjectured nka-Comp today is John’s birthday.
true if Mari has weaker belief that today is John’s birthday while she has weaker belief that today is not John’s birthday.

i.e. Mari conjectures that \( p \), where \( p \) might be a potential answer to “is today John’s birthday?”

& Mari is undecided as to where the actual world is in \( p \) or \( \neg p \). (epistemic uncertainty)

(31) “Mari conjectures \( nka\)-Comp today is John’s birthday” is true iff Mari conjectures that \( p \), where \( p \) might be a possible answer to “is today John’s birthday?” & Mari has uncertainty between the possible answer sets.

Reporting on the consideration of a set of alternative possibilities, \( nka \) expresses subject’s uncertainty in her doxastic space. In this vein, it inevitably involves the subjunctive mood. The empirical evidence to support this comes follows. As shown below, when \( nka \) combines with morphologically negative verbs like \( mol(u) \) ‘not.know’, it yields a dubitative reading in (32b) interpreted as ‘doubt’ rather than ‘not.know’ induced by \( ci \) in (32a):

(32) a. onul-i con-uy sayngil-i-n-ei molu-keyss-ta.

   Today-be John’s birthday-be-Pres-whether not.know-Mod-Decl

   ‘I don’t know whether today is John’s birthday.’

b. onul-i con-uy sayngil-i-nka molu-keyss-ta.

   Today-be John’s birthday-be-whether.SUBJ not.know-Mod-Decl

   ‘I doubt if today is John’s birthday.’

The above facts collectively support our claim that \( nka \) reduces speaker’s commitment to the truth of the sentence. We take this to argue that a strong connection exists between the non-veridical reading and the subjunctive mood since both are related to speaker/subject’s non-commitment to the truth of proposition.

Conjecture and doubt trigger a non-homogeneous doxastic space hence subjunctive is predicted. In this vein, \( nka \) can be taken as an epistemic subjunctive complementizer. The epistemic SUBJ.Q-Comp questions the subject’s belief and knowledge and expresses her epistemic uncertainty on the possible answer sets. The epistemic SUBJ.Q-Comp \( nka \) presupposes that they contain the subject’s private space which will be nonveridical which is partitioned into equal spaces (i.e. the state of nonveridical equilibrium; Giannakidou 2013).

Let’s consider syntactic aspect. There is a cross-linguistic variation in the subjunctive mood incorporated in complementizers. As mentioned above, in French and the most Romance languages, the mood exponent appears on the verb. In contrast, mood can appear outside the verbal form in the subordinating \( C \). If we are on the right track, Korean is a language which subcategorizes the interrogative complementizer into subjunctive and non-subjunctive. We suggest the following syntactic structure for \( nka \) SUBJ.Q-Comp:

(33)

```
CP
  /
C: nka
  /
C: epistemic subjunctive (uncertainty/doubt)
```
The above structure is built on the assumption that a propositional attitude verb encodes a complement that needs to appear in a particular mood. In the interrogative embedded clause, Korean selects nka under epistemic subjunctive verbs such as uncertainty and doubt. Summing up, Korean employs the distinct types of interrogative complementizer variants, ci vs. nka, where only nka for marking subjunctive mood. For the further empirical data to support this, in what follows, we conduct corpus study.

4. Corpus study
In order to observe the list of predicates selecting nka and ci, we collected data from Sejong 21 sense tagged corpus, consisted of approximately 12 million words of written texts. We extracted predicates co-occurring both with ci and nka in a given corpus by using Perl program. We found that 569 predicates in nka and 758 predicates in ci. Among them, we focused on the 19 predicates co-occurring both with the SUBJ.Q-Comp nka and the Q-Comp ci, listed as follows:


We further categorize the above predicates as followings:

(35) category I: rogative
    category II: responsive veridical
    category III: responsive non-veridical (conjecturing)
    category IV: responsive non-veridical (non-conjecturing)

If our assumption is on the right track, the predicates in (34) should be included either category 1 or category 3. Further, given that nka is an epistemic subjunctive complementizer whereas ci is an ordinary interrogative complementizer, the predicates in category III would be strongly attracted to nka whereas the predicates in category I would be strongly attracted to ci. We examine this by means of the frequency aspect and the statistical method.

First, the followings are the list of predicates co-occurring with nka. Surprisingly, they appear in category I and III only, including 9 predicates in category I and 10 predicates in category III:

<table>
<thead>
<tr>
<th>category I</th>
<th>mut ‘ask’ (31), kungkunha ‘wonder’ (7), poi ‘show; display’ (6), salphi ‘study; check’ (6), alapo ‘investigate’ (6), palkhi ‘clarify’ (5), uyaha ‘wonder’ (3), salphyepo ‘examine’ (3), camwunha ‘ask oneself’ (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>category III</td>
<td>ha ‘do’ (445), siph ‘want’ (279), po ‘see/seem’ VX (275), po ‘see’ VV</td>
</tr>
</tbody>
</table>

2 At first, we extracted 213 common predicates co-occurring with nka and ci. Among them, we excluded the case of (i)nka combining with wh-words to form anti-specific wh-indeterminates. According to Kang (2015, 2016) and Kang and Yoon (2016), (i)nka with anti-specific indeterminates is not taken as an interrogative complementizer but a referential vague particle at the individual level alternatives. As a result, we came to have 19 predicates.
(55), sayngkakha ‘consider’ (44), molu ‘not know’ (8), panmwunha ‘ask myself’ (7), uysimha ‘doubt’ (5), kominha ‘agonize; being concerned’ (5), uysimsulep ‘be doubtful’ (5)

Table 2. The classification of predicates in (34) with nka-comp

As shown above, the total frequency of predicates in category I are 70, which is 5.84% of whole 19 target predicates co-occurring with nka-Comp. On the other hand, the total frequency of predicates in category III are 1131, which is 94.16% of whole 19 target predicates co-occurring with nka-Comp. It leads us to the fact that nka frequently combine with the predicates of category III than I.

The followings are the list of predicates co-occurring with ci. They appear in category I, II and III, including 11 predicates of category I, 2 predicates in category II and 6 predicates in category III:

| category I | kungkumha ‘wonder’ (171), mut ‘ask’ (103), alapo ‘investigate’ (61), salphypo ‘examine’ (44), po ‘see’ VV (30), poi ‘show; display’ (23), palkhi ‘clarify’ (22), salphi ‘study; check’ (22), uyaha ‘wonder’ (14), po ‘see/seem’ VX (7), camwunha ‘ask oneself’ (4) |
| category II | molu ‘not know’ (1801), sayngkakha ‘consider’ (68) |
| category III | ha ‘do’ (67), uysimsulep ‘be doubtful’ (45), uysimha ‘doubt’ (13), kominha ‘agonize; being concerned’ (5), siph ‘want’ (1), panmwunha ‘ask myself’ (1) |

Table 3. The classification of predicates in (34) with ci-comp

3 The subjunctive mood of nka is further supported by the fact that nka produces change in meaning with the verb, becoming equivalent to the conjecture, uncertainty or doubt. For example, when doxastic verbs such as po ‘see’, sayngkakha ‘consider’ and mol(u) ‘not; know’ combine with nka, they are interpreted as conjecture verbs in (ia), (iiia) and (iiia):

(i) a. onul-i con-uy sayngil-i-nka po-ta. see-Decl
   ‘It seems that today is John’s birthday.’
   b. onul-i con-uy sayngil-i-ci po-ass-ta. see-Past-Decl
   ‘I saw whether today is John’s birthday.’
(ii) a. onul-i con-uy sayngil-i-nka sayngkakha-n-ta.
   ‘It conjecture that today might be John’s birthday.’
   b. onul-i con-uy sayngil-i-ci sayngkakha-ss-ta.
   ‘I considered whether today is John’s birthday.’
(iii) a. onul-i con-uy sayngil-i-nka mol-la.
   ‘I doubt if today is John’s birthday.’
   b. onul-i con-uy sayngil-i-n-ci mol-la.
   ‘I don’t know whether today is John’s birthday.’
As shown above, the total frequency of predicates in category I is 501, which is 20.02% of whole 19 target predicates co-occurring with ci-Comp. On the other hand, the frequency of predicates in category II is 1,879, which is 74.70% of whole 19 target predicates co-occurring with ci-Comp. The total frequency of predicates in category III is 132, which is only 5.28% of whole predicates co-occurring with ci-Comp. It leads us to the fact that nka frequently combine with the predicates in category II rather than I and III.

Second, for the statistical verification, we use collocational statistics - the Dunning (1993)’s Log-likelihood (LL, henceforth) based on the frequency data. The significance level ($p$-value) was set at 0.05. The results of LL value (G2) will show that there is statistically significant difference between nka-Comp and ci-Comp. The result of the operation is shown in the following two tables. Table 4 and 5 each presents the list of predicates most strongly co-occurred with the nka-Comp and ci-Comp respectively.

<table>
<thead>
<tr>
<th>Predicates</th>
<th>Category</th>
<th>nka_freq (%)</th>
<th>ci_freq (%)</th>
<th>LL (G2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 VV ha__01 'do'</td>
<td>III</td>
<td>445 (14.64)</td>
<td>67 (1.34)</td>
<td>530.7005</td>
</tr>
<tr>
<td>2 VX siph 'want'</td>
<td>III</td>
<td>279 (9.18)</td>
<td>1 (0.02)</td>
<td>529.5473</td>
</tr>
<tr>
<td>3 VX po__01 'see'</td>
<td>III</td>
<td>275 (9.05)</td>
<td>7 (0.14)</td>
<td>475.1867</td>
</tr>
<tr>
<td>4 VV panmwunha__01 'ask myself'</td>
<td>III</td>
<td>7 (0.23)</td>
<td>1 (0.02)</td>
<td>8.518569</td>
</tr>
</tbody>
</table>

Table 4. Predicates most strongly co-occurred with the nka-comp

<table>
<thead>
<tr>
<th>Predicates</th>
<th>Category</th>
<th>nka_freq (%)</th>
<th>ci_freq (%)</th>
<th>LL (G2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 VV molu 'not know'</td>
<td>II</td>
<td>8 (0.26)</td>
<td>1801 (36.11)</td>
<td>1627.029</td>
</tr>
<tr>
<td>2 VA kungkumha__01 'wonder'</td>
<td>I</td>
<td>7 (0.23)</td>
<td>171 (3.43)</td>
<td>117.3298</td>
</tr>
<tr>
<td>3 VV alapo 'investigate'</td>
<td>I</td>
<td>6 (0.20)</td>
<td>61 (1.22)</td>
<td>29.3117</td>
</tr>
<tr>
<td>4 VV salphyepo 'examine'</td>
<td>I</td>
<td>3 (0.10)</td>
<td>44 (0.88)</td>
<td>25.39219</td>
</tr>
<tr>
<td>5 VV po__01 'see'</td>
<td>I</td>
<td>55 (1.81)</td>
<td>30 (0.60)</td>
<td>25.00037</td>
</tr>
<tr>
<td>6 VA uysimsulep 'be doubtful'</td>
<td>III</td>
<td>6 (0.20)</td>
<td>45 (0.88)</td>
<td>17.538494</td>
</tr>
<tr>
<td>7 VV mut__03 'ask'</td>
<td>I</td>
<td>31 (1.02)</td>
<td>103 (2.06)</td>
<td>13.28263</td>
</tr>
<tr>
<td>8 VV palkhi 'clarify'</td>
<td>I</td>
<td>5 (0.16)</td>
<td>22 (0.44)</td>
<td>4.775453</td>
</tr>
<tr>
<td>9 VV poi__01 'show; display'</td>
<td>I</td>
<td>6 (0.20)</td>
<td>23 (0.46)</td>
<td>3.975043</td>
</tr>
<tr>
<td>10 VV salphi__01 'study; check'</td>
<td>I</td>
<td>6 (0.20)</td>
<td>22 (0.28)</td>
<td>3.496082</td>
</tr>
<tr>
<td>11 VA uyaha 'wonder'</td>
<td>I</td>
<td>3 (1.45)</td>
<td>14 (0.10)</td>
<td>3.30704</td>
</tr>
<tr>
<td>12 VV kominha 'agonize'</td>
<td>III</td>
<td>5 (0.26)</td>
<td>5 (1.36)</td>
<td>0.60684</td>
</tr>
<tr>
<td>13 VV sayngkakha 'consider'</td>
<td>II</td>
<td>44 (1.45)</td>
<td>68 (0.08)</td>
<td>0.0953</td>
</tr>
<tr>
<td>14 VV camwunha 'ask oneself'</td>
<td>I</td>
<td>3 (0.10)</td>
<td>4 (0.08)</td>
<td>0.072957</td>
</tr>
<tr>
<td>15 VV uysimha 'doubt'</td>
<td>III</td>
<td>8 (0.26)</td>
<td>13 (0.26)</td>
<td>0.000463</td>
</tr>
</tbody>
</table>

Table 5. Predicates most strongly co-occurred with the ci-comp
As shown above, the word frequency lists are sorted by the resulting LL values. For these tables, a G2 of 3.8 or higher is significant at the level of p < 0.05. This gives the effect of placing the largest LL value at the top of the list representing the word which has the most significant relative frequency difference between nka-comp and ci-comp.

Based on the empirical data that we have concerned thus far, the observation of Korean subjunctive nka with respect to the cross-linguistic mood selection is suggested as follows:

<table>
<thead>
<tr>
<th>Context where the proposition P occurs</th>
<th>Veridical</th>
<th>Non-veridical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reality</td>
<td>Non-reality</td>
</tr>
<tr>
<td></td>
<td>Non-epistemic</td>
<td>Epistemic</td>
</tr>
<tr>
<td>must be good that P</td>
<td>know that P</td>
<td>imagine that P</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Romanian, Hungarian, (Modern) Greek</th>
<th>INDICATIVE</th>
<th>SUBJ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portuguese</td>
<td>INDICATIVE</td>
<td>SUBJ.</td>
</tr>
<tr>
<td>Italian, Catalan, Spanish, French</td>
<td>SUBJ.</td>
<td>INDICATIVE</td>
</tr>
<tr>
<td>Korean nka</td>
<td>INDICATIVE</td>
<td>SUBJ.</td>
</tr>
</tbody>
</table>

Table 6. modal contexts and selection of indicative or subjunctive in complement clauses

This result supports our earlier observations that certain occurrence of nka conveys semantic contribution of epistemic weakening. At this point, it is worth noting that the source of epistemic weakening of nka can be understood as a result of inquisitive disjunction with nonveridical equilibrium (Kang and Yoon, to appear).

5. Analysis
The subjunctive mood and nka SUBJ.Q-Comp have in common in the sense that they are representation of ‘subjectivity’. Traditionally, subjunctive is deeply tight to the notion of subjectivity, i.e. consideration of spaces of beliefs, doxastic, epistemic, bouletic (Farkas 1992; Giannakidou 1994 et seq.; Villata 2008; Smirnova 2013, a.o.). Building on Giannakidou (1994 et seq.), we treat (non)veridicality as a property of subjective spaces. The subjective spaces are the based on the epistemic state of an individual as follows:

---

4 The critical value for the 5% level, usually shown as 0.05 is 3.84 at 1 degree of freedom. Therefore, sayngkakha ‘consider’, uyaha ‘wonder’, kominha ‘agonize; being concerned’, salphi ‘study; check’, camwunha ‘ask oneself’, uysimha ‘doubt’ have no statistical significant differences between nka-comp and ci-comp. It is to occur by mere chance coincidence.
(36) Epistemic state of an individual anchor i (Giannakidou 1999: (45))
An epistemic state M(i) is a set of worlds associated with an individual i representing worlds compatible with what i knows or believes.

M(i) is the private space of i’s thought, belief and knowledge, and it plays a key role in truth assessment. Subjective veridicality is anchored to an individual’s M(i). In unembedded assertions, i is the speaker, hence M(i) is the default. In embedding, M(speaker) is still relevant, as is the Stalnakerian common ground C, i.e. the set of mutually known propositions or commitments.

(37) Subjective veridicality (Giannakidou and Mari 2017: (25)):
A function F that takes a proposition p as its argument is subjectively veridical with respect to an individual anchor i and an epistemic state M(i) iff: \( \forall w[w \in M(i) : \rightarrow w \{ w' | p(w') \}] \)

(38) Subjunctive as an indicator of nonveridicality (Giannakidou 1999, et seq.):
(i) The subjunctive is an indicator of a nonveridical epistemic state or modal base, and
is selected by expressions that are at least subjectively nonveridical.
(ii) Subjunctive sentences indicate epistemic weakening.

The subjunctive thus produces epistemic weakening, which means that it separates the monogeneity of M. Thus nonveridical domains are sets of worlds partitioned into p and non-p worlds, and the partition could be the result of ordering (e.g. ordering sources with modals). Commitment weakening is the creation of a nonveridical (i.e. non-homogeneous) epistemic space as below. In (39), given that M be a set of worlds, compatible with what the speaker/subject knows in w, M is partitioned between p and non-p worlds, then i is in a state of epistemic uncertainty:

(39) Epistemic non-homogeneity (Giannakidou and Mari 2017: (41)):

\[
\begin{array}{c}
P \\
\cap \\
M \\
\cap \\
\neg P
\end{array}
\]

There is a semantic dichotomy in assigning different semantic values to ordinary Q-Comp 
(n)ci and SUBJ.Q-Comp nka, where the latter is sensitive to nonveridical weakening. The licensing of nka is revealed in that it indicates the subjective nonveridicality.

(40) Epistemic subjunctivity marked in subordinator C = subjective nonveridicality

Recall that subjective nonveridicality thus means that i is in a state of uncertainty with respect to p. M(i) as a whole does not support p. some worlds in M(i) support p and some other don’t.
Mood selection in Korean: epistemic subjunctive and attitude predicates

(41) Subjective nonveridicality of nka SUBJ.Q-Comp: A function $F$ that takes a proposition $p$ as its argument is subjectively nonveridical with respect to an individual anchor $i$ an epistemic state $M(i)$ iff: $\exists w' \in M(i): \neg p(w') \land \exists w'' \in M(i): p(w'')$

(Note: An epistemic model $M(i) \in M$ is a set of worlds associated with an individual $i$ representing worlds compatible with what $i$ believes or knows.)

The proposed semantics shows how nka expresses the speaker’s perspective towards $p$ by achieving a partition in the modal base, characterized as a partitioned epistemic space.

6. Conclusions

In this paper, we identified nka as a novel type of subjunctive complementizer in Korean. The prerequisite of nka was suggested as follows: First, in Korean, the mood exponent appears in subordinator C, lexicalized as nka. Second, we further showed that the addition of nka produces nonveridical weakening on the proposition. Hence it is a grammatical category exhibiting epistemic subjunctive mood. The occurrence of nka depends on the higher verbs whose subject provides nonhomogeneous doxastic space. The licensing of nka is revealed in that it indicates the subjective nonveridicality.

Theoretical implication of the current analysis is as follows: First, Korean facts importantly reveal that subjunctive complement clause does not form the uniform class. Unlike the traditional way of classifying mood in the declarative complement, mood can occur in the “inquisitive” complement clause. Second, in Korean, there is a semantic dichotomy in assigning different semantic values to the ordinary Q-Comp ci and the SUBJ.Q-Comp nka. The parallel contrast between indicative and subjunctive in other languages can be found in nka and ci in Korean. Much more needs to be said to gain a full understanding of the precise nature of the relationship between inquisitiveness and nonveridical subjectivity.

Acknowledgement

We are deeply thankful to Prof. Jae-Woong Choe for the original discussions on the corpus study and collecting data.

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1. Introduction

This paper includes three central objectives: (i) to provide evidence that the *ni* (*yotte*)-phrases in all three types of Japanese passives (see below) uniformly appear outside of VP-complement of the passive morpheme -*rare*, (ii) to argue that the *ni*-phrase in indirect passives must move from the embedded subject position to the matrix clause in order to overcome a labeling problem with the VP-complement of -*rare*, and (iii) to give independent evidence that supports the obligatory raising of the *ni*-phrase in indirect passives.

Japanese passives have attracted much attention since the 1960s in generative grammar. They are one of the most controversial constructions that have been analyzed variously by many researchers. Although many syntactic and semantic properties of Japanese passive sentences have been revealed, there are still some unsettled issues needed to be investigated in more detail. Among these issues, I will address in this paper the syntactic positions of the *ni* (*yotte*)-phrases in three kinds of Japanese passives and a labeling problem arising from the position of the *ni*-phrase in indirect passives.

Based on syntactic and semantic properties of Japanese passives explored in Shibatani (1990) and Kubo (1993), I assume that there are three types of passives in Japanese: direct, possessive and indirect passives. The examples are given in (1)-(3) respectively.

1. Direct passive (cf. Howard and Niyekawa-Howard 1976)
   Sensei-ga gakusei-ni (*yotte*) hihans-are-ta.
   teacher-Nom student-by criticize-Pass-Past
   ‘The teacher was criticized by the student.’

   Hanako-ga doroboo-ni (*yotte*) yubiwa-o nusum-are-ta.
   Hanako-Nom thief-by ring-Acc steal-Pass-Past
   ‘Hanako had her ring stolen by the thief.’

3. Indirect passive (cf. Howard and Niyekawa-Howard 1976)
   Taro-ga Hanako-ni tabako-o suw-are-ta.
   Taro-Nom Hanako-Dat cigarette-Acc smoke-Pass-Past
   ‘Taro was adversely affected by Hanako smoking.’

The direct passive has been characterized as having its corresponding active counterpart, whereas the possessive and indirect passives do not have their corresponding active sentences and have sometimes been analyzed uniformly (Kuroda 1979; Hoshi 1999; Fukuda 2006; Kim 2012 among others). However, there are evidence that these two passives are syntactically
and semantically distinct. Significantly, Kubo (1993) observes that in possessive passives there must be a possessive relation between the subject and the direct object, while in indirect passives there is no such relation between them. And only in indirect passives, the subject is always adversely affected from the event described by the verb. Consequently, we will assume that there are three types of passives in Japanese.

The organization of this paper is as follows. In section 2, I will briefly review Hoshi’s (2007) account of the syntactic position of the *ni*-phrase in indirect passives and point out a problem with his syntactic test. Then, I will propose an alternative test and examine the syntactic positions of the *ni (yotte)*-phrases in all three kinds of Japanese passives. In section 3, based on the discussion in section 2, I will claim that the *ni*-phrase in indirect passives must raise to the matrix clause to avoid a labeling problem with the VP-complement of *-rare*. Section 4 will provide independent evidence that supports the raising analysis. I will show that in unaccusative-based indirect passives the *ni*-phrase (i.e. embedded object) can remain in situ, because the VP-complement of *-rare* can be successfully labeled as VP. This in turn supports the labeling-based account of the obligatory raising of the *ni*-phrase discussed in section 3. Section 5 is a brief conclusion.

2. The syntactic positions of the *ni (yotte)*-phrases

In principle, there are two possibilities as to the syntactic positions where the *ni (yotte)*-phrases appear in Japanese passives, namely outside of VP-complement of *-rare* as in (4a) or inside of VP-complement of *-rare* as in (4b).¹

(4) *The two possibilities of the syntactic positions of the *ni (yotte)*-phrases in Japanese passives*

![Diagram]

The previous literature dealing with the syntactic positions of the *ni (yotte)*-phrases in Japanese passives is summarized in Table 1. Although in these studies the positions of the *ni (yotte)*-phrases are located as in Table 1, they are determined without much empirical evidence, except for Hoshi (2007). The situation shows that this issue is far from settled and needs to be examined in more detail.

¹ In this paper, I will represent the complement of *-rare* uniformly as VP, for ease of exposition.
Table 1  The summary of the previous literature dealing with the syntactic positions of the ni (yotte)-phrases in Japanese passives

<table>
<thead>
<tr>
<th></th>
<th>Direct passive</th>
<th>Possessive passive</th>
<th>Indirect passive</th>
</tr>
</thead>
</table>

In this section, I will first discuss Hoshi’s (2007) analysis, which argues that the ni-phrase in indirect passives appears outside of VP-complement of -rare. Then, I will point out that the test he used in determining the syntactic position of the ni-phrase, VP-preposing, is not always reliable as a constituency test in Japanese. Thus, I will introduce a new syntactic test to examine the syntactic positions of the ni (yotte)-phrases in all three kinds of Japanese passives and show that the ni (yotte)-phrases uniformly appear outside of VP-complement of -rare.

2.1 Hoshi’s (2007) analysis

Hoshi argues that the string consisting of ni-phrase and VP-complement in indirect passive sentences does not form a single constituent, using a VP-preposing test involving the emphatic element sae ‘even’. Therefore, he concludes that the ni-phrase in indirect passives appears outside of VP-complement of -rare as in (4a).

Consider the instance involving the emphatic element sae in (5). In (5b), the bracketed string consisting of ni-phrase and VP-complement in (5a) is preposed to the sentence-initial position and the sentence is ungrammatical.

(5)  a. Taroo-ga [Hanako-ni tabako-o su(w)i-sae] s-are-ta.
    Taro-Nom Hanako-Dat cigarette-Acc smoke-even do-Pass-Past
    ‘Taro was adversely affected even by Hanako smoking.’
    b. *[Hanako-ni tabako-o su(w)i-sae], Taroo-ga s-are-ta.
    Hanako-Dat cigarette-Acc smoke-even Taro-Nom do-Pass-Past
    ‘Even by Hanako smoking, Taro was adversely affected.’

Given that only a single constituent can be moved, the ungrammaticality of (5b) suggests that the preposed string is not a single constituent as in (6a). If the ni-phrase appears inside of VP-complement of -rare as in (6b), (5b) should be grammatical because the preposed string does form a single constituent.

---

2 This table is limited to analyses in which -rare takes VP as its complement, excluding lexical approaches.
Hence, he concludes that the *ni*-phrase in indirect passives appears outside of VP-complement of -*rare* as in (6a), not inside of VP-complement of -*rare* as in (6b).

It is important, however, to note that Japanese is one of the languages which allow multiple scrambling. In (5b), for example, the *ni*-phrase *Hanako-ni* ‘Hanako-Dat’ and the following VP constituent *tabako-o su(w)i-sae* ‘even smoke’ can be preposed independently as shown in (7).

(7) [*Hanako-ni*], [*tabako-o su(w)i-sae*], *Taro-ga* $t_i \ldots t_j$ *s-are- ta*.  

Thus, in a language which allows multiple scrambling, the VP-preposing test is not always reliable as a constituency test. Therefore, we will need an alternative test to examine the syntactic positions of the *ni* (*yotte*)-phrases in Japanese passives.

2.2 ‘VP-conjunction test’ involving the additive particle *mo* ‘also’

I will propose ‘VP-conjunction test’ involving the additive particle *mo* ‘also’ to determine the syntactic positions of the *ni* (*yotte*)-phrases in all three kinds of Japanese passives. The result of the test reveals that the *ni* (*yotte*)-phrases uniformly appear outside of VP-complement of -*rare*. In this test, it is reasonable to suppose that each of the bracketed strings connected by *mo* must be a single constituent as a semantic unit, as illustrated in (8).

(8) a. *Taro-o wa [VP *Hanako-to Tokyo-ni iki]-mo, [VP *Yooko-to Kyoto-ni iki]-mo si-ta.*  

Taro-Top Hanako-with Tokyo-to go-also Yoko-with Kyoto-to go-also do-Pass-Past  
‘Taro went to Tokyo with Hanako and Kyoto with Yoko.’

b. *Taro-o wa [a *Hanako-to Tokyo-ni]-mo, [a *Yooko-to Kyoto-ni]-mo it-ta.*  

Taro-Top Hanako-with Tokyo-to also Yoko-with Kyoto-to also do-Pass-Past  
‘Taro went to Tokyo with Hanako and Kyoto with Yoko.’

In (8a) a VP constituent is connected by *mo* and the sentence is grammatical. In (8b), in

---

3 The derivation in (7) yields a grammatical output since each preposing involves a single constituent. In fact, Kubo (1993) considers (i) grammatical, although it is structurally identical to Hoshi’s ungrammatical sentence (5b).

(i) [*Hanako-ni kookoo-o yame-sae*], *Taro-ga s-are- ta.*  

Hanako-Dat high school-Acc drop.out-even Taro-Nom do-Pass-Past  
‘Hanako drop out the high school, Taro did have.’ (Kubo 1993: 261)  

Her judgement can be accounted for by multiple scrambling as in (7).
contrast, a string α is connected by *mo and the sentence is ungrammatical. This indicates that the string connected by *mo is limited to a single constituent.

Let us make the following assumptions in (9) for additive particle *mo.

(9) The assumptions for the additive particle *mo
a. The additive particle *mo is a head, but does not serve as a label.

\[
\begin{array}{c}
\alpha \\
\downarrow \\
\text{*mo}
\end{array}
\]

b. It can attach to any level of projection.
c. Its scope is the c-command domain of *mo.

In Kishimoto (2001) and Hiraiwa (2005), the additive particle *mo ‘also’ has been analyzed as an adjunct to a head. But it is unlikely to be an adjunct, because adjuncts in Japanese are merged to the left side of a constituent. Rather it is reasonable to assume that *mo is a head, since in Japanese a head appears on the right side of its complement. Further I will assume that *mo does not serve as a label just like conjunctions in Chomsky (2013). Accordingly, it does not project, and hence β in (9a) is labeled as α.

Assumption (9b) can be illustrated in (10).

(10) a. Taroo-wa [VP Tokyo-de Hanako-to ai]-mo, [VP Kyoto-de Yooko-to asobi]-mo
Taro-Top Tokyo-in Hanako-with meet-also Kyoto-in Yoko-with hang.out-also
si-ta.
do-Past
‘Taro met Hanako in Tokyo and hung out with Yoko in Kyoto.’

b. Taroo-wa Tokyo-de [v Hanako-to ai]-mo, [v Yooko-to asobi]-mo si-ta.
Taro-Top Tokyo-in Hanako-with meet-also Yoko-with hang.out-also do-Past
‘Taro met Hanako and hung out with Yoko in Tokyo.’
c. Taroo-wa Tokyo-de Hanako-to [v ai]-mo, [v asobi]-mo si-ta.
Taro-Top Tokyo-in Hanako-with meet-also hang.out-also do-Past
‘Taro met and hang out with Hanako in Tokyo.’

In (10a-c) the particle *mo takes as its complement VP, V’ and V, respectively. Thus, assumption (9b) can give a simple account of a variety of the scope patterns of *mo.

Let us apply this VP-conjunction test to examine the syntactic positions of the ni (yotte)-phrases in all kinds of Japanese passives. First, consider the following indirect passives, in which the bracketed strings consisting of ni-phrase and VP-complement are connected by *mo.

(11) Indirect passive
a. *Sensei-wa [Hanako-ni tabako-o su(w)i]-mo, [Taroo-ni sake-o nomi]-mo
teacher-Top Hanako-Dat cigarette-Acc smoke-also Taro-Dat alcohol-Acc drink-also
s-are-ta.
do-Pass-Past
‘The teacher was adversely affected by Hanako smoking and Taro drinking alcohol.’
b. *Sensei-wa [Hanako-ni kyoositu-de naki]-mo, [Taroo-ni syokuinsitu-de
teacher-Top Hanako-Dat classroom-in cry-also Taro-Dat staffroom-in
abare]-mo s-are-ta.
behave.violently-also do-Pass-Past
‘The teacher was adversely affected by Hanako crying in the classroom and Taro
behaving violently in the staffroom.’

Sentences (11a, b) are ungrammatical. This ungrammaticality suggests that the bracketed
strings do not form a single constituent as in (12a) below. If it appears inside of
VP-complement of -rare as in (12b), (11a, b) should be grammatical since the bracketed
strings do form a single constituent. Thus, the ni-phrase in indirect passives appears outside of
VP-complement of -rare.

The following examples in (13a, b) also suggests that the ni-phrase in indirect
passives appears outside of VP-complement of -rare. In (13a, b) the bracketed strings
consisting of VP-complement and passive morpheme -rare are connected by mo, excluding
the ni-phrase.

(12) a. 

```
  Hanako-Dat
    VP
       smoke cigarettes/ cry in the classroom
```

(13) Indirect passive

a. Sensei-wa Hanako-ni [tabako-o suw-are]-mo, [sake-o nom-are]-mo
teacher-Top Hanako-Dat cigarette-Acc smoke-Pass-also alcohol-Acc drink-Pass-also
si-ta.
do-Past
‘The teacher was adversely affected by Hanako smoking and drinking alcohol.’

b. Sensei-wa Hanako-ni [kvoositu-de nak-are]-mo, [syokuinsitu-de abare
teacher-Top Hanako-Dat classroom-in cry-Pass-also staff room-in behave.violently
-rare]-mo si-ta.
-Pass-also do-Past
‘The teacher was adversely affected by Hanako crying in the classroom and behaving
violently in the staff room.’

In contrast to sentences (11a, b), (13a, b) are grammatical. This grammaticality shows that the
bracketed strings do form a single constituent as in (14a), not (14b). From the data in (11) and
(13), we can conclude that the ni-phrase in indirect passives appears in the matrix clause,
outside of VP-complement of -rare.
(14) a. \[
\begin{array}{c}
\text{Hanako-Dat} \\
\text{VP} \\
\text{smoke cigarettes/}
\end{array}
\]
\[
\begin{array}{c}
cry in the classroom
\end{array}
\]

We have thus confirmed Hoshi’s analysis of the syntactic position of the \textit{ni}-phrase in indirect passives by employing a more reliable constituency test.

Applying this VP-conjunction test to direct and possessive passives, we get the same results as in indirect passives above.

(15) \textit{Direct passive}

a. *\text{Taroo-wa [titioya-ni (yotte) naguri]-mo, [hahaoya-ni (yotte) sikari]-mo}  
\text{Taro-Top father-by punch-also mother-by scold-also}  
s-are-nakat-ta.  
do-Pass-not-Past.  
‘Taro was neither punched by his father nor scolded by his mother.’

b. \text{Taroo-wa titioya-ni (yotte) [ie-de nagur-are]-mo, [heya-de sikar-are]-mo}  
\text{Taro-Top father-by home-in punch-Pass-also room-in scold-Pass-also}  
si-nakat-ta.  
do-not-Past  
‘Taro was neither punched at home nor scolded in the room by his father.’

(16) \textit{Possessive passive}

a. *\text{Hanako-wa [kodomo-ni (yotte) tokee-o kowasi]-mo, [doroboo-ni (yotte) yubiwa-o}  
\text{Hanako-Top child-by watch-Acc destroy-also thief-by ring-Acc}  
nusumi]-mo s-are-ta.  
steal-also do-Pass-Past  
‘Hanako had her watch destroyed by the child and her ring stolen by the thief.’

b. \text{Hanako-wa doroboo-ni (yotte) [tokee-o kowas-are]-mo, [yubiwa-o nusum-are]-mo}  
\text{Hanako-Top thief-by watch-Acc destroy-Pass-also ring-Acc steal-Pass-also}  
si-ta.  
do-not-Past  
‘Hanako had her watch destroyed and her ring stolen by the thief.’

In (15a) and (16a), the bracketed strings consisting of \textit{ni (yotte)}-phrase and VP-complement are connected by \textit{mo}, and the sentences are ungrammatical. The ungrammaticality of (a) sentences suggests that the bracketed strings do not form a single constituent. In (15b) and (16b), on the other hand, the bracketed strings consisting of VP-complement and -\textit{rare} are connected by \textit{mo}, excluding the \textit{ni (yotte)}-phrase, and the sentences are grammatical. This grammaticality of (b) sentences demonstrates that the bracketed strings do form a single constituent. From these facts, we can establish that the \textit{ni (yotte)}-phrases in direct and possessive passives are also found outside of VP-complement of -\textit{rare}.

In summary, we conclude that the \textit{ni (yotte)}-phrases in all three types of Japanese
passives appear outside, not inside, of VP-complement of \(-\text{rare}\).

### 2.3 The status of the \(\text{ni}\) (\(\text{yotte}\))-phrases

In the previous literature of Japanese passives, the \(\text{ni}\) (\(\text{yotte}\))-phrases in direct and possessive passives has generally been analyzed as PP adjuncts in the matrix clause. I will adopt this analysis without further discussion here. Now, let us consider the status of the \(\text{ni}\)-phrase in indirect passives. The following data involving the reflexive pronoun \(\text{zibun}\) ‘self’ shows that the complement of \(-\text{rare}\) in indirect passives contains a subject.

\[(17)\]  
\[
\text{Taro-ga Hanako\text{-ni} [zibun-no heya-de uta-o utaw]-are-ta.}
\]
\[
\text{Taro-Nom Hanako-Dat self-Gen room-at song-Acc sing-Pass-Past}
\]
\[
\text{‘Taro was adversely affected by Hanako singing in her room.’} \quad \text{(cf. Kuno 1973)}
\]

It is well known that the reflexive pronoun \(\text{zibun}\) takes a c-commanding subject as its antecedent. In (17), \(\text{Hanako}\) can act as antecedent of \(\text{zibun}\). This suggests that the complement of indirect passive \(-\text{rare}\) includes a subject. Then, there are three possibilities in (18) of the status and derivation of the \(\text{ni}\)-phrase in indirect passive sentences.

\[(18)\]
\[
\begin{align*}
\text{a. } & [\text{TP NP-ga [PP NP\text{-ni}] [VP PRO\ldots V]-rare}] \\
\text{b. } & [\text{TP NP-ga [NP NP\text{-ni}] [VP PRO\ldots V]-rare}] \\
\text{c. } & [\text{TP NP-ga [NP NP\text{-ni}] [VP ti \ldots V]-rare}]
\end{align*}
\]

Immediately I will exclude the first analysis in (18a), in which the \(\text{ni}\)-phrase is base-generated in the matrix clause as a PP adjunct and the specifier position of the complement is occupied by PRO. However, a PP adjunct is generally assumed not to be a controller of PRO. Hence, the possibility of (18a) is excluded. Next, in (18b) the \(\text{ni}\)-phrase is base-generated in the matrix clause as a NP argument and it controls PRO in the complement. If this analysis were correct, the passive morpheme \(-\text{rare}\) in transitive/unergative-based indirect passives as in (11) and (13) would be a three place predicate, taking passive subject, \(\text{ni}\)-phrase and VP-complement as its arguments. However, as we will see in section 4, \(-\text{rare}\) in unaccusative-based indirect passives is a two place predicate, taking only passive subject and VP-complement as its arguments. This implies that Japanese passive morpheme \(-\text{rare}\) has distinct meanings in these two types of passives. There seems to be no evidence to support this bifurcation. Then, only the possibility in (18c) remains, in which the \(\text{ni}\)-phrase moves from the embedded subject position to the matrix clause\(^4\). A question arises here: why must the \(\text{ni}\)-phrase raise into the matrix clause? In next section, I will address this problem by relying on labeling theory in Chomsky (2013).

\(^4\) Kishimoto (2001) and Hoshi (2007) also propose this possibility. Following Spec-Head Agreement, Kishimoto (2001) claims that Case is checked at LF configuration. That is, at LF the \(\text{ni}\)-phrase in indirect passives must raise to the Spec-v*P position to have Dat Case. According to Hiraiwa (2005), however, much counter-evidence has been provided and the distinction between overt and covert syntax is rejected, as far as Case and Agreement are concerned. In contrast, Hoshi (2007) does not discuss the reason why the \(\text{ni}\)-phrase in indirect passives must move to the matrix clause.
3. The raising of the ni-phrase in indirect passives and labeling theory

3.1 Labeling theory in Chomsky (2013)

The answer to the question, I suggest, comes from labeling theory in Chomsky (2013). For a syntactic object (SO) α to be interpreted at the interfaces, some information is necessary about its syntactic category. Labeling algorithm (LA) is the process that provides that information by minimal search, selecting the closest head as α’s label.

Consider the case of SO α = {H, XP}, H a head and XP a nonhead.

(19) \[ \alpha = \{H, XP\} \]

\[ \begin{array}{c}
\alpha \\
H & XP \\
X & \ldots \\
\end{array} \]

In (19) α is labeled as HP because the head H is closer to α than the head X.

However, in the case of α = {XP, YP}, neither XP nor YP a head, α is unlabeled. There are two ways in which α can be labeled. One is feature sharing, as illustrated in (20).

(20) Feature sharing

\[ \alpha \rightarrow \varphi P \]

\[ \begin{array}{c}
\alpha \\
XP & YP \\
X & \ldots & Y & \ldots \\
[\varphi] & \ldots & [\varphi] & \ldots \\
\end{array} \]

In (20) the head X shares the feature φ with the head Y and hence α is labeled as φP.

The other way is raising to label α is raising, in which either XP or YP is raised and the remaining phrase will be selected as α’s label.

(21) Raising

\[ \alpha \rightarrow YP \]

\[ \begin{array}{c}
\alpha \\
XP & YP \\
X & \ldots & Y & \ldots \\
\end{array} \]

If XP is raised as in (21), α will be labeled as YP.

Using this LA, Chomsky (2013) convincingly explains the obligatory raising of the embedded subject in ECM constructions in English.

(22) They consider John: \[ a \; t \; \text{to be intelligent}. \]  

(Chomsky 2013: 47)

In the ECM sentence (22), the embedded subject John must raise to the matrix clause because there is no feature sharing within the embedded clause α. In the following, I will argue that
the *ni*-phrase in Japanese indirect passives must move to the matrix clause for the same reason.

3. 2 The raising of the *ni*-phrase in indirect passives

In Japanese indirect passives, the complement of *-rare* α in (23) is of the form {XP, YP}, consisting of the subject NP-*ni* and VP constituent. Therefore, α is unlabelable just like a complement sentence in ECM constructions.

\[
(23) \quad \text{PassP} \\
\text{NP-Nom} \quad \gamma \rightarrow \text{Pass'} \\
\text{NP-Dat} \quad \beta (= \text{Pass'}) \\
\alpha \rightarrow \text{VP} \quad \text{Pass} \\
(\text{NP-Dat}) \quad \text{VP}
\]

Assuming that there is no feature sharing within α in (23), the *ni*-phrase must move from the embedded subject position to the matrix clause in order to overcome the labeling problem. But if it merges with β (= Pass’) by Set Merge, we face the same labeling problem because the merger creates another {XP, YP} structure, leaving γ unlabeled. Here I assume that the *ni*-phrase merges with β by Pair Merge (adjunction). Thus, we can avoid the labeling problem since in the case of Pair Merge γ’s label will always be β by definition. This analysis of the *ni*-phrase can capture both the fact that the *ni*-phrase in indirect passives is interpreted as embedded subject and the fact that it appears outside of VP-complement of *-rare*.

4. The evidence for the raising analysis

The supportive evidence for the raising analysis proposed in the previous section comes from ‘unaccusative-based’ indirect passives. In such passives the *ni*-phrase appears in the object position of the embedded unaccusative verb. In contrast to the transitive/unergative-based indirect passives in section 2, we predict that the *ni*-phrase in unaccusative-based indirect passives does not need to raise into the matrix clause. This is because the VP-complement of *-rare* is of the form {H, XP}, composed of *ni*-phrase and verb as shown in (24). That is, the VP-complement of *-rare* can be directly labeled as VP.

\[
(24) \quad \text{NP-Nom} \quad \text{PassP} \\
\alpha (= \text{VP}) \quad \text{Pass} \\
\text{NP-Dat} \quad \text{V} \quad \text{-rare}
\]

In fact, this prediction is borne out by the following data.
(25)  a. *Sono jisin-de, Hanako-wa [tonari-no ie ni taore-mo, [mukaino biru-ni katamuki]-mo s-are-ta.*
    building-Dat also do-Pass-Past
    ‘In the earthquake, Hanako was adversely affected by the house next door falling over and the building opposite leaning.’

    b. *Sibaraku rusunisite i-ta node, Taroo-wa [niwa-no zassoo-ni nobi]-mo, [ueki-ni kare]-mo s-are-ta.*
    long time absent from home be-Past because Taro-Top garden-Gen weed-Dat grow-also pod-plant-Dat die-also do-Pass-Past
    ‘Because he was absent from home for a long time, Taro was adversely affected by weeds in the garden growing and the pot plant dying.’

The grammaticality of (25) indicates that the bracketed strings form a single constituent and hence the *ni*-phrases do not need to raise into the matrix clause. If the *ni*-phrase moves out of VP-complement of *-rare* as in transitive/unergative-based indirect passives, (25) should be ungrammatical because the bracketed strings do not form a single constituent. Therefore, the *ni*-phrase in unaccusative-based can remain in situ, inside of VP-complement of *-rare* as in (24).

In summary, transitive/unergative-based and unaccusative-based indirect passives are structurally illustrated in (26a, b), respectively.

(26)  a. *Transitive/unergative type*  b. *Unaccusative type*

In transitive/unergative-based indirect passives, the *ni*-phrase as embedded subject must raise to the matrix clause to overcome the labeling problem with the VP-complement of *-rare* as in (26a). In unaccusative-based indirect passives, on the other hand, the *ni*-phrase as embedded object does not need to move to the matrix clause as in (26b) since the VP-complement of *-rare* can be labeled as VP. Thus, the contrast between (24a) and (24b) provides further evidence that the obligatory raising of the embedded subject in transitive/unergative-based indirect passives is explained by the labeling theory advanced in Chomsky (2013).

5. **Conclusions**

   Although many syntactic and semantic properties of Japanese passives have been revealed since 1960s, little attention has been paid to the syntactic positions of the *ni* (*yotte*)-phrases. In this paper, I have examined the syntactic positions and derivations of the *ni* (*yotte*)-phrases in all three kinds of Japanese passives. I have drawn three conclusions on the syntactic status of the *ni* (*yotte*)-phrases in Japanese passives. First, I have provided the evidence that they uniformly appear outside of VP-complement of *-rare*. Second, I have shown that the obligatory raising of the *ni*-phrase (i.e. embedded subject) in
transitive/unergative-based indirect passives can be explained by the labeling theory in Chomsky (2013). Third, I have argued that this labeling theoretic account of the obligatory raising is further supported by the non-raising of the ni-phrase (i.e. embedded object) in unaccusative-based indirect passives.

Reference


Inalienable Relational Nouns and Logophors

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Abstract

Ke and Pires (2018) argue that relational nouns such as kinship nouns (e.g. father, sister) and body-part nouns (e.g. head, face) in Mandarin Chinese contain an implicit (possessor) reflexive argument that is merged in narrow syntax. They further show that the implicit reflexive argument of body-part nouns must be locally bound, whereas that of kinship nouns can be either locally bound or long-distance bound. This paper aims at explaining why such differences between the implicit reflexive arguments of these two types of relational nouns arise in the first place. We relate this difference to binding theory and the theory of logophoricity. We argue that the implicit argument of body-part nouns is a locally-bound reflexive and cannot be used as a logophor, whereas that of kinship nouns can, and it is the logophoric property that leads to long-distance binding.

Keywords: inalienable relational nouns, body-part nouns, kinship nouns, implicit argument, reflexive, logophor

1 Introduction

In Mandarin Chinese (henceforth, Chinese), inalienable relational nouns (RNs), including kinship nouns (e.g. father, aunt) and body-part nouns (e.g. head, face) can generally occur as bare nouns without an overt possessor. This raises important questions about the syntactic behavior of these bare inalienable RNs, including whether they have an implicit possessive argument and how this implicit argument is syntactically represented. (1) shows that the possessive argument of the kinship noun son must be present in English, otherwise the sentence is ungrammatical, whereas (2) indicates that bare RNs in Chinese are completely acceptable. An interesting question here is why in (2) erzi ‘son’ must be Mary’s son but not someone else’s son, even if another possible possessor is salient in the context.

(1) Mary sent *(her j/k) son to school.

1 Only in some special cases can the possessive argument of RNs be omitted in English. For instance, in sentences such as (i) the bare kinship noun mom is allowed. However, the interpretation of the kinship noun is rather restricted: it can only refer to the speaker’s mother.

(i) Mom sent my sister home at 3pm.
Inalienable Relational Nouns and Logophors

(2)  Mali_j song erzi_j/*k qu xuexiao.²
Mary sent son go school
‘Mary_j sent her_j/*k son to school.’

If we assume that bare inalienable RNs such as kinship and body-part nouns have an implicit argument (see Barker 1995, Partee 1983/1997, Partee and Borschev 2003, Vikner and Jensen 2002, Zhang 2009), several questions are relevant: What is the syntactic nature of this implicit argument? Is it a pronoun or a reflexive? Why must it relate to a particular antecedent and not others in sentence (2)? Moreover, do kinship and body-part nouns bear the same type of implicit argument?

2 Previous studies
2.1 Inalienable RNs in special constructions

It has been noted that inalienable RNs can occur in some special constructions. Chappell (1996) discusses RNs in so called “double subject construction”, exemplified in (3) (the structure projections are added by us). The observation is that inside VP1 there is another subject in addition to the regular subject ta ‘s/he’. Importantly, the third person singular pronoun ta and the body-part noun yanjing ‘eye’ must be in an inalienable possession relation, that is, the eye must be hers/his, whoever the pronoun ta ‘s/he’ refers to, and not someone else’s.

(3)  [TP Ta_i [VP1 yanjing_i [VP2 jinshi]].
     s/he eye short-sighted
     ‘S/he is short-sighted.’

Notice that the two subjects are not necessarily adjacent to each other, as shown in (4a). In fact, the possessor can be implicit, linking to a referent established in the previous clause (4b). Therefore, Chappell (1996) proposes that the implicit possessor is a zero anaphor, and her corpus analysis further suggests that it must refer to an element within two clauses in the preceding context.

(4)  a. Ta zhi-shi yanjing you-xie jinshi.
     s/he only-be eye have-little short-sighted
     ‘S/he is just a little short-sighted.’

     b. Ta_i hen nianqing. Zhi-shi ei_y yanjing yijing you-xie jinshi.
     S/he very young only-be eye already have-little short-sighted
     ‘S/he is very young. But s/he is already a little short-sighted.’

Zhang (2009) notices that in double subject constructions such as (3), which she instead calls Relational-Nominal Second Construction, the inalienable RN must be in a position c-commanded by its possessor. Therefore, (3) becomes ungrammatical when the position of the possessor and the RN is reversed, as shown in (5). This supports a proposal that the implicit argument of the RN in this context is an anaphor.

² In these and other examples below the indices on the RNs in the Chinese transcription are meant to identify the reference of their implicit argument, as shown on the English gloss.
(5)  *Yanjing ta jinshi.
       eye s/he short-sighted
   Intended: ‘S/he is short-sighted.’

Cheng and Ritter (1987) provide an analysis for another type of inalienable possessive construction, as in (6a), with the corresponding syntactic structure shown in (6b).

(6)  a.  Ta ba juzi bo-le pi.
        s/he BA orange peel-ASP skin
   ‘S/he skin-peeled the orange.’

b.  

\begin{center}
\begin{tikzpicture}

\node (NP1) {NP1} child {node (NP2) {NP2} child {node (NP3) {NP3} child {node (V) {V'} child {node (VP) {VP} child {node (IP) {IP}}}}}}\end{tikzpicture}
\end{center}

Cheng and Ritter (1987) assume that an empty anaphor, $e$ in (6b), is projected inside the complex nominal NP1 and is bound by the complement of $ba$. Notice that Cheng and Ritter (1987) assume that $ba$ is a proposition that assigns the theta-role of affected theme to its complement, and this complement “weak[ly] c-commands” the anaphor, since the node immediately dominating it c-commands the anaphor (Huang 1982). Although they provide no details regarding how the inalienable possession relation comes into place between the null anaphor and the body-part noun $pi$ ‘skin’, Cheng and Ritter (1987) seem to consider the null anaphor an argument of the body-part noun, which they treat as a predicate.

The idea of taking the argument of an inalienable body-part noun as an anaphor is preserved in Huang, Li and Li’s (2009) discussion of still another type of possessive construction, the “possessive passive” construction, as in (7). The most relevant part of the analysis here is that $bei$ is assumed to be a predicate that selects an experiencer subject Zhangsan and an IP denoting an event. The IP has an adjunct null operator OP controlled by the subject. This control relation is realized under $bei$-predication. The OP is in turn moved from the outer object of the VP $dasi-le$ Pro $baba$, leaving a trace in the specifier of that VP. The VP outer object is assigned the role affectee by the $V’$. Finally, the trace of the OP controls the null Pro, which is the possessor of the inalienable RN $baba$ ‘father’.

(7)  Zhangsan $bei$ [IP OP $tufei$ [VP $t_j$ [V $dasi-le$ [NP Pro $baba$]]]]).

Zhangsan $bei$ bandits kill-ASP father
‘Zhangsan had his father killed by the bandits.’
Huang, Li and Li (2009) do not explain what a Pro is in this account, but refer readers back to Huang (1989). Huang (1989) discusses only two types of empty categories, pro and PRO, so Pro must be either one of them. Huang (1989) proposes that both pro and PRO are subject to the Generalized Control Rule in (8). The Generalized Control Rule implies that these two types of empty categories must be controlled in their control domain, where the control domain is defined below in (9).

(8) Generalized Control Rule (Huang 1989)
An empty pronominal is controlled in its control domain (if it has one).

(9) \( \alpha \) is the control domain for \( \beta \) iff it is the minimal category that satisfies both (a) and (b):
   a. \( \alpha \) is the lowest S or NP that contains (i) \( \beta \), or (ii) the minimal maximal category containing \( \beta \).
   b. \( \alpha \) contains a SUBJECT accessible to \( \beta \).

The Generalized Control Rule and the control domain are respectively very similar to Binding Condition A and the binding domain in Chomsky (1981, 1986), indicating that the Pro associated with the inalienable nouns in “possessive passive” constructions such as (7) is treated similarly to an anaphor.

Contrary to the above studies, Niu (2016) assumes that the implicit argument of RNs, specifically kinship nouns,\(^3\) is a null pro. The syntactic structure for \( ta \ baba \) ‘her/his father’ is presented as in (10b). The null pro agrees with the pronoun, which occupies the D head. Unfortunately, Niu (2016) does not explain why the null argument of kinship nouns must be a pro. Since pro usually stands for an implicit pronoun, it may be reasonable to assume that Niu treats it as a pronoun rather than an anaphor.

(10) a. \( ta \ baba \) ‘her/his father’
    b. ![Tree Diagram]

In sum, Chappell (1996), Zhang (2009), Cheng and Ritter (1987), Huang, Li and Li’s (2009) and Niu (2016) treat the empty category associated with inalienable RNs in Chinese either as an anaphor which co-indexes with an antecedent (possibly through binding or control),\(^4\) or as a pro which agrees and co-refers with its antecedent. Therefore, the syntactic nature of the implicit argument of RNs remains controversial. In addition, these studies examine only

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\(^3\) Niu (2016) argues that body-part nouns do not have an implicit argument and are not RNs. Niu (2016) restricts her analysis to the juxtaposed possessives \( ta \ baba \) ‘her/his father’.

\(^4\) This proposal is similar to the binding approach to inalienable RNs in French (Guéron 1985, 2003).
special possessive constructions such as double subject constructions, *ba*-constructions and *bei*-constructions, which seem to involve special theta role assignment. For instance, the double subject constructions have two “agents”, and *ba* and *bei* constructions include an affectee or an experiencer that is related to the possessor of the inalienable RN. These constructions are not ideal for the study of implicit arguments of RNs, because in addition to binding/agreement/control, possessor raising/movement can possibly also be involved, obscuring the syntactic nature of the implicit argument, as we have seen in the case of Huang, Li and Li (2009) (see also Zhang 2009).

Therefore, we turn our attention back to bare RNs in non-raising and non-control structures, which provide us clean and novel empirical basis to investigate the syntactic nature of the implicit argument of RNs.

### 2.2 RNs in regular sentences: Ke and Pires (2018)

Ke and Pires (2018) extensively test the syntactic nature of the implicit argument of RNs in regular sentences, and argue that the implicit argument of RNs is a reflexive anaphor rather than a pronoun, as shown below in (11). We review some of the crucial tests below.

(i) C-command requirement. The implicit argument must be c-commanded by its antecedent, based on the results of Ke, et al.’s (2018) experiment with test sentences such as (12). This is why the c-commanding *Milaoshu* ‘Mickey Mouse’, but not the non-commanding NP *Tanglaoya* ‘Donald Duck’, which is embedded in the adjunct PP, can be the antecedent of the implicit argument of the kinship noun *erzi* ‘son’.

(12) *Milaoshu* zp [pp zai Tanglaoya k zhuyuan de shihou] dai-le e\(j^*\)\(k\) erzi qu	Mickey-Mouse at Donald-Duck hospitalize DE time take-ASP son go xiaodao lüyou.
small-island travel ‘Mickey Mouse, at the time Donald Duck was hospitalized, took (Mickey’s) son on a trip (to go) to the island.’

(ii) Quantifier binding. When a body-part noun (e.g. *shou* ‘hand’) is bound by a quantifier, it allows only a bound reading, no matter whether a reflexive possessor, *ziji* ‘self’, is present or not (13a), but with a pronominal possessor, *ta* ‘her/his’, both a bound reading and a referential reading are available (13b).
(13) a. Mei-ge xuesheng j dou ba da’an xie (ziji de) shou-j/shang.
   every-CLF student all BA answer write at self DE hand-on
   ‘Every student wrote the answer on (her/his own j/*k) hand.’  (bound reading only)

   b. Mei-ge xuesheng j dou ba da’an xie taij/k de shou-shang.
   every-CLF student all BA answer write at her/his DE hand-on
   ‘Every student wrote the answer on her/his own hand.’  (bound or referential reading)

(iii) VP ellipsis. It has long been known that elided bound reflexives have only a sloppy
reading, whereas elided bound pronouns have both a strict and a sloppy reading, as in the
contrast between (14a, b) (Sag 1976, Shapiro and Hestvik 1995, Williams 1977, but cf.
Hestvik 1995 for some variation).

(14) a. John j defended himself, and Bill k did [elided VP defend himself j/*k] too.
   (sloppy reading only)

   b. John j likes his j car and Bill k does [elided VP like his j/*k car] too.  (ambiguous)

Ke and Pires (2018) find that implicit arguments of body-part and kinship nouns have
interpretations similar to those of reflexives, not pronouns, when RNs are elided inside a VP
(15).

(15) a. Mali hen hui baoyang toufa, Linda ye shi.
   Mary very able care hair Linda also is
   ‘Maryj is very good at taking care of (her) hair, and Lindajk also [is very good at
taking care of herj/*k hair].

   b. Zangsan hen huainian muqin, Lisi ye shi.
   Zhangsan very miss mother Lisi also is
   ‘Zhangsanj missed (hisj) mother very much, and Lisk also [miss hisj/*k mother].

In addition, Ke and Pires (2018) find that the argument of two types of RNs, kinship nouns
and body-part nouns differ in that the former can be either locally or long-distance bound,
whereas that of the later must be locally bound, as illustrated in (16a) and (16b), respectively.
That is, these two types of RNs bear different types of reflexives, corresponding to the local
complex reflexive ta-ziji ‘herself/himself’ and the long-distance simple reflexive ziji in
Chinese.

(16) a. Zangsanj yishi-dao [TP Lisi k kuai nongshang shou-j/*k le].  (local)
   Zhangsan realize Lisi soon hurt hand SFP
   ‘Zhangsanj realized that Lisik is about to cut (hisj/*k) hand.’

   b. Zangsanj yishi-dao [TP Lisi k kuai nongshang fuqinj/*k le].(local or long-distance)
   Zhangsan realize Lisi soon hurt father SFP
   ‘Zhangsanj realized that Lisik is about to hurt (hisj/*k) father.’

Further evidence for this contrast comes from a comparison of body-part and kinship nouns
in their syntactic behavior with blocking effects, which are previously reported as important
syntactic properties of long-distance reflexives (Huang and Tang 1991, Pan 2001, Xue,
Pollard and Sag 1994, among many others; see Charnavel, et al. 2017 for a comprehensive
review). Ke and Pires (2018) demonstrate that such properties are detected with kinship
nouns but not with body-part nouns.

It has long been noticed that first- and second-person pronouns can block third-person NPs from long-distance binding of ziji. (17a) indicates that in general, any c-commanding third person noun can be the antecedent of ziji. However, in (17b), although Yuehan ‘John’, ni ‘you’ and Tangmu ‘Tom’ all c-command ziji and are all in principle possible antecedents, only the lowest, Tangmu can serve as the antecedent. This is because the second-person pronoun ni ‘you’ prevents the reflexive from taking the first NP Yuehan ‘John’ as its antecedent (c.f. Charnavel, et al. 2017 and references therein for competing explanations of the blocking effect).

(17)  a. Yuehan_ renwei Yuehan_ j zhidao Yuehan_ k dui Yuehan_ k j ziji Yuehan_ j/k mei xinxin.
    John think Jacob know Tom toward self no confidence
    ‘John, thinks that Jacob knows that Tom is not confident in himself/himselfj/k.’

b. Yuehan_ renwei ni j zhidao Yuehan_ k dui Yuehan_ k j ziji Yuehan_ j/*j/k mei xinxin.
    John think I/you know Tom toward self no confidence
    ‘John, thinks that I/you know that Tom is not confident in himself/*j/k.’

Similar blocking effects are observed with the implicit argument of kinship nouns. For instance, when we replace the simple reflexive ziji with the kinship noun erzi ‘son’, exactly the same contrast as in (17a, b) is detected between (18a, b). No such blocking effects are expected for body-part nouns because they must be locally bound.

(18)  a. Zhangsan_ renwei [TP Zhangsan_ j zhidao [TP Wangwu_ j zhidao [TP Lisi_ k dui erzi Lisi_ k j mei xinxin]]].
    Zhangsan think Wangwu know Lisi toward son no confidence
    ‘Zhangsan, thinks that Wangwu knows that Lisi is not confident in his son.’

b. Zhangsan_ renwei [TP ni j zhidao [TP Lisi_ k dui erzi Lisi_ k j/*j/k mei xinxin]]].

3 The implicit argument of RNs and logophoricity

Ke and Pires (2018) suggest that the differences between body-part nouns and kinship nouns may be relevant to logophoric properties, but they do not provide much evidence for this conjecture. The purpose of this paper is to substantiate the conjecture and illustrate its implications for the theory of binding and logophoricity.

Our proposal is that the implicit argument of kinship nouns, like the simple reflexive ziji, is compatible with logophoric properties, which enables it to refer to a long-distance antecedent. However, the implicit argument of body-part nouns cannot be a logophor, and its binding is locally restricted. This proposal is resonant with Huang and Liu (2001), Reuland (2001) and Charnavel and Sportiche (2016) in that long-distance binding is a result of logophoric use.5

Logophors, or logophoric pronouns, were firstly reported in West African languages (e.g. Ewe) with regard to a type of pronouns that is morphologically distinct from personal pronouns and reflexives, referring specifically to “the individual (other than the speaker)

5 A comprehensive review of the competing theories of reflexives in Chinese is beyond the scope of this paper. Interested readers are referred to Charnavel, et al. (2017) for a critical evaluation of these theories.
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whose speech, thoughts, feelings, or general state of consciousness are reported or reflected in the linguistic context in which the pronoun occurs” (Clements 1975:141). Logophors are claimed to occur in English too. For instance, *himself* in (19a) and *myself* in (19b) are not bound locally but refer to the person whose belief or speech is reported.

(19)  
a. Tom believed that the paper had been written by Ann and himself.  
    (Ross 1970:226)

   b. Physicists like myself were never too happy with the parity principle.  
    (Ross 1970:230)

Sells (1987) further divides the notion of logophoricity into three types: the SOURCE, the SELF and the PIVOT. “The SOURCE is the one who makes the report (for example, the speaker). The SELF represents the one whose ‘mind’ is being reported; the PIVOT represents the one from whose point of view the report is made.” (Sells 1987:455)

Building on Sells (1987), Huang and Liu (2001) and Huang, Li and Li (2009) argue that locally bound reflexives are pure or plain anaphoric reflexives which are subject to standard binding theory (Chomsky 1981, 1986), and long-distance bound reflexives are logophors (see also Reuland 2001). They suggest that long-distance simple reflexive *ziji* is limited to logophoric uses. In the following we provide several diagnostics for (non-)logophoric reflexives.

3.1 Blocking effects

One such diagnostic is blocking effects in reflexive binding, because Huang, Li and Li (2009) consider blocking effects a result of invalid conflicts in perspectives. Huang, Li and Li (2009) thus predict that blocking effects occur only with long-distance reflexives, not with locally bound non-logophoric *ziji*. This prediction is justified by the contrast in (20). In (20a), the first- and second-person pronouns *wo/ni* ‘I/you’ prevent the reflexive from taking the long-distance NP *Yuehan* ‘John’ as its antecedent, whereas such blocking effect is absent with the locally bound reflexive in (20b).

(20)  
a. Yuehan renwei *wo/ni* zhidao Tangmu_dui ziji*_i/*j/*k_ mei xinxin.  
   John think I/you know Tom toward self no confidence

   *John, thinks that I/you know that Tom is not confident in

   *himself/*myself/*yourself.’

   b. Zhangsan hui gaosu *wo/ni* ziji*_i/*j/*k_ de fenshu.  
   Zhangsan will tell me/you self DE grade

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6 See Kim and Yoon (2009) for acceptability differences between these three types of logophoric use of local reflexives in Korean.

7 Reinhart and Reuland (1993) hold a stricter constraint that only reflexives in argument positions are subject to their counterpart of Condition A. This will exclude all cases where reflexives are inside adjunct positions.

8 Due to space limitation, we do not discuss every diagnostic provided in the literature, some of which are more controversial. For example, Huang and Liu (2001) argue that obligatory *de se* reading is a property of logophoric reflexive. However, Wang and Pan (2014) and Chen (2018) point out many counterexamples, showing that long-distance reflexives in Chinese are not necessarily interpreted *de se*. We thus leave a comprehensive evaluation of the diagnostics of logophoricity to future studies. Readers are referred to Charnavel (2017) and references therein for a complete list of diagnostics proposed in previous studies.
‘Zhangsan will tell me/about his/my/your own son’s grade.’

(21a) indicates that when the kinship noun erzi ‘son’ is locally bound, it is also not subject to blocking effects, although we have seen in Section 2.2 that kinship nouns exhibit blocking effects when they are long-distance bound.\(^9\) Importantly, as demonstrated by (21b), body-part nouns, like locally bound reflexives, are also exempt from blocking effects.

\begin{enumerate}
\item Zhangsan will tell me/about his/my/your son DE grade
\item Zhangsan will told me/about his/my/your arm injury.
\end{enumerate}

\subsection*{3.2 Sub-command effects}

Sub-command effects, as another diagnostic of logophoric use, reveal a disassociation between body-part nouns and kinship nouns/logophors. Sub-command effects are a typical syntactic property of both the simple and complex reflexive in Chinese. Take (22) as an example, in which Zhangsan, the specifier of a larger possessive phrase that c-commands the anaphor, can be the antecedent of the reflexives when that possessee (jiao’ao ‘pride’) is inanimate.

\begin{enumerate}
\item Zhangsan DE pride hurt-ASP self
\item Zhangsan’s arrogance harmed him.
\end{enumerate}

Charnavel and Huang’s (2018) grammaticality judgment experiments indicate a correlation between sub-command effects and logophoricity. In addition, inanimate anaphors, which lack a mental state, are incompatible with logophoricity (Charnavel and Sportiche 2016). Charnavel and Huang (2018) find that inanimate anaphors also do not exhibit sub-command effects (23), confirming that sub-command effects are an artifact of logophoricity.

\begin{enumerate}
\item *[\text{The fruits of [this tree]} bent itself.]
\end{enumerate}

We notice further that, unlike regular bound reflexives, sub-commanded reflexives do not lead to reconstruction effects. For example, we focalize the sub-commanded reflexive in (22) over its antecedent, as in (24). The reflexives cannot be reconstructed to its original position and be bound by the antecedent, whereas Ke and Pires (2018) have shown that regularly bound reflexives do exhibit reconstruction effects in the same context. A tentative explanation could be that the logophoric reflexive in this case is in fact not bound by the embedded “antecedent” directly but is bound by a logophoric operator that co-refer with the “antecedent”. After the reflexive is focalized, the logophoric operator may not able to c-

\(^9\) That erzi ‘son’ cannot refer to the first- and second-person pronouns is a subject-orientation effect.
command the reflexive, since the logophoric operator is generally assumed to be in a position lower than the focus (Charnavel 2017, Nishigauchi 2014). The absence of reconstruction effects further underpins Charnavel and Huang’s (2018) argument that sub-command effects signal logophoric uses.

\[(24) \text{?*Lian ziji/ta-ziji}_j \text{ Zhangsan}_j \text{ de jiao’ao dou hai-le.} \]

\text{Intended: ‘[Zhangsan’s arrogance] even harmed him’}.

We observe that kinship nouns exhibit sub-command effects but body-part nouns do not, as illustrated in (25) and (26), respectively. The main difficulty our consultants have with (26) is that they were not clear about who the possessors of the body-part nouns are. If a pronominal possessor is inserted right before the body-part nouns, the examples in (26) become perfectly acceptable. Therefore, in this respect kinship nouns are compatible with logophoricity, but body-part nouns are not.

\[(25) \text{a. [Zhangsan}_j \text{ de jiao’ao] hai-le fuqin}_j.} \]
\text{Zhangsan DE pride hurt-ASP father}
\text{‘[Zhangsan’s arrogance] harmed his father.’}
\text{b. [Zhangsan}_j \text{ de shouji] zadao-le didi}_j.} \]
\text{Zhangsan DE cell-phone hit-ASP younger-brother}
\text{‘[Zhangsan’s cell-phone] hit his younger brother.’}
\[(26) \text{a. [Zhangsan}_j \text{ de shouji] zadao-le jiao?}_j.}\]
\text{Zhangsan DE cell-phone hit-ASP foot}
\text{‘#Zhangsan’s cell-phone hit his foot.’/Zhangsan’s cell-phone hit a foot.’}
\text{b. [Zhangsan}_j \text{ de shoubiao] gua-shang-le shouzhi?}_j.}\]
\text{Zhangsan DE watch scratch-injured-ASP finger}
\text{‘[Zhangsan’s watch] scratched his finger.’}

3.3 VP ellipsis

Moreover, VP ellipsis is another test that can help us tease apart logophoric and anaphoric properties. Reuland (2001) proposes that logophoric use is a kind of pronominal use (see also Bouchard 1982:78, Cole, Hermon and Huang 2001:xvii). Anaphoric and logophoric reflexives are therefore predicted to be in complementary distribution, because logophoric use is blocked whenever a locally bound anaphor is possible. As Huang and Liu (2001) adopt the hypothesis that long-distance reflexives are logophors, we expect that these reflexives should behave like pronouns, not like anaphors. We argue that this prediction is indeed correct in that Chinese long-distance reflexives elided inside a VP will result in the strict reading, contrary to what has been assumed in some previous studies (e.g. Charnavel, et al. 2017, Cole, Hermon and Lee 2001, Huang and Liu 2001).

In Section 2, we pointed out that VP ellipsis of locally bound reflexives allows the sloppy reading but not the strict reading, whereas VP ellipsis of pronouns allow both readings. So it

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10 According to Cole, Hermon and Huang (2001), Malay and Turkish long-distance reflexives are possibly inherently pronominal, whereas English and Iceland long-distance reflexives are converted into pronominal under certain contexts.
is reasonable to anticipate that long-distance bound reflexives under VP ellipsis, as being converted to a pronominal, lead to both the strict and the sloppy readings. However, Cole, Hermon and Lee (2001) and Huang and Liu (2001) suggest that this prediction is incorrect, and argue that logophoric reflexives do not give rise to a strict reading. They use examples as in (27a, b), and find that only the sloppy reading is available for both sentences. The corresponding sloppy readings are in (28a, b).

    Zhangsan say Lisi always mistreat self Wangwu also the-same
    ‘Zhangsan says that Lisi always mistreats him, and so does Wangwu.’
    (Cole, Hermon and Lee 2001)
    Zhangsan feel Lisi often cheat self Wangwu also be
    ‘Zhangsan feels that Lisi often cheated him, and so does Wangwu.’
    (Huang and Liu 2001)

(28)  a. Wangwu also says that Lisi always mistreats him.
    b. Wangwu also feels that Lisi often cheated him.

This is quite surprising, as it has been shown in languages such as English, long-distance anaphors lead to both the strict and sloppy readings under VP ellipsis (Hicks 2009, Lebeaux 1985), illustrated in (29a). By contrast, locally bound reflexives in English exhibit the sloppy reading only (29b).

(29)  a. John thought there were some pictures of himself for sale on ebay, and Bill did too.
    = pictures of John, or:                    (strict reading)
    = pictures of Bill                        (sloppy reading)
    b. John respects himself, and Bill does too
    = respects Bill, but:                     (sloppy reading)
    != respects John                         (strict reading)
    (Hicks 2009:137)

It is an open question as to why the sloppy reading is the dominant reading, if not the only reading, for the elided reflexives in (27a, b), but we should call attention to the point that the unavailability of the strict reading in (27a, b) should not be used to argue against the idea that logophoric reflexives are pronominal. It seems some unknown factors might have excluded the strict reading. If we replace the reflexives with pronouns and keep everything else unchanged, the sloppy reading is still the dominant reading. Take (27b) as an example. If the reflexive is substituted by a pronoun, as in (30), the dominant reading for the elided VP is still (28b). This suggests that the long-distance bound reflexives could still be pronominal even if the sloppy reading is not readily available in these specific contexts.

(30)  Zhangsan juede Lisi chang qipian ta, Wangwu ye shi.
    Zhangsan feel Lisi often cheat he Wangwu also be
    ‘Zhangsan feels that Lisi often cheated him, and so does Wangwu.’

---

11 Cole, Hermon and Lee (2001) consider VP ellipsis in sentences such as (30) ambiguous between a strict and a sloppy reading. While we agree that the strict reading is available for some speakers, there does seem to be a strong preference for the sloppy reading.
Crucially, we would like to further point out that a confounding factor has obscured the test: Cole, Hermon and Lee (2001) and Huang and Liu (2001) do not distinguish matrix and embedded VP ellipsis. Take (27a) as an example. Either the matrix VP (31a) or the embedded VP (31b) can be potentially elided. This confounding factor might have concealed some interpretations of the sentences.\textsuperscript{12}

\begin{align*}
(31) & \quad \text{a. Wangwu also [says that Lisi always mistreats ziji].} & \text{(Matrix VP ellipsis)} \\
& \quad \text{b. Wangwu also [always mistreats ziji].} & \text{(Embedded VP ellipsis)}
\end{align*}

Indeed, we found that matrix and embedded VP ellipses lead to different interpretations. Like Huang and Liu (2001), we utilize ye/que shi ‘also/yet is’ to elicit VP ellipsis (Li and Wei 2014, Soh 2007, Wei 2009, Xu 2003), but now unambiguously targeting the embedded VP. For the embedded VP ellipsis in (32), when the reflexive ziji is locally bound by Zhangsan, only the sloppy reading (33a) is possible. This is an example of VP ellipsis with a locally bound reflexive which leads to the sloppy reading but not the strict reading, as expected. Since what we are interested in are actually long-distance bound reflexives, we will ignore the locally bound reading below.

\begin{align*}
(32) & \quad \text{Lin Jiaoshou renwei Zhangsan chang piping ziji, Wang Jiaoshou renwei Lisi ye shi.} \\
& \quad \text{Lin Professor think Zhangsan often criticize self Wang Professor think Lisi also be ‘Prof. Lin thought Zhangsan often criticized himself, and Prof. Wang thought Lisi did so, too.’}
\end{align*}

\begin{align*}
(33) & \quad \text{a. Prof. Wang thought Lisi also often criticized himself. (local binding: sloppy reading)} \\
& \quad \text{b. Prof. Wang thought Lisi also often criticized Zhangsan. (local binding: strict reading)}
\end{align*}

\begin{align*}
(34) & \quad \text{a. Prof. Wang thought Lisi also often criticized Prof. Wang. (long-distance binding: sloppy reading)} \\
& \quad \text{b. Prof. Wang thought Lisi also often criticized Prof. Lin. (long-distance binding: strict reading)}
\end{align*}

When the reflexive is long-distance bound by Lin Jiaoshou ‘Prof. Lin’, the strict reading (34b) becomes a preferred reading. The sloppy reading for the long-distance bound reflexive (34a), although may be accessible to some speakers, is hard to get, that is, Wang Jiaoshou ‘Prof. Wang’ cannot be the antecedent of the elided reflexive. This is possibly because the elided reflexive as a logophor has been in co-reference relation with Lin Jiaoshou ‘Prof. Lin’ and thus switching to another co-reference relation with Wang Jiaoshou is costly. Such cost due to perspective switch has been observed previously in blocking effects in Huang and Liu (2001).

On the other hand, for the matrix VP ellipsis, since Chinese does not have an adverbial verb equivalent to do in English as in do so, we instead use the construction zheme ‘such’ + verb (see Kim and Yoon 2009 for a similar VP ellipsis test in Korean; also cf. Huang 1991), where the verb repeats the matrix verb in the antecedent sentence. Again, we ignore the case when the elided VP contains both the local antecedent Zhangsan and the locally bound reflexive.

\textsuperscript{12} Notice that similar tests in English can avoid such an ambiguity problem. A test sentence such as (29a) does not have the same problem, for the embedded and the matrix clause use different types of predicates (an intentional verb and a copula), so “did too” elicits matrix VP ellipsis only (targeting the intentional verb).
The case where the elided matrix VP contains a long-distance bound reflexive, as exemplified in (35), is more interesting to us. The strict reading shown in (36a) is a dominant interpretation for (35). The sloppy reading (36b) is available for some native speakers but with much difficulty. This difficulty, again, is possibly due to a perspective switch from Zhangsan to Wangwu. Therefore, we have obtained interpretations that are exactly what we should expect for an elided pronoun, confirming that long-distance reflexives are logophors that are similar to pronouns rather than anaphors.

(35) Zhangsan_k juede Lin Jiaoshou hui rang ziji_k bu jige, Wangwu ye zhemejuede.
    ‘Zhangsan feels that Prof. Lin will not let him pass the exam, and Wangwu feels so, too.’

(36) a. Wangwu feels that Prof. Lin will not let Zhangsan pass the exam. (strict reading)
    b. Wangwu_k feels that Prof. Lin will not let him_k pass the exam. (sloppy reading)

Even if we take the construction zheme ‘such’ + verb as an instance of argument ellipsis, the conclusions are sustainable using less controversial constructions with modals (e.g. hui ‘will’) as the licenser for VP ellipsis (cf. Li and Wei 2014, Xu 2003). The reflexives contained in the elided VP in (37a, b) have the sloppy reading as their dominant or even only interpretation, and this may correspond to the sloppy reading observed in (27) by Cole, Hermon and Lee (2001) and Huang and Liu (2001).

    ‘Zhangsan will feel that Prof. Lin intentionally embarrass self Lisi also will
    ‘Zhangsan will feel that Prof. Lin intentionally embarrassed him, and Lisi will too.’
    b. Zhangsan bu hui renwei Mali xihuan ziji, Lisi que hui.
    ‘Zhangsan not will think Mary like self Lisi yet will
    ‘Zhangsan not will think Mary likes him, but Lisi will.’

However, again, even if we consider the strict reading unavailable in (37a, b), it does not follow that long-distance bound reflexives are not pronominal, because if we replace the reflexives with pronouns (38a, b), the dominant interpretation is still the sloppy reading.

(38) a. Zhangsan hui juede Lin Jiaoshou guyi weinan ta, Lisi ye hui.
    ‘Zhangsan will feel that Prof. Lin intentionally embarrass him Lisi also will
    ‘Zhangsan will feel that Prof. Lin intentionally embarrassed him, and Lisi will too.’
    b. Zhangsan bu hui renwei Mali xihuan ta, Lisi que hui.
    ‘Zhangsan not will think Mary like him Lisi yet will
    ‘Zhangsan not will think Mary likes him, but Lisi will.’

Furthermore, in a proper context, the strict reading for (37a, b) is not completely inaccessible. Sentences such as (40a) are more natural with contexts asserting the antecedent of the conditional because they usually describe the consequent of certain conditional statements. If we now add such a context and it forces the strict reading, exemplified in (39), both the
reflexive and the pronoun in the elided VPs, can lead to the strict reading.\textsuperscript{13}

(39) Context: If Prof. Lin announces Zhangsan’s grade in front of the class,


Zhangsan will feel Lin Professor intentionally embarrass self Lisi also will ‘Zhangsan will feel that Prof. Lin intentionally embarrassed him, and Lisi will too.’


Zhangsan will feel Lin Professor intentionally embarrass him Lisi also will ‘Zhangsan will feel that Prof. Lin intentionally embarrassed him, and Lisi will too.’

A summary of the results of VP ellipsis test is provided below in Table 1. In a word, when the embedded VP is elided, the strict reading is the primary interpretation and the sloppy reading is also available sometimes; when the matrix VP is elided, the preference is reversed. The results are consistent with the hypothesis that locally bound reflexives are “plain” reflexives whereas long-distance reflexives as logophors are pronominal, although the cause of the preferences is still a mystery.

Table 1. Interpretations of the elided reflexives in matrix and embedded VP ellipses

<table>
<thead>
<tr>
<th>Embedded VP ellipsis</th>
<th>Matrix VP ellipsis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Locally bound</strong></td>
<td><strong>Long-distance</strong></td>
</tr>
<tr>
<td>reflexive</td>
<td>reflexive</td>
</tr>
<tr>
<td>Sloppy</td>
<td>Strict (dominant)</td>
</tr>
<tr>
<td></td>
<td>Sloppy (degraded)</td>
</tr>
<tr>
<td></td>
<td>Not apply</td>
</tr>
<tr>
<td></td>
<td>Sloppy (dominant)</td>
</tr>
<tr>
<td></td>
<td>Strict (degraded)</td>
</tr>
</tbody>
</table>

With VP ellipsis as a test for logophors established, let us return to the distinction between locally bound and long-distance bound kinship nouns.\textsuperscript{14} Recall that the goal is to tease these two types of RNs apart by relating the long-distance bound implicit argument of kinship nouns to logophors and the locally bound implicit argument of kinship nouns (as well as that of body-part nouns) to locally bound reflexives. For kinship nouns, we find exactly the same interpretations in the four conditions we examined for the simple reflexive. (41) is an example where the matrix VP is elided. As in the case of reflexives, we should exclude the case where the kinship noun, fuqin ‘father’, is locally bound. When the kinship noun is long-distance bound, the dominant reading is the strict reading (42a), and the sloppy reading (42b) is difficult, if not impossible, to obtain.

(41) Zhangsan \textunderbar{renwei} Lin Jiaoshou hen zunjing fuqin\textbar{\textunderbar{\textcircled{\textbar}}}, Lisi ye zheme renwei.

Zhangsan \textbar{\textunderbar{think}} Lin Professor very respect father, Lisi also such think ‘Zhangsan \textbar{\textunderbar{thinks that Prof. Lin respects his father, and Lisi thinks so, too.’}}

\textsuperscript{13} Some speakers reported that although they can accept (40a, b), the sentences would be better if zheme juede ‘so feel’ is added to the end, constructing a structure similar to what we have seen in (35). Our explanation is that the preferred reading of (40a, b) without the context (39) is the sloppy reading, which is incompatible with the context. However, adding zheme juede ‘so feel’ will switch the preference to the strict reading, which is perfectly consistent with the context.

\textsuperscript{14} The same VP ellipsis tests, which target long-distance bound reflexives, are generally not applicable to body-part nouns since they must be locally bound.
(42)  a. Lisi also thinks that Prof. Lin respects Zhangsan’s father.  
      (strict reading)  
   b. Lisi; also thinks that Prof. Lin respects his; father.  
      (sloppy reading)  

Similar to the simple reflexives, if we adopt the auxiliary *hui* ‘will’ to induce VP ellipsis (43), then the preferred reading becomes the sloppy reading, and the strict reading is degraded. Substituting the kinship noun with a pronoun does not change the interpretation.

(43)  Zhangsan_hui juede Lin Jiaoshou guyi weinan erzi_ta,  
      Zhangsan will feel Lin Professor intentionally embarrass son/he  
      Wangwu ye hui.  
      Wangwu also will  
      ‘Zhangsan_hui will feel that Prof. Lin intentionally embarrass his_he son, and Wangwu also will.’  

(44)  a. Wangwu will feel that Prof. Lin intentionally embarrassed Zhangsan’s son.  
      (strict reading)  
   b. Wangwu will feel that Prof. Lin intentionally embarrassed Wangwu’s son.  
      (sloppy reading)  

With the embedded VP ellipsis constructions, (45) as an example, if the kinship noun is locally bound by *Lin Jiaoshou* ‘Prof. Lin’, the only accessible interpretation is the sloppy reading in (46b); the strict reading (46a) is not possible. But if the reflexive is long-distance bound by *Zhangsan*, the dominant interpretation is the strict reading (47a), and the sloppy reading (47b) is degraded, if not impossible.

(45)  Zhangsan_renwei Lin Jiaoshou hen zunjing fuqin_ji, Lisi renwei Wang Jiaoshou ye shi.  
      Zhangsan think Lin Professor very respect father, Lisi think Wang Professor also be  
      ‘Zhangsan_renwei thinks that Prof. Lin respects his_father, and Lisi thinks that Prof. Wang  
      does so, too.’  

(46)  a. Lisi thinks that Prof. Wang also respects Prof. Lin’s father.  
      (local: strict reading)  
   b. Lisi; thinks that Prof. Wang; also respects his; father.  
      (local: sloppy reading)  

(47)  a. Lisi thinks that Prof. Wang also respects Zhangsan’s father.  
      (long-distance: strict reading)  
   b. Lisi; thinks that Prof. Wang; also respects his; father.  
      (long-distance: sloppy reading)  

The contrast between locally bound and long-distance bound kinship nouns, on a par with the contrast we observed between locally bound and long-distance bound reflexives, reinforces two arguments in this paper: (i) reflexives or the reflexive arguments of kinship nouns that are long-distance bound are different from their locally-bound counterparts in that the former are logophors and they share important features with pronouns under VP ellipsis; (ii) the implicit argument of kinship nouns bears similar syntactic properties with the simple reflexive in Chinese.

4 Conclusions

To conclude, the current study provides new evidence for Ke and Pires’ (2018) argument that RNs in Chinese have two types of reflexive arguments. Body-part nouns bear a locally bound reflexive argument and kinship nouns a long-distance reflexive argument. These two types of
arguments syntactically correspond to the locally bound complex reflexive and the long-distance simple reflexive in Chinese. We attribute the distinction to the fact that the implicit argument of body-part nouns cannot be logophoric whereas that of kinship nouns can. In other words, it is possible that the logophoric property of the implicit argument of kinship nouns has led to long-distance binding for both the explicit and implicit simple reflexives in Chinese, which invites us to conclude that logophor and locally bound reflexives are in complementary distribution, supporting previous studies such as Reuland (2001) and Huang and Liu (2001).

It should be noted that this study does not claim that the implicit arguments of RNs are identical to their overt reflexive counterparts in every aspect. Instead, we believe that they are still different in their distribution. For instance, as we have mentioned in Section 3.2, body-part nouns cannot take a sub-commanding antecedent, whereas the complex reflexive can. In addition, besides not being logophoric, body-part nouns, unlike the complex reflexive, cannot be used as emphatic or as an adverbal. Therefore, comparatively, the implicit argument of body-part nouns is more like a plain reflexive than the complex reflexive. The distribution of body-part nouns thus allows us to determine the binding domain of reflexives with crucial confounding factors controlled for. We leave to future studies a full examination of the distribution of body-part nouns and its implications to the binding theory.

References


1 Introduction

There are two types of free relatives: standard free relatives and transparent free relatives. The former is treated as a definite singular DP. As illustrated in (1a-b), this type requires the number feature of T to be singular and cannot occur in there-constructions.

(1) Standard Free Relative
   a. What you ordered was/*were delivered a minute ago. (Singular)
   b. *There is what you ordered on your desk. (Definite)

The latter is not necessarily treated as definite singular DPs. This type is characterized by the presence of a so-called kernel phrase—the phrase making an equation relation with what. In (2a) pebbles is the kernel phrase. Transparent free relatives are so named, because grammatical operations like agreement take place as if there were not what John calls in (2a-b). For instance, the transparent free relative clause in (2a) behaves like a plural DP, whereas the one in (2b) behaves like a singular DP: that is, the kernel phrases pebbles and a banjo determine the number feature of T.

(2) Agreement
   a. What John calls pebbles are lying on the lawn. (plural)
   b. What John calls a banjo is lying on his desk. (singular)
      (Schelthout, Coopen & Oosdijk 2004)

Besides agreement, the grammatical category and definiteness are also determined by the kernel phrase. For instance, in (3a-b) the kernel phrases are AP and AdvP, respectively, and so the free relatives behave like AP and AdvP, respectively.

(3) Grammatical Category
   a. You’re definitely not [AP what anyone would describe as ecstatic].
   b. In that process I begin to work [AdvP what I would call creatively]. (Kim 2011: 159)

As shown by (4a-b), the definiteness of the transparent free relative clause also depends on the kernel noun phrase. This is in sharp contrast with standard free relatives, which are treated as definite expressions, as shown in (1b).

(4) Definiteness
   a. There is what John might call a banjo on his desk. (Indefinite)
b. *There is what John might call his banjo on his desk. (Definite)

To sum up, the transparent free relative is a variable in that its grammatical category, number, and definiteness are dependent on the kernel phrase.

This paper explores the possibility of providing a principled account of the peculiarities of transparent free relatives. The main claim made in this paper is that the transparent free relative word what, unlike its counterpart in the standard free relative, is not a combination of wh- and -at of the pronoun that, but a combination of wh- and the finite complementizer C. More precisely, a transparent free relative clause is generated after going through the following steps: (i) the bound morpheme wh- enters the syntactic derivation with its grammatical features unvalued, (ii) has its unvalued features valued via Agree, (iii) undergoes wh-movement, and (iv) then is attached by the complementizer C.

(5) a. [... [wh- Kernel Phrase] … ]: Agree with Kernel Phrase and Merger with C
  b. [C [...wh- Kernel Phrase…]]: wh-movement
  c. [wh- C [...wh- Kernel Phrase…]]: C-to-wh Movement
  d. [[wh- C] [… Kernel Phrase…]]: Phonetic Realization
  e. [[what] [… Kernel Phrase…]]

After showing that the decompositional analysis can provide a principled account of various peculiarities of transparent free relatives, this paper also claims that this line of approach can be extended to pseudo-clefts.

2 Representative Previous Approaches

We can divide the previous approaches to transparent free relatives into two types, depending on whether or not the kernel phrase directly bears a relation with a constituent that is outside of the transparent free relative. Wilder (1999) and Riemsdijk (2000, 2001, 2006a,b) propose that the kernel phrase in (6)—a banjo—is the object of bought in an attempt to capture the transparency, whereas Grosu (2003, 2007, 2014) proposes that it is the whole wh-clause that functions as the object of the main verb.

(6) I bought what John called a banjo.

Let us first examine Wilder’s (1999) approach. Wilder’s analysis consists of two steps: parenthetical insertion and backward ellipsis. As illustrated in (7a-c), the transparent free relative is first parenthetically inserted to the left of the kernel phrase pebbles, and then the adjacent overlapping constituent pebbles in the wh-clause undergoes backward ellipsis

(7) a. I bought a banjo: parenthetical insertion
  b. I bought [what John called a banjo] a banjo: backward ellipsis
  c. I bought [what John called a banjo] a banjo

As Riemsdijk (2000, 2001) points out, this proposal runs into a problem if the kernel phrase occurs in the middle of a transparent relative clause. In (8), for instance, a meteor is the kernel phrase. If we apply parenthetical insertion and backward ellipsis, as in (7a-c), ungrammaticality results.
(8) I just saw [what might well be taken for a meteor by naive observers when visibility is rather poor]. (Grosu 2003:288)

(9) a. I just saw a meteor: parenthetical insertion
   b. I just saw [what might well be taken for a meteor by naive observers] a meteor: backward ellipsis
   c. *I just saw [what might well be taken for a meteor by naive observers] a meteor

It seems that there is no way to derive the well-formed sentence in (8) under Willder’s approach.

Let us now turn to Riemsdijk’s (2000, 2001, 2006a,b) grafting or remerger account. Riemsdijk proposes that the kernel phrase undergoes remerger. In (6) a banjo merges with buy, and then it also undergoes remerger with what.

(10) I bought what John called a banjo.

In this approach a banjo carries out a dual role: it is the object of buy, and simultaneously it is the predicate of the small clause [what a banjo]. This approach can deal with the data in (8), but encounters the following semantic problem. According to the dual role approach, (6) is interpreted as (11).

(11) I bought a banjo, at least, John called it a banjo.

Grosu (2014) notes that this approach cannot deal with the case in which the wh-clause is negated. The dual role approach requires (12a) and (13a) to be paraphrased as (12b) and (13b), respectively. However, the problem is that the a-sentences and the b-sentences do not form a paraphrase relation.

(12) a. He is eating [what can’t possibly be a steak].
    b. He is eating a steak, but it can’t possibly be a steak.
(13) a. I have just stumbled over [what can’t possibly be Mary], I wonder what it is.
    b. I have just stumbled over Mary, but it can’t possibly be her.

In fact, Wilder’s approach faces the same problem. Generally speaking, any approach is bound to fail if it assumes that the kernel phrase bears a direct relation with a constituent that is outside of the wh-clause.

Let us finally consider Grosu’s (2003, 2007, 2014) approach. Grosu proposes that in both standard free relatives and transparent free relatives, what undergoes movement to SPEC-C, and then the CP is headed by a null determiner.

(14) a. [C John likes what]: wh-movement
    b. [what C John likes what]: Merger with a Null Determiner
    c. [D [CP what C John likes what]]:

What has such features as [-plural], [+definite], and [+D] in standard free relatives, but those features are underspecified in transparent free relatives, and the underspecified features are
assigned values from the kernel phrase. After valuation, what undergoes *wh*-movement into SPEC-C and then the resulting structure is merged with a null constituent, which has no feature specifications. The underspecified values of the null constituent are valued by what.

(15) a. [C John called what[uPl, uDefinite, uCategory] pebbles]: Specification of Values and *Wh*-movement
c. [ø[uPl, uDefinite, uCategory] [what[u+Pl, -Definite, N Category] C John called what[u+Pl, -Definite, N Category] pebbles]]: Valuation
d. [ø[u+Pl, -Definite, N Category] [what[u+Pl, -Definite, N Category] C John called what[u+Pl, -Definite, N Category] pebbles]]

An immediate question is why what must be merged with a null D, but not with an overt antecedent. Another empirical problem is that it is unclear how to explain the fact that extraction is possible out of the transparent free relative. Sentence (16a) is represented as (16b), according to Grosu’s analysis.

(16) a. Who did she buy [what seems to be a nice portrait of t₁?]
   b. who did she buy [DP ø [CP what C [seem to be what a nice portrait of who]]]

In (16b) the transparent free relative clause is a complex noun phrase, and so extraction out of the complex noun phrase violates one of the island conditions—the Complex Noun Phrase Condition (Ross 1967). However, (16a) is well-formed. In short, Grosu’s approach can capture the semantics of the transparent free relative correctly, but it has syntactic problems.

3 Proposal

*Wh*-words consist of the bound morpheme *wh*- and its host. For example, *whether* consists of *wh* + *either*. This section argues that in transparent free relatives, *wh* enters the syntactic derivation without its host, and it is attached by the complementizer C after *wh*-movement. This section shows that this proposal can capture various peculiarities of transparent free relatives.

3.1 Chomsky’s (2013) Analysis of Standard Free Relatives

Sentence (17) is ambiguous: the *wh*-clause can be an interrogative clause or a free relative.

(17) What she wrote is unclear.

Chomsky (2008, 2013) proposes that this ambiguity arises from the fact that what may or may not be the head of the resulting structure after undergoing *wh*-movement.¹ This

¹ Previous approaches to standard free relatives can be divided into two groups: a null head approach and a fused constituent approach. The null head approach assimilates the free relative clause with a regular relative clause with an overt antecedent (Groos and van Riemsdijk 1981, Hirschbuhler and Rivero 1983, Suner 1984, Grosu 1988,
argument is based on his principle of labeling in (18).

(18) a. Suppose $SO = \{H, XP\}$, $H$ a head and $XP$ not a head. Then $LA$ will select $H$ as the label.
   
b. Suppose $SO = \{XP, YP\}$. Then (i) either modify $SO$ so that there is only one visible head, or (B) $X$ and $Y$ are identical in a relevant respect, providing the same label.

The principle in (18a) states that if a head is merged with its dependent, the head is the label of the whole projection. Chomsky proposes that (18a) follows from the fact that Labeling Algorithm (LA) is just minimal search. In (19b) the head that is closest to the branching node is what, so $D$ is the label of the free relative.

(19) a. $[C \{\text{she wrote what}\}]$: movement
   b. $[\text{what} \{C \{\text{she wrote t}\}\}]$: labeling
   c. $[D \{\text{what} \{C \{\text{she wrote t}\}\}\}$

On the other hand, if $C$ and what share the feature $[Q]$, $Q$ can be the label in accordance with (18b).

(20) a. $[\text{what}_{[Q]} \{C \{\text{what she wrote}\}\}]$: in accordance with the principle (18b)
   b. $[\text{QP} \{\text{what} \{C \{\text{she wrote}\}\}\}$

To sum up, if what projects, it yields a free relative clause, and if the shared feature projects, an interrogative clause results. This proposal gives a principled account of the properties of standard free relatives; they pattern like singular definite DPs because what is a singular definite D. The remainder of this section shows that transparent free relatives are generated in a similar way, except that the word what is not formed in the lexicon.

3.2 A Decompositional Analysis

Pesetsky (2000) notes that the wh-feature of a wh-word is introduced by the wh-morpheme /hw/, and that in several cases the morpheme that follows /hw/ also appears in a pronoun.

(21) a. what a’. that
   b. when b’. then
   c. where c’. there

1994, 1996). There is a covert antecedent for what in this approach.

(i) $[X \{\text{what Mary bought t for him}\}$

The fused constituent approach assumes that what is a combination of a relative pronoun and its antecedent (Huddleston & Pullum 2002). This approach can be divided into two types, depending on whether or not what undergoes movement. Bresnan and Grimshaw (1978) proposes that what is base-generated at the clause-initial position and the empty category is an elided pronoun, whereas Donati (2006) and Chomsky (2008, 2013) propose that what undergoes wh-movement.

(ii) a. $[\text{what} \{\text{Mary bought pro for him}\}$
    b. $[\text{what} \{\text{Mary bought t for him}\}$
d. whence  d'. thence

Japanese displays a similar pattern. In Japanese, the *wh*-morpheme is *do-*, and it occurs with a morpheme that also occurs in a demonstrative.

(22) Japanese
- a. dore 'which one'  a'. kore 'this one'  a''. sore, are 'that one'
- b. dono 'which'  b'. kono 'this'  b''. sono, ano 'that'
- c. dotira 'whither'  c'. kotira 'this direction'  c''. sotira, atira 'that direction'
- d. doo 'how'  d'. koo 'this manner'  d''. soo — 'that manner'
- e. dare 'who'  e'. kare 'he' — —

In Korean the *wh*-morpheme seems to be a zero morpheme. Every *wh*-word except *woay* 'why' is ambiguous between a *wh*-word and an indefinite, which suggests that a Korean *wh*-word consists of a zero *wh*-word and an indefinite.

(23) a. nwukwu: 'who', 'someone'
- b. mwues: 'what', 'something'
- c. eti: 'where', 'somewhere'
- d. enjey: 'when', 'some time'
- e. ettehkey: 'how', 'somehow'

(24) [ø *wh* + indefinite] = *wh*-word

I propose that the *wh*-morpheme is a variable and its grammatical features are determined by its complement. More precisely, *wh-* has unvalued category, number, and definiteness features, and the unvalued features are valued when it is merged with its pronominal complement. For example, the unvalued features of *wh-* are valued by the values of *at*, as shown in (25).² Let us first determine the features of *at*. If we assume that *th-* , just like *the*, has the feature [+unique], -at has the features [D, -Pl, +Definite, +Distal].

(25) a. that = th[[+unique] + at[[D, -Pl, +Definite, +Distal]]
- b. those = th[[+unique] +ose[D, +Pl, +Definite, +Distal]]
- c. these = th[[+unique] +ese[D, +Pl, +Definite, -Distal]]

If so, it is not surprising that the standard free relative pronoun *what* is treated as a definite singular D; the grammatical features of *what* are valued by those of -at.

(26) a. wh[u Category, u Pl, u Definite] + that[D, -Pl, +Definite, +Distal]: Valuation
- b. [wh[D, -Pl, +Definite] + that[D, -Pl, +Definite, +Distal]]: Labeling
- c. [D wh[D, -Pl, +Definite] + that[D, -Pl, +Definite, Distal]]

We can now explain the pattern shown in (1a-b). The head of a standard free relative is *what*, of which grammatical features are dependent on -at, which in turn has the features [D, -Pl, +Definite]. Therefore, the standard free relative is a singular DP, and it cannot appear in *there-*

² The grammatical category of *th-* is also a variable, being determined by its sister.
constructions.

It is well-known that tense morphemes like -s enter into a syntactic derivation, although they are not words but morphemes, and later they are merged with a verb at PF. I propose that the morpheme wh- displays a similar pattern when transparent free relatives are generated. The wh-words in standard free relatives are formed in the lexicon. In the case of transparent free relatives, however, what is formed in the narrow syntax. As shown in (27a), the morpheme wh- undergoes ‘Merge’ as the co-argument of a banjo. When wh- is introduced in the syntax, it, as a probe, searches its goal—the kernel phrase, and enters into an Agree relation with the kernel phrase a banjo, as in (27a-b). As a consequence, its unvalued grammatical features are valued by the kernel noun phrase: the grammatical features of wh- are valued by those of a banjo. When wh- undergoes movement, the resulting structure is labelled as D in compliance with the LA in (18), as shown in (27b-c). The morpheme wh- is a bound morpheme, requiring a host. I propose that this problem is resolved when C undergoes movement to -wh: that is, merger of -wh with C results in forming the wh-word what. In short, the word what in transparent free relatives is a combination of wh- and C.

(27) a. [C John might call [wh-[u Category, u Pl u Definite] a banjo[D, -Pl, -Definite]]]: Valuation
b. [C John call wh-[D, -Pl, -Definite] a banjo[D, -Pl, -Definite]] ): Wh-Movement and Labeling
c. [D wh-[D, -Pl, +Definite] [C John might call t, a banjo[D, -Pl, -Definite]]]: C-to-wh Movement
d. [[[D [wh-[D, -Pl, +Definite] + C] John might call t, a banjo[D, -Pl, -Definite]]]: Phonetic
   Realization
e. [D what John might call a banjo[D, -Pl, -Definite]]

We are now in a position to account for the peculiar properties of transparent free relatives. In (4a), repeated here as (28a), wh- is the head of the free relative, and its grammatical category, number, and definite features are valued by a banjo: that is, the free relative is an indefinite singular noun phrase. Therefore, (5a) is well-formed and the copula is realized as is.

(28) a. There is what John might call a banjo on his desk.
b. there is [wh-[D, -Pl, -Definite] C John might call wh-[D, -Pl, -Definite] a banjo] on his desk.

On the other hand, (4b), rewritten here as (29a), is ill-formed because wh- is definite; its definiteness feature is valued by his banjo.

(29) a. *There is what John might call his banjo on his desk. (Definite)
b. there is [wh-[D, -Pl, +Definite] C John might call wh-[D, -Pl, +Definite] a banjo] on his desk.

Furthermore, the grammatical category of the free relative clause in (3a), repeated here as (30a), is an adjective phrase because the grammatical category of wh- is valued by the kernel phrase ecstatic.

(30) a. You’re definitely not [AP what anyone would describe as ecstatic]
b. You’re definitely not [AP wh[Adj] C anyone would describe wh[Adj] as ecstatic]

 precis speak, the morpheme wh- has an unvalued lexical category feature—[uLexical Category]. So it is not valued by as but by ecstatic.
Let us now turn to extraction out of a transparent free relative. According to Chomsky’s (2013) analysis advocated here, the standard free relative clause is a complex NP, which roughly looks like $[\text{DP what } [\text{CP ...}]]$. So it is not surprising that extraction out of it is not permitted, as noted in Wilder (1999).

(31)  
- a. *the student that Mary invited [who likes __ ]
- b. *something that Mary invited [whoever is angry about __ ]

By contrast, transparent free relatives do not form islands, as mentioned earlier.

(32)  Who did she buy [what seems to be a nice portrait of t]? (= 16b)

According to the decompositional analysis, the transparent free relative clause in (33) will be generated as follows:

(33)  
- a. $[\text{wh C } [\text{TP wh seem to be wh a nice portrait of who}]]$: C-to-wh Movement
- b. $[[\text{wh C} \ [\text{TP wh seem to be wh a nice portrait of who}]]]$: Labeling
- c. $[\text{DP [wh C} \ [\text{TP wh seem to be wh a nice portrait of who}]]]

Chomsky (2013, 2015) claims that labeling takes place on a phase-basis, and traces are not visible when labels are determined by the Labeling Algorithm in (18a-b). After head movement takes place in (33a), wh- becomes the label of the whole transparent free relative.4 Furthermore, as the trace of that is not visible, the head $[D [D wh] C]$ takes a TP complement. Accordingly, (32) would be schematically represented as (34).

(34)  who … $[\text{DP D}_{[-\text{definite}]}… [\text{TP … who}]]$

In (34) the free relative is an indefinite DP. Indefinite DPs are not barriers to movement, as illustrated in (35).5

(35)  Who did she buy a nice portrait of t?

Therefore, (32) is well-formed.6

Now we can explain the mysterious binding phenomena displayed by the transparent free relative (van Riemsdijk 2000, 2006). Sentences (36a-b) are ungrammatical, which does not

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4 The head movement in (33a-b) has the effect of dephasing, according to Chomsky (2015); C cannot function as a phase head.

5 Indefinite DPs are likely to be weak phases if they are phases.

6 Chomsky (2015) proposes that T is weak and so its SPEC must be filled for labeling. It is unclear how TP is labeled in (33a) under this view. The same problem arises when we consider the relative clause in (i). Sentence (i) does not display a that-trace effect. It is unclear how to explain the grammaticality of (i), if T is too weak to be labelled on its own.

(i)  the girl that t loves Mary

It is beyond the scope of this paper to discuss this issue. However, it is noteworthy that the that-trace effect disappears when a CP modifies a head nominal.
come as a surprise in view of Binding Condition A in (37).

(36)  a. *We could sense [whatever feeling you could only describe as each other's soul].
     b. *He was painting [whoever I took to be himself] in the White House.

(37)  if α is an anaphor, interpret it as coreferential with a c-commanding phrase in D.
     (Chomsky 1995, Chomsky and Lasnik 1993)

The relevant structure of (36a-b) looks like (38). It is well-known that CP forms a minimal local domain: an anaphor must be bound within a CP boundary. Thus, it is clear that the anaphor cannot find its antecedent within a local domain in (36).

(38)  Antecedent … [DP D … [CP … Anaphor…]]

Surprisingly, (39a-b) are well-formed. According to analysis advocated here, the schematic structure of (39a-b) would be (40).

(39)  a. He was painting [what I took to be himself] in the White House.
     b. At this level of closeness we could sense [what could only be described t as each other's soul].

(40)  … Antecedent … [DP D … [TP … Anaphor…]]

DP is not a barrier to binding unless its SPEC is filled, as shown in (41). TP is not a barrier either. In (41b) John can be a binder for himself. Notice that John cannot c-command the anaphor in the higher copy of pictures of himself, which means that the anaphoric relation can be formed because John c-commands the anaphor in the lower copy. The lower copy and John do not belong to the same TP, which leads to the conclusion that TP is not a minimal domain D.

(41)  a. Susie likes a picture of herself.
     b. Pictures of himself seem to John [TP to be nice pictures of himself]

In short, neither DP nor TP forms a minimal domain. Therefore, (39a-b) are well-formed.

So far, we have seen that the transparent free relative clause is a construction headed by a bound morpheme. In fact, this is not an ‘exotic’ construction, considering that there are many constructions in which the complementizer that is headed by a zero bound morpheme. Factive predicates select a that-clause that pattern like a nominal (Kiparsky and Kiparsky 1967). For example, the complement of a factive predicate must be pronominalized by it.

(42)  John regretted that Bill had done it, and Mary regretted {it, *so}.

This can be captured if in factive constructions a zero nominalizer selects a that-clause. The grammaticality of (43b) also follows if the that-clause is merged with a zero nominal with a topic feature in (43b), as Kim (2011) claims.

(43)  a. *He didn’t think of [that he might be wrong].
     b. [That he might be wrong], he didn’t think of.

(44)  a. [Top[i +topic] [TP He didn’t think of [NP θi[U +topic] [CP that he might be wrong]]]]: 
Topicalization

b. $\text{[TopicP } \theta(U +\text{topic}) \text{ [CP that he might be wrong]]; Top}_{i+\text{topic}} \text{ [TP he didn’t think of t_i]]}$

Agree and Deletion of $[U +\text{topic}]$

c. $\text{[TopicP } \theta(U +\text{topic}) \text{ [CP that he might be wrong]]; Top}_{i+\text{topic}} \text{ [TP he didn’t think of t_i]]}$

If the $that$-clause is not simply a CP but a DP headed by a null D, as illustrated in (44a-c), we can explain why (43b) is grammatical although (43a) is not. The point is that there are other instances in which the complementizer $that$ is headed by a bound morpheme.

4 Consequences

Thus far, I have claimed that the transparent free relative pronoun $what$ is made up of $wh$- and C. This section is concerned with various consequences of this claim.

4.1 Constraints on Transparent Relative Clauses

Under the proposal advocated here, it is predicted that only $what$ can be used in transparent free relatives; it is formed when $wh$- is combined with a finite C. This prediction is borne out. Standard free relatives can employ $wh$-words other than $what$, as shown in (45a-b). However, transparent free relatives are only compatible with $what$, as in (46a).

(45)  
   a. I will live in where you used to live in.
   b. I will talk to who you talked to yesterday.
   c. John will leave when Mary leaves.

(46)  
   a. Bob is a boring and [$what/*who/*where I would describe as highly irritating$] person.
   b. Bob can be a boring and [$what(*ever) I would describe as highly irritating$] person.

This straightforwardly follows if the $wh$-word in the transparent free relative is a combination of $wh$- and C. Interestingly, the morpheme $-ever$ can occur in standard free relatives, but not in transparent free relatives, as shown in (46a-b). This also follows, because $-ever$ can co-occur with a pronominal complement, but not with a complementizer.

The tense of standard free relatives is usually finite, but it is not the case that non-finite tense cannot be used in standard free relatives.

(47)  
   a. Here is what to do.
   b. Dancing is what to do.
   c. This is what to do when a loved one is severely depressed.
   d. This is how to do things you don’t want to do.

However, the tense of transparent free relative clauses must be finite.

(48)  
   a. *This is what to be called a banjo.
   b. *This is what to be considered as a banjo.

This also follows if $what$ consists of $wh$- and finite C.
4.2 Extension to Dutch and German

Dutch and German have transparent free relative clauses as well as standard free relatives.

(49) a. Er ligt wat John omschrijft als een banjo op mijn bureau. (Dutch)  
    ‘There is what John describes as a banjo on my desk.’

b. Die mannen zijn wat je noemt lelijk.  
    ‘These men are what one calls ugly.’  
    (Schelfhout, Coppen & Oostdijk 2004: 87)

(50) a. Ich werde mir kaufen [CP was du als einen passenden]  
    ‘I will buy myself what you would characterize as a suitable car.’

b. Ich werde mir kaufen [CP was als ein passender Wagen bezeichnet warden]  
    ‘I will buy myself what may be characterized as a suitable car.’ (Grosu 2013: )

The Dutch free relative pronoun *wat* and German *was* can be analyzed just like English *what*. They consist of the *wh*-morpheme *w-* and *at*, and *w-* and *as*, respectively, and *at* and *as* occur in deictic pronouns *dat* and *das*, respectively. Furthermore, Dutch *dat* can be used as a finite complementizer as well. On the other hand, the finite complementizer in German is *dass*. The pronoun *das* and the complementizer *dass* appear to be different, but they have the same pronunciation: that is, their only difference is a spelling difference.

(51) a. Dutch Standard Free Relative Pronoun: w- + at = wat
b. German Standard Free Relative Pronoun: w- +as = was

(52) a. Dutch Standard Pronoun: d- + at = dat
b. German Standard Free Relative Pronoun: d- +as = das

(53) a. Dutch Comp: dat
b. German Comp: dass

So I propose that the transparent free relative word is formed when the *wh*-morpheme is merged with *C* in Dutch and German.

(54) a. Dutch Transparent Free Relative Word: w- + Comp = wat
b. German Transparent Free Relative Word: w- + Comp = was

In this approach, the transparent free relative clause in (49b) is derived as follows:

(55) a. [C je noemt [W[Adj] lelijk][Adj]]: w-movement  
    [C one calls wh- ugly]

[wh- C one calls wh- ugly]
[wh-C ε one calls wh- ugly]
[AdjP wh-C ε one calls wh- ugly]
e. [AdjP was [Adj] je noemt w[Adj] lelijk[Adj]]
[AdjP wh-C ε one calls wh- ugly]

In (55a) the wh-morpheme w is valued as Adj by the adjective lelijk ‘ugly’, undergoes movement, and then is attached by the comp dat. The whole clause is labeled as AdjP via minimal search in compliance with the Labeling Algorithm (18).

4.3 A Decompositional Analysis of Pronouns

Thus far, we have provided a decompositional analysis of transparent free relative clauses. This line of approach provides a principled answer to many questions revolving around free relatives. First of all, let us consider why what does not require its antecedent in standard free relatives.

(56)  a. * (This is) the book what Mary bought t
       b. (This is) the book {which, that} Mary bought
       c. (This is) what Mary bought t.

Pronouns are usually ambiguous between a deictic reading and a bound variable reading. In (57a) he is used as a deictic pronoun, whereas in (57b) it is a bound pronoun.

(57)  a. He arrived.
       b. Everyone thinks that he is honest.
       b’. For every x such that x is a person, x thinks that x is honest.

The relative pronoun can be said to be made up of wh- and a bound pronoun; its reference is dependent on its antecedent. For instance, in (58a) who is bound by everyone.

(58)  a. Everyone [who thinks that he is honest]
       b. for every x [such that x is a person and x thinks that x is honest]

Interestingly, that is not used as a bound variable. In (59), for instance, it can be bound by every relative pronoun, but that cannot.

(59)  Every relative pronoun is subject to the requirement that it/*that must have its own antecedent.

This enables us to explain why what must be used in an antecedent-less relative clause. The pronoun that must be deictic. It is because -at, but not th-, has the feature [+deictic], as evidenced by the fact that the pronoun they can be a bound variable. A relative pronoun and its antecedent are required to form a bound variable relation, but -at is not compatible with
the bound variable relation. Therefore, what cannot be used as a relative pronoun that is bound by its antecedent.

Just as there are (at least) two types of pronouns, there are at two types of wh-, as shown in (60a-b). Wh₁ is used for interrogative pronouns, because it has the semantic feature [-know] as well as [-determined]. On the other hand, wh₂ is employed for relative pronouns; it simply has the feature [-determined], which means that it is a variable.

(60) a. Wh₁: [-determined] and [-know]
   b. Wh₂: [-determined]

As mentioned above, there are (at least) two types of pronouns.⁸

(61)  He₁: deictic pronoun (its reference is not determined by the c-commanding antecedent)
       He₂: bound pronoun (its reference is determined by the c-commanding antecedent)

Accordingly, there are four possible combinations, as shown in (62). While assuming that when wh- is merged with he, the word who is generated, let us first consider the combination in (62a), which is exemplified by (62a’). In this sentence, the referent of who is a variable and the speaker does not know it. So it is the target of question. In the combination in (62b), on the other hand, who is a variable, and its value is determined by its antecedent. Hence, it obligatorily requires a c-commanding antecedent, as in (62b’).

(62) a. Wh₁ + He₁ = Interrogative Pronoun
   a’. Who do you like?
   b. Wh₂ + He₂ = Relative Pronoun (Requires Antecedent)
   b’. the man who Mary likes
   c. Wh₂ + He₁ = Free Relative Pronoun
   c’. I will talk to who you talked to yesterday.
   d. * Wh₁ + He₂

The combination in (62c) produces a free relative pronoun. Who is a variable, but its reference is not determined by its c-commanding antecedent. If the variable is either existentially or generically quantified by default, a free relative clause is generated.⁹

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⁷ Another type of wh- is exclamative wh-.
⁸ Besides bound and deictic pronouns, there is another type: E-type (Evans 1977, 1980, Cooper 1979, Heim 1990). The non-restrictive relative pronoun consists of wh- and an E-type pronoun. So ungrammaticality results if the antecedent has no referent at all.

(i)  I will talk to Mary, who you talked to yesterday.
(ii) *I will talk to no one, who you talked to yesterday.

⁹ The relative pronoun which cannot be used in free relatives, which suggests that the morpheme that follows wh- cannot be a deictic pronoun. Furthermore, it does not have a specified grammatical category. As a consequence, the antecedent of which is diverse when it is used as a non-restrictive relative clause. It can be an NP, an AP, and a clause.

(i)  a. There is going to be a new president in September, which is good.
     b. He is rich, which I am not.
(63)  a. I will talk to [x such that you talked to x yesterday]: default existential quantification
     b. $\exists [I will talk to [x such that you talked to x yesterday]]$

The combination in (62d) is not permitted.

The transparent relative pronoun is the simplest form; it consists of $wh_2$-only. Although it is later attached by C, C cannot serve as a restriction of $wh$-. As it has no pronominal host, it cannot be bound by its antecedent, nor can it be existentially/generically quantified. The only way for the variable to be fixed is via identification or specification.

(64)  $[wh_x \text{ Kernel Phrase}]: \text{Identification}$

### 4.4 Extension to Specificational Pseudo-Clefts

This section shows that the transparent free relative is not the sole construction in which $wh$-is merged with C. The pseudo-cleft is another construction that employs $what$, which consists of $wh$- and C. Sentence (65) is ambiguous between (66a) and (66b), as pointed out by Higgins (1979).

(65)  What I am pointing at is a kangaroo.

(66)  a. That (animal) is a kangaroo. (Predicational)
     b. I am pointing at the following thing: a kangaroo. (Specificational)

The $what$-clause is definite under the predicational reading, whereas it is not under the specificational reading. I propose that this ambiguity originates from the fact that $that$ is ambiguous between the pronoun $that$ and the complementizer $that$. If $what$ consists of $wh$- and the pronoun $that$, it is used as a standard free relative pronoun, yielding the reading in (66a).

(67)  Free Relative Clause
     a. $[\text{CP} \text{C I am pointing at what}]: Wh$-movement
     b. $[\text{what} \text{[CP C I am pointing at what]}]: Labeling$
     c. $[\text{DP what} \text{[CP C I am pointing at what]}]$ 

If, on the other hand, it is made up of $wh$- and C, it cannot be a definite expression. It is simply a variable, which needs to be identified via equation or specification. Therefore, the reading in (66b) is produced. Let us derive the specificational pseudo-cleft in (65). Just as in transparent free relatives, the bound morpheme $wh$- enters the syntactic derivation without a pronominal host, as shown in (68a). Its grammatical category is unvalued, being determined under the c-selectional requirement when it is merged with the preposition $at$: that is, in (68a) $wh$- is valued as [D] because the preposition $at$ requires a DP-complement. As shown in (68a-c) $wh$- undergoes movement, and then it is attached by C. The resulting structure is labelled as DP, which forms a small clause after merging with $a$ kangaroo.

(68)  Pseudo-Cleft
     a. $[C \text{[TP I am pointing at wh$_{[D]}$]}]: Wh$-Movement
     b. $[wh_{[D]} C \text{[TP I am pointing at wh$_{[D]}$]}]: C$-to-$wh$ Movement
     c. $[[wh_{[D]} C] \text{that} \text{[TP I am pointing at wh$_{[D]}$]}]: Labeling$
d. \([\text{DP} \ [\text{wh}_{\text{ex}}] \ C] \in [\text{TP} \ I \ am \ pointing \ at \ a \ \text{kangaroo}]\): Merger with *a kangaroo*

e. \([\text{DP} \ a \ \text{kangaroo} \ [\text{DP} \ [\text{wh}_{\text{ex}}] \ C] \in [\text{TP} \ I \ am \ pointing \ at \ a \ \text{kangaroo}]\])

This amounts to saying that the pseudo-cleft is quite analogous to the transparent free relative. The only difference between the two constructions lies in the fact that in the former the value of the variable introduced by *wh- is specified by the focused item like *a kangaroo*, whereas in the transparent free relative it is identified by the kernel phrase. In short, if *wh- does not co-occur with a pronominal host, the value of the variable is not fixed via binding nor via default quantification, but via specification or equation.

This proposal is further supported by the fact that the value of the variable can be fixed by a non-nominal expression. In (69a-b) it is fixed by a bare vP, in (69c-d) by a CP, and in (69e-f) by AP.

(69) a. What John did then was *call the grocer*.
   b. What John did was *buy some wine*.
   c. What John believes is that he is smart.
   d. What the doctor suggests is that John run a mile every day.
   e. What John is is dangerous to himself.\(^{10}\)
   f. What John is is proud of himself.

This is predicted if the host of *wh- is the comp that, not the pronoun that. If that is a comp, not a pronoun, (69f) is derived as follows:

(70) Specificational Pseudo-Cleft
   a. \([\text{C} \ [\text{TP} \ John \ is \ \text{wh}_{\text{ex}}]]\): Wh-Movement
   b. \([\text{wh}_{\text{ex}}] \ C \ [\text{TP} \ John \ is \ \text{wh}_{\text{ex}}]]\): C-to-wh Movement
   c. \([\text{wh}_{\text{ex}}] \ C \ [\text{TP} \ John \ is \ \text{wh}_{\text{ex}}]]\): Labeling
   d. \([\text{AP} \ [\text{wh}_{\text{ex}}] \ C] \ [\text{TP} \ John \ is \ \text{wh}_{\text{ex}}]]\): Merger with *proud of himself*
   e. \([\text{AP} \ \text{proud of himself} \ [\text{AP} \ [\text{wh}_{\text{ex}}] \ C] \ [\text{TP} \ John \ is \ \text{wh}_{\text{ex}}]]\)

In this analysis *what John is* is an AdjP. Non-nominal subjects do not permit Subject-Aux Inversion. So it is predicted that sentences (69a-d) do not allow Subject-Aux Inversion. This prediction is borne out.

(71) a. *Was what John did then *call the grocer*?  
   b. *Was what John did *buy some wine*?  
   c. *Is what John is dangerous to himself?  
   d. *Is what John is proud of himself?  

This approach also enables us to explain Heggie’s (1988) observation that the predicational type permits *what* to co-occur with *ever, whereas the specificational type does not.

(72) a. What(*ever) Mary bought was Barriers. specificational  
   b. What(ever) Mary bought was expensive. predicational (Dayal 1997:103)

\(^{10}\) This paper leaves a discussion of the connectivity effects for further research.
This contrast straightforwardly follows from the fact that in (72a) what consists of wh- and C, whereas in (72b) it consists of wh- and the pronoun that. The complementizer is not compatible with -ever, which has the force of a universal quantifier, while a pronominal is compatible with it. Hence, there is a contrast between (72a) and (72b).

5 Conclusion

The morpheme wh- is a bound morpheme, which never occurs independently of its host. However, this paper has claimed that it can be free syntactically and semantically, even though it must be bound morphologically. If so, it is theoretically possible that it can enter the syntactic derivation without its host, being attached by its morphological host later in the course of derivation. This paper has shown that this possibility is empirically attested, and transparent free relatives and pseudo-clefts are cases in point. The hostless constructions have two major properties. First, their grammatical category is a variable. The grammatical category of a wh-word is usually determined by the sister of wh-. For instance, where is an adverb because the host of wh- is ere, which is an adverb. If, however, wh- does not co-occur with its host, it cannot have a fixed grammatical category when it enters the derivation. Its grammatical category is determined later in the course of derivation via Agree or c-selectional requirement. The second characteristic of the hostless constructions is that the value of the variable introduced by wh- cannot be determined via binding or quantification. The value of a pronominal can be determined by its antecedent or it is quantified generically/existentially by default. In transparent free relatives and pseudo-clefts, however, wh- is not accompanied by a pronominal, and hence it must be valued via specification or identification. To conclude, transparent free relatives and pseudo-clefts have the two major characteristics, which follow from the fact that the morpheme wh- enters the derivation on its own, and later it is attached by C.

References


1. Introduction
The exact nature of the copying mechanism in UG is not well understood. This paper argues for the existence of Parallel Copying (P-Copying) in grammar, with evidence drawn from an understudied phenomenon attested in Chinese languages termed dislocation copying (‘DC’). For present purposes, this paper focuses on DC in Cantonese, as exemplified in (1).

(1) keoi tingjat heoi Sauji aa keoi
   3.SG tomorrow go Seoul SP 3.SG
   ‘He is going to Seoul tomorrow.’

A DC sentence consists of a full clause \( S \), followed by syntactic material which \( S \) contains, which gives rise to the impression of copying. I will refer to \( S \) as the ‘host clause’, and the appended material the ‘cauda’. In (1), \( keoi \ tingjat \ heoi \ Sauji \) is the host clause, and the second occurrence of \( keoi \) is the cauda.

This paper is organised as follows. Section 2 explicates the current proposal on P-Copying in detail. Section 3 reviews the Move-and-Elide analysis proposed in Cheung (2015), the first existing account devoted specifically to Cantonese DC, and offers a comparison between the P-Copying analysis and the Move-and-Elide analysis. Section 4 concludes and contains further implications of the analysis.

2. Explicating P-Copying
I propose that the Cantonese DC sentence differs structurally the canonical Cantonese sentence in the presence of additional functional projection DeFocP sandwiched between TP and CP, as schematised below.

\[
\begin{align*}
\text{(2) a. } & CP \left[ C : C^o_{SP} \left[ <TP_k> \right] \right] & \text{ (→ a canonical sentence)} \\
\text{b. } & CP \left[ C : C^o_{SP} \left[ \text{DeFocP TP}_j \ DeFoc^o \ <TP_k> \right] \right] & \text{ (→ a DC sentence)}
\end{align*}
\]

The current analysis assumes that sentence particles (SPs) in Cantonese are left-headed C-elements (Law 1990; Cheng 1991; Tang 1998), which is compatible with both the antisymmetry thesis (Kayne 1994) and the existence of directionality parameters (see Takita 2009 who argues for their existence). Empirically, there is also language-internal evidence for the head-initiability of Cantonese SPs (from the Dislocation Focus Construction as discussed in Cheung 2009). Moreover, Cantonese SPs are assumed to bear the strong uninterpretable feature [\(*u^{-}\text{Foc}\)], which triggers overt movement of the TP bearing the interpretable
counterpart [−Foc], thereby deriving the surface sentence-final position of Cantonese SPs. The motivation for this movement can be attributed to de-focussing (Simpson and Wu 2002).

In the derivation of Cantonese DC sentences, the numeration contains an additional functional category DeFocP, which featurally is also [\*u−Foc]. Hence, TP moves to Spec-DeFocP and Spec-CP in (2b) *simultaneously* (Chomsky 2008), resulting in two independent A’-chains (TP, TP) and (TP, TP) anchored to the same foot. The cauda of a DC sentence is then the remnant of a deletion operation applied to the intermediate TP-copy in (2b).

It is worth noting that the postulation of DeFocP is nothing more than an implementation of Zubizarreta’s (1998) proposal about ‘p-movement’ within a feature-checking system. In fact, recent studies like Takano (2014) also utilise the negative counterpart of the focus feature, referred to as [−F] in his work, in deriving certain postposing constructions in Japanese. An important reason for identifying the additional functional projection as DeFocP is that the cauda cannot be accented, although accenting Cantonese pronominals is otherwise possible; cf. (3) and (4).

(3) keoi zau-zo gwaa {keoi / KEOI} (4) {keoi / KEOI}, ngo zanhai hou jansoeng
   3.SG leave-PFV SP 3.SG 3.SG 3.SG 3.SG 1.SG really very admire
   ‘She has left.’                              ‘{Her / HER}, I really admire a lot.’

Whatever occupies the Spec of DeFocP, then, would be assigned a prosodic contour characteristic of deaccentuation in the phonological component. Notice that were it a focus-related functional projection (i.e. FocP), it is then unclear why the prosodic contrast in (3) should hold. Further, the cauda is in fact not incompatible with given information. In the exchange below, Mingzai is the topic of the exchange, and the DC sentence (5B) serves as a perfectly felicitous response to (5A).

(5) A: Mingzai zungji keoi gaa
   Ming like 3.SG SP
   ‘Ming likes her.’
   
   B: hai aa, Mingzai zungji keoi gaa Mingzai
   yes SP Ming like 3.SG SP Ming
   ‘Yes, Ming likes her.’

Identifying the DC-specific projection as TopP would not work either, since the cauda may not contain the topic marker ne, which is commonly taken to instantiate Top° in Chinese languages (Gasde and Paul 1996; Paul 2015).

(6) keoi tingjat heoi Sauji aa keoi (*ne)
   3.SG tomorrow go Seoul SP 3.SG TOP

3. A Move-and-Elide Analysis, and Its Problems
One might wonder whether Cantonese DC is simply amenable to a Move-and-Elide analysis. Cheung (2015), the first existing proposal devoted specifically to the construction, exactly explores this possibility. Under this account, two underlying full clauses CP and CP are involved, and either the cauda or a constituent containing the cauda evacuates from the
ellipsis site in CP₂ prior to deletion. The four-step derivation proceeds as in (8), illustrated with the DC example in (7).

(7) keoi tingjat wui heoi Sauji aa3 keoi tingjat wui
3.SG tomorrow will go Seoul SP 3.SG tomorrow will
‘He will go to Seoul tomorrow.’

(8) **Step 1:** Juxtapose two parallel CPs
[CP₁ aa3 keoi5 ting1jat6 wui5 heoi3 Sau2ji5] [CP₂ aa3 keoi5 ting1jat6 wui5 heoi3 Sau2ji5]

**Step 2:** Apply αP-ellipsis in CP₂, where αP = {VP/ModP/TP/CP} [in this case, αP = VP]

**Step 3:** Move δP (containing the αP) to the left periphery of CP₂ [in this case, δP = TP]

**Step 4:** Elide the (lower) CP in CP₂

It is the precise move from Step 3 to Step 4 which instantiates Move-and-Elide: TP first undergoes Internal Merge to a higher structural position, followed by deletion of a constituent containing only its lower copy.

3.1. **Evaluation**
Although such a proposal is very appealing, given that the Move-and-Elide analysis has been adopted for various elliptical phenomena (Merchant 2001, 2004; Yim 2012; Wei 2018 a.m.o.)
and dislocation phenomena (Tanaka 2001; Ott 2014; Ott and de Vries 2016) in various languages, extending the Move-and-Elide analysis to Cantonese DC turns out to encounter a host of challenges.

3.1.1. No overt SP in the cauda

The Move-and-Elide analysis necessarily involves the concomitant assumption of a biclausal structure. Interestingly, the cauda may not contain any overt SP.

(9) *Mingzai tingjat haausi aa Mingzai aa
  Ming tomorrow exam SP Ming SP
  ‘Ming is having an examination tomorrow.’

As (10) demonstrates, subsentential phrases are compatible with Cantonese SPs.

(10)  Mingzai aa
  Ming SP
  ‘(It’s) us.’

To capture the impossible occurrence of overt SPs in the cauda, the CP-deletion operation as shown in Step 4 is necessary under the Move-and-Elide analysis. The problem is that overt and covert SPs are generally in free alternation in Cantonese. Moreover, nothing would go wrong if the speaker utters the same sentence with an overt SP twice, either deliberately or being prompted naturally by contexts like the one given in (11).

(11) [Context: The speaker is excited about the fact that a girl likes his gift.]
  Keoi₃ zung₁ji³ go₂-tiu⁴ fu³        aa³. Keoi₃ zung₁ji³ go₂-tiu⁴ fu³        aa³. Hou²je⁵!
  3.SG like that-CL trousers SP 3.SG like that-CL trousers SP yay
  ‘She likes that pair of trousers. She likes that pair of trousers. Yay!’

It is clear from (11) that the CP-deletion operation cannot be obligatory, or else (11) cannot be derived. But to capture the current restriction on the occurrence of overt SPs in the cauda, the deletion operation must be obligatory. Since Cantonese DC sentences are taken to be underlyingly biclausal under the Move-and-Elide analysis, however, it is not a straightforward matter for the grammar to draw the necessary distinction such that the CP-deletion operation is obligatory only in the current case of DC but not otherwise. In fact, sentences like (9) can be grammatical, but only if an intonational break occurs after the first SP. This indicates that Cantonese DC does not exhibit the same properties as sentences which clearly involve a biclausal structure.

(12) Mingzai tingjat haausi aa // Mingzai aa
  Ming tomorrow exam SP Ming SP
  ‘Ming is having an examination SP Ming. It’s Ming.’

By contrast, the fact that the cauda may not contain any overt SP straightforwardly follows from the current P-copying account, for there exists only one C in the structure (see (2b)).
3.1.2. The object restriction
It is not the case that anything may serve as the cauda of a Cantonese DC sentence. A curious restriction is that the cauda may not correlate with an object phrase in the host clause, as Cheung (2015) notes.

(13) ngo5 zung1ji3 keoi5 aa3 {ngo5 /*keoi5}
    1.SG like    3.SG SP    1.SG    3.SG
    ‘I like him.’

The problem is that it is unclear how this object restriction falls under the Move-and-Elide analysis, since it is not obvious why an object phrase may not move in a non-island configuration, i.e. [CP DP_obj [TP DP_subj V <DP_obj>]]. Cheung thus invokes αP-ellipsis in Step 2, which obligatorily deletes at least VP. This ellipsis operation is ad hoc, but even if it can be shown to be more general, it is crucial that αP-ellipsis apply before any application of Internal Merge. For example, one could imagine that the object phrase has moved in Step 1.5 in (8). The account therefore relies (implicitly) on extrinsic ordering, rendering the current explanation for the object restriction unsatisfying.

In the proposed account, the object restriction follows from the fact that subject and the verb would be elided in the intermediate TP-copy in DC cases with an object cauda, violating the standard prohibition on non-constituent deletion (see Sailor and Thoms 2014 for recent discussion).

Moreover, one expects the object restriction to be more general under the current account, and this is true. For instance, the cauda may not correlate with an internal argument or an embedded subject, as illustrated in (14) and (15) respectively.

(14) keoi bei-zo bun syu ngo aa {keoi / *bun syu / *ngo}
    ‘She gave me a book.’

(15) *nei zidou ngo zungji keoi ge ngo
    2.SG know 1.SG like 3.SG SP 1.SG
    ‘You know that I like him.’

It is also worth noting that the deletion operation invoked in the current account is optional, unlike αP-ellipsis. As (16) exemplifies, full caudae are in fact possible with Cantonese DC.

(16) Mingzai tingjat haausi aa Mingzai tingjat haausi
    Ming tomorrow exam SP Ming tomorrow exam
    ‘Ming is having an examination tomorrow.’

Sentences like (16) clearly cannot be generated with αP-ellipsis. Notice a dilemma facing the Move-and-Elide analysis: once αP-ellipsis is assumed not to be obligatory, there is then no more account of the object restriction.

3.1.3. The overt SP requirement in the host clause
Finally, the host clause must contain an overt SP, although the cauda cannot contain one.
(17) Mingzai ngaamngaam zau-zo \{laa / *∅\} Mingzai
    Ming just_now leave-PFV SP Ming
    ‘Ming has left just now.’

Phonologically null SPs exist in Cantonese, and their use often constitutes a blunt way of asserting a proposition (Matthews and Yip 2011).

(18) *Mingzai ngaamngaam zau-zo ∅
    Ming just_now leave-PFV
    ‘Ming has left just now.’

The Move-and-Elide account only requires that two parallel CPs be juxtaposed. Accordingly, the following structure should be a possible source for Cantonese DC derivation.

(19) **Step 1: Juxtapose two parallel CPs**
    *\([\text{CP}_1 ∅ \text{SP} [\text{TP} ...]] [\text{CP}_2 ∅ \text{SP} [\text{TP} ...]]\)**

As such, it is unclear why (17) with the phonologically null SP should be ill-formed under the Move-and-Elide analysis. In the current account, however, the overt SP requirement follows from the fact that phonologically null SPs do not trigger TP-fronting. According to Simpson and Wu (2002), once TP moves past an overt SP, the SP will be left in the prominent sentence-final position, which receives focus interpretation. However, it is unclear what it means for phonologically null elements to come into focus. The need for de-focussing therefore does not arise in the case of phonologically null SPs, which in the current system translates to the absence of a [*u−Foc*] feature. Hence, DC sentences without an overt SP are naturally underivable.

4. Conclusions

The previous section has exposed the difficulties the Move-and-Elide analysis faces in accommodating the phenomena of DC in Cantonese, although Move-and-Elide can be taken as a prevalent mechanism in grammar for yielding copying. Instead, the novel option of P-copying was proposed, whereby Cantonese DC is ultimately the bi-product of an interaction of formal properties of Cantonese SPs and the nature of the functional projection specific to DC. To the extent that the proposal is basically correct, it then lends further support for the existence of parallel movement and the head-initiality of Cantonese CPs.

As is clear, the availability of the current option hinges on the availability and the exact featural make-up of SPs. The current proposal thus also holds the prospect of explaining why comparable DC phenomena do not exist in languages like standard English, and whether or not this is true, as usual, awaits further verification.

References


1. Introduction
Parasitic gaps (a term first introduced by Taraldsen 1981) are a kind of empty category which is ‘parasitic’ on the presence of another empty category in the same sentence.

(1) a. Who did John criticise e after meeting e?
   b. *John criticised Peter after meeting e

In (1a), the island-internal empty category is ‘parasitic’ in that it is licensed only if the island-external empty category is present. We will henceforth refer to the former empty category as a ‘PG’.

This paper revisits the question of whether PGs similarly exist in languages like Mandarin Chinese (hereafter ‘Mandarin’). While there is a consensus in the literature that PGs exist in Mandarin (Lin 2005; Ting & Huang 2008; Liu 2013 a.o.), this paper argues that the existing evidence brought to support the existence of PGs in the language is in fact inconclusive. Part of the problem has to do with the well-known fact that Mandarin, unlike English, is a language which readily permits null arguments (Huang 1982).

Section 2 first reproduces the argument that is commonly used in arguing for the existence of PGs in Mandarin. Section 3 introduces two arguments which show that what appears to be a PG in Mandarin is only apparent. Section 4 consolidates the current claim further by offering a novel alternative way of interpreting the purported argument in Section 2. A conclusion is offered in Section 5.

2. A Purported Argument for PGs in Mandarin
Consider the following sentence.

(2) shenme wenzhang, Lisi [zai du-guo e; zihou] jiu piping-le __i?
   what article Lisi at read-EXP after then criticise-PFV
   ‘Which article did Lisi criticise after reading?’

Lin (2005) argues that e in (1) is a PG, based on the fact that the complex wh-phrase, when left in-situ, would result in ungrammaticality; cf. (2) and (3).

(3) *Lisi [zai du-guo e; zihou] jiu piping-le shenme wenzhang,
   Lisi at read-EXP after then criticise-PFV what article
   Intended: ‘Which article did Lisi criticise after reading?’
The contrast recalls Engdahl’s (1983) generalisation, which states that *wh*-in-situ does not license PGs (cf. *which article did John criticise after reading?* vs. *who criticised which article after reading?*). Based on these Mandarin facts, Lin ultimately reaches the conclusion that syntactic *wh*-movement is necessary for licensing PGs. Since then, the literature generally assumes that PGs exist in Mandarin (Ting & Huang 2008; Liu 2013 a.o.).

3. What Looks Like a PG is not a PG

This section offers two arguments against the status of *e* in (2) as a PG. It follows that the above facts do not actually bear on the licensing conditions of PGs in *wh*-in-situ languages.

3.1. *It is not ‘parasitic’*

What all the existing literature overlooks is the fact that the grammaticality of (2) does not hinge on the existence of a true gap. Sentences like (4) are perfectly well-formed; cf. (1b).

(4) shenme wenzhang, Lisi [zai du-guo e1 zihou] jiu piping-le nei-ge fuze what article Lisi at read-EXP after then criticise-PFV that-CL charge jiaodui de ren? proofread DE person

‘Which article did Lisi criticise the person who is responsible for proofreading after reading?’

The *e* in (4), by definition, cannot be a PG, and there is no reason why the same ‘e’ cannot be also involved in (2).

3.2. *The possibility of A-antecedents*

It is well-known that English PGs cannot be licensed by A-movement; cf. (5). Interestingly, an A-antecedent may well serve as the antecedent for the purported PG in Mandarin (Xu 1990), as (6) demonstrates.

(5) *Few articles will be criticised by John after his reading pg.*

(6) henshao wenzhang, [zai Lisi du-guo e1 zihou] hui be ta piping __i

‘Few articles will be criticised by him after Lisi’s reading.’

Notice that weak quantificational NPs cannot be topicalised in Mandarin (Ko 2005); see (7). This excludes the involvement of A-movement in (6) as sketched in (8).

(7) *henshao wenzhang, wo zhidao [__i hui be Lisi piping]*

‘Few articles, I think will be criticised by Lisi.’

(8) *[henshao wenzhang], [zai Lisi du-guo e1 zihou] __i hui be ta piping __i

↑
Ting & Huang (2008) argue that $e$ in (6) is a true empty category (TEC) in Li’s (2007, 2014) sense, rather than a PG (since it cannot be). Moreover, they reason that since TECs are a last-resort strategy, instances of ‘genuine’ PGs they identify cannot be taken to be just TECs.

However, such a conclusion is an artefact of one’s insistence that PGs exist in Mandarin; there is no reason why $e$ in (6) cannot featurally be the same one that we have in (2) and (4), which need not be analysed as a TEC.

Ting & Huang further argue that short (i.e. agentless) passives offer evidence for the existence of PGs, given the badness of (9), taken from Ting & Huang (2008:35, ex. 15b).

(9) *na-ge xiaotou $i$ bei [vp PRO, turan [zai jianchaguan zhenxun $e_i$ hou] daibu-le __].

\[\text{That thief was suddenly arrested after DA’s interrogating.}\]

Unlike long passives, the formation of short passives is argued to exclusively involve A-movement (Huang 1999). The problem with this argument, however, is that the the inner bracketed clause in (9) is in fact a vP-adjunct; notice that (10) is perfect. Moreover, if (6) can involve a TEC as Ting & Huang argue, it is important to ask why the same ‘last-resort’ option cannot kick in in (9).

(10) OK

\[\text{na-ge xiaotou, [vp [zai jianchaguan zhenxun $e_i$ hou] bei [vp PRO, turan daibu-le __]]]}\]

4. Revisiting the Contrast

A ‘gap’ in the current argumentation is why the contrast between (2) and (3), repeated below in (11) and (12), should exist in the first place. The contrast would follow nicely if PGs are licensed by overt A-movement but not merely A-binding.

(11) shenme wenzhang $i$, Lisi [zai du-guo $e_i$ zihou] jiu piping-le __.? \[\text{Which article did Lisi criticise after reading?}\]

(12) *Lisi [zai du-guo $e_i$ zihou] jiu piping-le shenme wenzhang.? \[\text{Intended: ‘Which article did Lisi criticise after reading?’}\]

Crossover effects are irrelevant, since (13) is just as bad. Moreover, (11) clearly involves A-movement, and yet the sentence is perfect.

(13) *Lisi [zai jian-guo $e_i$ zihou] jiu piping-le Zhangsan.? \[\text{Lisi at meet-EXP after then criticise-PFV Zhangsan}\]

\[\text{Intended: ‘Lisi criticised Zhangsan after meeting.’}\]

Instead, we relate the ungrammaticality of (12) to the curious fact that an element may bind another coindexed element in the absence of c-command in Mandarin. The following data serve as evidence for this claim.
(14) *[ruguo  ta\textsubscript{i} you shijian], Zhangsan\textsubscript{i} jiu hui qu youyong
   if 3.SG have time Zhangsan then will go swim
   Intended: ‘If he has time, then Zhangsan will go swimming.’

(15) *Lisi [zai jian-guo  ta\textsubscript{i} zhihou] jiu piping-le Zhangsan\textsubscript{i}
   Lisi at meet-EXP 3.SG after then criticise-PFV Zhangsan
   Intended: ‘Lisi criticised Zhangsan after meeting him.’

The exact nature of the binding relations is of much theoretical interest (cf. Lasnik’s 1991 ‘Principle D’). What matters for our purposes is that the relevant binding principle is not an everywhere condition: when Zhangsan in (13) undergoes topicalisation, the binding violation immediately disappears; see also (17).

(16) Zhangsan\textsubscript{i}, Lisi [zai jian-guo {e\slash ta\textsubscript{i}} zihou] jiu piping-le
   Zhangsan Lisi at meet-EXP 3.SG after then criticise-PFV
   ‘Zhangsan, Lisi criticised after meeting {e / him}.’

(17) Zhangsan\textsubscript{i} jiu hui qu youyong], ruguo ta\textsubscript{i} you shijian
   Zhangsan then will go swim if 3.SG have time
   ‘Zhangsan will then go swimming, if he has time.’

Hence, there exists a natural way of understanding the contrast without committing ourselves to the existence of PGs in Mandarin: (12) is bad because of a binding violation, which is nullified when one of the coindexed elements is displaced.

5. Conclusions
The facts that (i) a true gap is unnecessary and that (ii) A-movement may license the purported PG in Mandarin cast doubt on the claim that the empty category in question is a PG. The alleged PG exhibits distinct formal properties, and moreover what is taken to initially motivate the existence of PGs (i.e. (2) and (3)) has an alternative explanation. This, of course, does not exclude the possibility that PGs do exist in Mandarin; however, data like (2) and (3) are irrelevant. While comparative syntax remains an important perspective on questions which data from a single language cannot otherwise resolve (e.g. what are the licensing conditions of PGs?), caution must be taken not to carry an analysis wholesale from one language to another based on superficial similarity.

References


The structures of Korean causative constructions using ‘-key’
Jaemo Lee

1. BACKGROUND

Causative construction is a linguistic expression that denotes a complex situation consisting of two component events: the causing event in which the causer does something; and the caused event in which the causee carries out an action or undergoes a change of condition or state as a result of the causer’s action (Brown & Yeon, 2015: 98).

Traditionally, causatives have been classified into three different types: the lexical causative type realized through suppletion as demonstrated in (1), the morphological causative type realized through applying causative element to a basic verb as shown in (2), and finally, the syntactic causative type realized through syntactic construction as shown in (3). I concentrate on the syntactic causative type.

(1) a. Chelsu-ka hakkyo-ey kassta.
    C-Nom school-to went
    ‘Chelsu went to school.’

    b. Yenghui-ka chelsu-lul hakkyo-ey ponayssta.
    Y-Nom C-Acc school-to sent
    ‘Yenghui sent Chelsu to school.’

(2) a. Ai-ka os-ul ipessta
    child-Nom clothe-Acc dressed
    ‘A child put some clothes on.’

    b. Emeni-ka ai-eykey os-ul iphyessta
    mom-Nom child-Dat clothe-Acc put.on
    ‘Mom dressed the child.’

(3) a. Ai-ka wuyu-lul masyessta
    child-Nom milk-Acc drank
    ‘A child drank milk.’

    b. Emeni-ka ai-eykey wuyu-lul massi-key hadyssta
    mom-Nom child-Dat milk-Acc drink-key did
    ‘Mom made a child drink milk.’
Korean syntactic causative construction (-key ha-) exhibits case alternation of the causee between nominative, accusative and dative. Previous researches have proposed dual structures where two of the three possible cases share the same structure (Kim 1993, Lee 2007, Park 2013). Recently, Park (2013) termed the two different types of causatives as make-causative and order-causative. As shown in (1)a, in make-causative, hata (do) can alternate with mantulta (make) and the causee can appear as either nominative or accusative. As shown in (1)b, in order-causative, hata (do) can alternate with sikhita (order) and the causee appears as dative.

(1) [make-type]
   a. Emeni-nun ai-ka/lul/*eykey os-ul ip-key hayss/mantuless-ta
      Mother-Top child-Nom/Acc/*Dat clothe-Acc wear-Caus did/made-DEC
      ‘Mother made the child wear some clothe.’
   [order-type]
   b. Emeni-nun ai-*ka/lul/eykey os-ul ip-key hayss/sikhyess-ta
      Mother-Top child-*Nom/*Acc/Dat clothe-Acc wear-Caus did/ordered-DEC
      ‘Mother ordered the child to wear some clothe.’

2. NEW QUESTIONS

The verb himssuta (strive) can also alternate with the hata (do) in causative construction like the examples with mantulta (make) and sikhita (order) in (1)a and (1)b. However, it only allows nominative causee as shown in (2). The classification above (e.g. Park (2013)) fails to capture this pattern.

(2) Minho-nun chingwudul-i/*ul/*eykey dambay-lul kkunh-key hayss/himssess-ta
    Minho-TOP friends-Nom/*Acc/*Dat smoke-Acc quit-Caus did/strived-DEC
    ‘Minho strived to make the friends quit smoking.’

The insufficiency is further brought into light when comparing the verb mantulta (make) and topta (help). The two verbs both allow their causees to appear in accusative, thus they are classified as make-causative according to the dichotomy of Park (2013). However, they show contrast in elliptical patterns: in (3)a, with topta (help) the embedded clause can be elided, stranding the causee. But in (3)b, with mantulta (make), the embedded clause cannot be elided without impairing the causative meaning and leaving the matrix verb to be read as a simple transitive verb meaning ‘produce’. The question arises as why.

(3) a. Cheli-nun Mina-lul (kyeytan-ul olu-key) towass -ta
    Cheli-TOP Mina-Acc stairs-Acc climb-Caus helped-Dec
    ‘Cheli helped Mina (climb the stairs)’
   b. Cheli-nun Mina-lul #(kyeytan-ul olu-key) mantuless -ta
    Cheli-TOP Mina-Acc stairs-Acc climb-Caus made-Dec
    ‘Cheli made Mina #(climb the stairs)’
3. PROPOSAL

I argue that causative construction using -key contains a small clause. There are two types of small clauses: ECM type and PRO type (See Ko (2015) for two types of small clause -lo in Korean). Verbs (and light verb ha) select different types of small clause depending on their semantic properties.

(i) ECM type

I propose that both himssuta (strive) and mantulta (make) do not select an object and only select an ECM type small clause. The structure of causative construction using an ECM type small clause is shown in (4). The proposition as the sole complement of the verb better captures the notion that with the verbs mantulta (make) and himssuta (strive), the causer does not make the causee, but makes the proposition happen.

(4)

![Diagram](attachment:image)

The asymmetry of case assignment of the causee of (1)a and (2) stems from the different property of the main verbs: Since mantulta (make) can assign the accusative case and himssuta (strive) cannot, only the causee with mantulta (make) can appear as accusative.

(ii) PRO type

I propose that both topta (help) and sikhita (order) introduce an argument, and select a PRO type small clause. The causee as an argument reflects the notion that with topta (help) and sikhita (order), the causer helps/orders the causee.

(5)a shows the structure with topta (help) where the causee is an object introduced by the verb and binds the PRO in RP. The causee receives its accusative case from the verb. (5)b shows the structure with sikhita (order) where the causee is the indirect object introduced by the verb and binds the PRO in RP. I follow Park (2013) in proposing that the dative causee is introduced through the ApplP.
The puzzle presented in (3) can now be explained with the proposed structures: In case of (3)a, with topta (help) and its structure of (5)a, the syntax and semantics of the causee as the object of the verb is independent of the RP, as the causee is an argument introduced by the verb. On the other hand, in case of (3)b, with mantulta (make) with the structure of (4), the causee is not an object of the verb, and its presence is dependent on the support of the RP. Thus in (3)a, the omission of the RP doesn’t affect the grammaticality of the sentence as a transitive clause, whereas in (3)b it does.

4. PREDICTION

The proposal suggests that the structure of causative construction differs depending on the type of small clause the verb selects, not the case marking of the causee. In particular, the proposal predicts the ECM type causative and the PRO type causative to show contrast in quantificational scope of the causee: In (4), the causee scopes under the causative force marked by -key. In (5), it’s the opposite. It is predicted that topta (help), which selects a PRO type small clause, would pattern with the verb that selects the same PRO type small clause, that is, sikhita (order) rather than mantulta (make). This prediction is borne out in (6).

(6) Emeni-nun  modun ai-eykey/lul    kwaca-lul mek-key
sikhyess/towass/mantuless-ta.
Mom-TOP all kid-Dat/Acc snack-ACC eat-Caus ordered/helped/made-DEC.
‘Mom ordered/helped/made all the kids to eat snacks.’
sikhita (order)
(all > cause: It were all the kids that Mom let eat snacks
*all < cause: Mom made the situation happen where all the kids ate snacks.)
topta (help) (all > cause, *all < cause)
mantulta (make) (all > cause, all < cause)

While both topta (help) and mantulta (make) allow accusative causees, their causees take different scopes. Under the dichotomy of Park (2013), this asymmetry cannot be explained. The proposed structures can capture the different scope interpretation of causative constructions with causees marked with the same case.
5. CONCLUSION

This paper argued that the causative constructions in Korean introduce small clauses. The different structures of causative constructions are determined by the properties of the head introducing the small clause: Its ability to license a case, the θ-role it assigns, and the small clause structure it selects. This proposal claims the structures of ECM and control constructions observed in Korean causative constructions can be accounted for in line with small clauses.

(7)

<table>
<thead>
<tr>
<th></th>
<th>himssuta (strive)</th>
<th>mantulta (make)</th>
<th>topta (help)</th>
<th>sikhita (order)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case</td>
<td>X</td>
<td>Accusative</td>
<td>Accusative</td>
<td>Dative</td>
</tr>
<tr>
<td>θ-role</td>
<td>X</td>
<td>X</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Small clause</td>
<td>ECM type</td>
<td>ECM type</td>
<td>PRO type</td>
<td>PRO type</td>
</tr>
</tbody>
</table>

REFERENCES


1. Introduction

This work mainly investigates noun phrases and reduced nominal expressions in Swahili locatives which lack in syntactic structure. By means of analyzing reduced nominal expressions in greater detail, this work adopts a cross-linguistic approach on viewing the hierarchical system of nominal domains as follows:

(1)  PP > KP > DP > #P > nP > NP

With a full nominal expression being KPs, (reduced) nominal expressions such as DPs, #Ps, nPs, and NPs may exist depending on the given language and the ways in which the nominals are structurally organized. With regards to these small nominal expressions, this paper demonstrates that Swahili locatives can be realized without the presence of PPs or DPs. Further, it claims that these locatives are realized in a nP which hosts the locative morpheme, -ni. By eliminating the upper layers, namely PPs and DPs, deriving a reduced nominal expression for Swahili locatives is possible which shares similarities with the English bare nominal locatives (see Barrie & Yoo 2017). Hence, this work primarily investigates how a reduced nP consisting of the locative morpheme, -ni, satisfies the realization of locatives in Swahili.

2. English Locatives

Prior to scrutinizing the realization of reduced nominals in Swahili, let us first consider English locatives which may either be projected within a PP or a bare NP according to Barrie & Yoo (2017).

(2) a.  John ate the apple *in the kitchen.
b.  John lives *in that place.

(3) a.  The place that John lives (in) is expensive.
b.  Mary has lived (in) many places.

* This work was supported by the Global Research Network program through the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (NRF-2017S1A2A2039972). I would like to thank professor Michael Barrie for providing me the opportunity to work on Bantu languages. I would also like to thank the anonymous reviewers of SICOGG 20 for their helpful comments. Any remaining errors are entirely my own.
As far as (2) is concerned, the presence of a PP is obligatory, since the absence of it clearly devastates the grammaticality of (2a) and (2b). Quite dissimilarly, (3) speaks in favor of the optionality of PPs. According to Barrie & Yoo (2017), the fundamental difference between (2) and (3) derives from the notion that the former comprises of a PP, a Case assigner, along with a DP, which requires Case from the PP. This, in turn, suggests that the elimination of the PP in (2) violates the requirement on the Case marking for its DP. However, this is not the case for (3) in which the nominal place may project a bare NP which is not in need of a Case. Furthermore, the bare NP in (3) is lexically prespecified with a θ-role which requires no overt θ-assigner. Thus, the absence of a PP as well as a DP is possible on Barrie & Yoo’s (2017) account.

3. Swahili Locatives

In the Eastern Bantu language, Swahili, there are two ways of forming locatives from a morphosyntactic viewpoint. The first is to utilize a prepositional head, P, projected above a full nominal such as a DP whereas the other is to make use of the head, n, projected within a nominal construction, which is reduced in structural size. In order to verify such notion in greater detail, the Swahili nominals realized with the locative inducing elements, kwa and ni, will be introduced in the following subsections.

3.1. Swahili Locatives with kwa

Similar to (2) in which the Case assigner, PP, must participate in constructing locatives in English, locatives in Swahili used with the prepositional head, kwa, is in need of a full DP which requires a Case assigner as well as a θ-assigner existing beyond the scope of a full nominal domain. Consider the following data:

(4) a. Juma  hu-penda  ku-lala  *(kwa)  nyumba  hii
    Juma  3.sg-like  INF-sleep  LOC  house  this
    ‘Juma likes to sleep in this house.’

    b. Juma  hu-penda  ku-lala  *(kwa)  nyumba  mbili
    Juma  3.sg-like  INF-sleep  LOC  house  two
    ‘Juma likes to sleep in two houses.’

In (4), the realization of a PP is obligatory since the head, P, must be filled in by the locative element, kwa. Additionally, the evidence that a full DP is the sister of the prepositional head, kwa, is illustrated in (4a) where the demonstrative, hii ‘this’, is able to appear with kwa. Following the analysis of Universal merge order of ‘Dem > Numeral > Adjective > N’ (Cinque 2000, 2005), this work suggests that the locative structures in (4a) and (4b) undergo movement as demonstrated below:

(5) a. \[PP \text{ kwa} \  [DP \ nyumba; \ hii \ [NP \ t_i]]] \quad \text{[NP-raising in (4a)]}

    b. \[PP \text{ kwa} \  [DP \ nyumba; \ [sp \ t_i \ mbili \ [NP \ t_i]]]] \quad \text{[NP-raising in (4b)]}

    \[\text{[NP-raising in (4b)]}\]

Quite significantly, the realization of kwa with a conjunction connecting two different
DP structures is a clear evidence that the locative element, *kwa*, truly exhausts the prepositional head, P, of a PP situated beyond the scope of a DP. Consider the following data:

(6) a. Juma a-li-ishi *kwa* nyumba hii na *kwa* nyumba ile
   Juma 3.sg-PST-live LOC house this CONJ LOC house that
   ‘Juma lived in this house and in that house.’

b. Juma a-li-ishi *kwa* nyumba hii na nyumba ile
   Juma 3.sg-PST-live LOC house this CONJ house that
   ‘Juma lived in this house and that house.’

The conjunction, *na* ‘and’, in (6a) and (6b) conjoins a PP with a PP (e.g., [*PP kwa [DP nyumba hii]] with [*PP kwa [DP nyumba ile]] as well as a DP with a DP (e.g., [*DP nyumba hii] with [*DP nyumba ile]). This, once again, validates the notion that a prepositional head led by *kwa* attaches onto a DP (or DPs), crucially because the conjunction, namely *na*, in (6b) structurally intervenes between a P, *kwa*, and the two full nominal expressions, namely *nyumba hii* and *nyumba ile*. Further significance of the data will surface in the following subsection when the locative indicating morpheme, -*ni*, is used with the same conjunction displaying a structural pattern dissimilar to that of *kwa*. (7) illustrates the PP and DP structures which are used with the conjunction, *na*, in (6a) and (6b).

(7) a. *na* connecting two PPs in (6a)            b. *na* connecting two DPs in (6b)
    PP                                           DP
    [[*kwa* nyumba hii] na [[*kwa* nyumba ile]] [nyumba hii] na [nyumba ile]]

3.2. Swahili Locatives with *ni*

Having established that certain Swahili locatives require PPs as well as DPs, we now direct our attention towards an alternative way of forming locatives in Swahili via the locative-engendering morpheme, -*ni*, which clearly patterns differently from the prepositional head, *kwa*.

(8) a. Juma hu-penda ku-lala nyumba *(ni)*
    Juma 3.sg-like INF-sleep house LOC
    ‘Juma likes to sleep in the house.’

b. Juma hu-penda ku-lala nyumba *ni* (*hii*)
    Juma 3.sg-like INF-sleep house LOC this
    ‘Juma likes to sleep in this house.’

c. Juma hu-penda ku-lala nyumba *ni* (*mbili*)
    Juma 3.sg-like INF-sleep house LOC two
    ‘Juma likes to sleep in two houses.’

As depicted in (8), the locative morpheme, -*ni*, may only be realized with a reduced nominal such as *nyumba* ‘house’ in which demonstratives (e.g., *hii*) and numerals (e.g., *mbili*) uninflected by the locative gender classes of 16, 17, and 18 must be absent. Here, the
realization of the locative classes 16, 17, and 18 within Swahili (minor) gender system is attributed to the existence of nP following Kramer’s (2016) analysis. Moreover, the co-existential invalidity of the prepositional head, kwa, and the locative element, -ni, directs us toward the vital notion that PPs cannot be projected over nominal structures bearing -ni.1 At this point, the distinction between the bare NPs used for English locatives and the reduced nominals (e.g., nyumba-ni ‘in the house’) used for Swahili locatives comes to light when considering the notion that only the latter hosts an explicit locative-indicating morpheme which cannot be reduced to a plain bare form. In accordance with such observation, the level of the -ni-type locatives in Swahili elevates to the reduced nominal layer, nP, instead of the bare NP especially when adopting the hierarchical system of nominal domains aforementioned in (1). Since demonstratives (e.g., hii) and prepositions (e.g., kwa) in Swahili are generated well beyond the scope of the nP, postulating a reduced nP structure for the -ni-type locatives effectively explains the incapability of stacking additional projections such as DPs or PPs. (9) demonstrates the unavailability of head movement up to a D.

(9) a. \[\text{nP} \text{nyumba}, \text{ni} [\text{NP} t_i] \]  
\[\text{NP-raising in (8a)}\]

b. \[\text{(*)[pP [DP hii]} [\text{nP nyumba}, \text{ni} [\text{NP} t_i]] \]  
\[\text{invalid NP-raising in (8b)}\]

Returning to the usage of conjunctions, we see a mismatch between -ni and the prepositional head, kwa, when na ‘and’ tries to surface with a reduced nP structure. The unavailability of the locative element, -ni, with the conjunction, na, connecting two different DPs or PPs is a supporting evidence that the locative element, -ni, does not exhaust a prepositional head, P, but a head internal to a nominal smaller than a DP. Consider the following data which is inconsistent with the structural pattern shown in (6) for kwa:

(10) a. *Juma a-li-ishi nyumba ni hii na nyumba ni ile 
Juma 3rd.sg-PST-live house LOC this CONJ house LOC that
‘Juma lived in this house and in that house.’

b. *Juma a-li-ishi nyumba hii na nyumba ile ni 
Juma 3rd.sg-PST-live house this CONJ house that LOC
‘Juma lived in this house and that house.’

The conjunction, na ‘and’, in (10a) as well as (10b) is unable to conjoin a PP with a PP (e.g.,

\[\text{1 The possibility of treating -ni as a regular Case marker instead of a preposition may seem plausible at first glance as a reviewer points out. However, the fact that the suffix-like locative element, -ni, must always follow a nominal and never a demonstrative (D) or a numeral (#) dismisses such prediction. Consider the following ill-formed structures where -ni is detached from nyumba ‘house’, because of an intervening DP:}\]

(i) *Juma hu-penda ku-lala nyumba hii ni 
Juma 3.sg-like INF-sleep house this LOC
‘Juma likes to sleep in this house.’

(ii) *Juma hu-penda ku-lala nyumba mbili ni 
Juma 3.sg-like INF-sleep house two LOC
‘Juma likes to sleep in two houses.’

According to (i) and (ii), -ni has to be realized closely adjacent to a bare or a reduced nominal expression which is not a characteristic that a KP or a DP may exhibit. Further discussion will continue in section 5 which presents additional data relevant to Korean locatives.
*[PP Ø [DP [n nyumba ni] hii]] with *[PP Ø [DP [n nyumba ni] ile]] or a DP with a DP (e.g., *[DP [n nyumba ni] hii] with *[DP [n nyumba ni] ile]). This runs counter to the notion that -ni is a prepositional head hosting a DP (or DPs), since na in (10b) is unable to connect two fully independent DPs in the absence of a PP. In other words, the absence of a PP for -ni devastates the derivation of a conjunction hoping to connect two full-fledged nominal expressions. This, in turn, suggests that the locative indicating element, -ni, is reduced in size and that it specifically lacks a DP and most certainly a PP. Through such findings, this paper argues that Swahili is able to form locatives without the need of a PP via a locative-inducing projection, nP. In this regard, -ni-type locatives ought to be distinguished from kwa-type locatives which surface beyond the level of a nominal domain. The following data illustrates the invalidity of postulating PPs or DPs for the -ni-type locatives in Swahili.

(11) a. na unconnected to PPs in (10a)  b. na unconnected to DPs in (10b)

**[ØP nyumba-ni hii]na[ØP nyumba-ni ile]] *[nyumba-ni hii]na[nyumba-ni ile]]

4. Different morphosyntactic structures for kwa and ni

As for Case and θ-role assignments, a reduced nP does not require Case for it is not a full DP. Further, assigning θ-roles for nPs is unproblematic for it is possible through the locative assigning head, nLOC°, undergoing (rich) agreement in Bantu languages (Carstens 2008). In fact, Fuchs & van der Wal (2018) presents a stacked-n analysis for Swahili locatives which is in line with what Kramer (2015) suggests for German nominalization (e.g., lerherin ‘female teacher’). While the stacked-n analysis may be applicable for the -ni-type locatives in Swahili, I argue that such analysis should not be introduced for the realization of the kwa-type locatives. Otherwise, the given logic would wrongly predict the coexistence of two locative heads, namely PLOC as well as nLOC (e.g., *kwa nyumba-ni), which eventually leads to a crash in derivation:

(12)  *kwa nyumba-ni

As illustrated in (12), the existence of two locative-inducing heads, PLOC° and nLOC°, is not
possible as we see that *kwa nyumba-ni is ill-formed from a derivational account. Hence, only the cases where either one of the given heads is present for each and every derivation may be recognized as being well-formed. The implication for such analysis would be that the Swahili locatives formed under the prepositional head, PLOC\(^o\) (e.g., kwa), would carry a full nominal expression such as a DP while the locatives formed under the nominal-internal head, nLOC\(^o\) (e.g., -ni), would be in no explicit need of a full-blown nominal construction. The dissimilar tree structures under which kwa nyumba and nyumba-ni are realized nicely portray the main points made thus far:

(13) a. kwa nyumba (a full nominal)

\[
\text{PLOC} \quad \overset{\text{PLOC}^o}{\longrightarrow} \quad \text{DP} \\
\quad \overset{\text{D}^o}{\longrightarrow} \quad \overset{\#P}{\longrightarrow} \quad \overset{nP}{\longrightarrow} \quad \overset{n^o}{\longrightarrow} \quad \overset{\sqrt{P}}{\longrightarrow} \\
\]

b. nyumba-ni (a reduced nominal)

\[
\text{nLOC} \quad \overset{nLOC^o}{\longrightarrow} \quad \text{nP} \\
\quad \overset{n^o}{\longrightarrow} \quad \overset{\sqrt{P}}{\longrightarrow} \\
\]

In addition, arguing for a stacked-n analysis for Bantu languages in general is not at all a farfetched idea especially when adopting Kramer’s (2015) and Fuchs & van der Wal’s (2018) line of reasoning. Surely, the realization of nominal locatives in Bemba reassures the plausibility of postulating a stacked nP from a cross-linguistic perspective. Consider the following data which holds onto a prototypical nominal locative system in Bantu:

(14) a. pa-n-gándá  b. kú-n-gándá  c. mu-n-gándá
16-9-house  17-9-house  18-9-house
‘at the house’ ‘to the house’ ‘in the house’

(Bemba, Marten 2012)

Undoubtedly, the usage of gender morphemes belonging to the classes of 16 (e.g., pa-), 17 (e.g., kú-), and 18 (e.g., mu-) in order to create locatives is quite common among prototypical
Bantu languages. Hence, as shown in (14), stacking an additional gender element categorized under classes 16, 17, and 18 to a preexisting gender element such as class 9 (e.g., n-) is also common when forming locatives in Bantu languages such as Bemba. In light of such analysis, adding a locative-engendering feature above an initial gender element via $n_{\text{LOC}}$ brings no apparent complication to the story (see Fuchs & van der Wal’s (2018) for further discussion). Here, it is significant to understand that the locative-engendering classes 16, 17, and 18 used in Bantu languages help account for the morphosyntactic characteristics of Swahili -ni-type locatives as striking similarities between the two emerge. Consider the following data on Cuwabo which is able to utilize both a prefix as well as a suffix locative system in Bantu:

(15) a. va-mú-rí-ni  b. ó-.ttóló-ni  c. m-mú-rúddá-ni  
   16-3-tree-LOC  17-well-LOC  18-3-village-LOC  
   ‘at the tree’  ‘at the well’  ‘in the village’  
   (Cuwabo, Guérois 2014, 2015)

As emphasized in (15), the double usage of classes 16 (e.g., va-), 17 (e.g., ó-), and 18 (e.g., m-) along with the suffix-like -ni in Cuwabo shows that the two features are indeed closely related to one another. As a matter of fact, a vital piece of evidence showing an explicit interaction between the two comes to light when the overt inflections triggered by the Swahili -ni-type locatives are given consideration:

(16) nyumba-ni  pa-/ kú-/m-na  wa-tu  w-engi  
   9-house-LOC  16-/17-/18-have  2-people  2-many  
   ‘In/at the house are many people.’  
   (Swahili, Carstens 1997)

(17) a. nyumba-ni  ya-ngu  d. *nyumba-ni  ya-hii/ile(pale)  
   house-LOC  16-my  house-LOC  16-this/that  
   ‘at my house’  ‘at this/that house’  
   b. nyumba-ni  kwa-ngu  e. *nyumba-ni  kwa-hii/ile(kule)  
   house-LOC  17-my  house-LOC  17-my  
   ‘to my house’  ‘to this/that house’  
   c. nyumba-ni  mwa-ngu  f. *nyumba-ni  mwa-hii/ile(mule)  
   house-LOC  18-my  house-LOC  18-my  
   ‘in my house’  ‘in this/that house’

The inflections triggered on na ‘to have’ in (16) and the possessive, ngu ‘my’, in (17a), (17b), and (17c) direct us toward the notion that the locative-engendering element, -ni, in Swahili certainly patterns with the prototypical locative gender classes of 16, 17, and 18. In light of such discovery, it is more than plausible to assert that both of the affix-like locative elements are base-generated in the same nominal head of $n_{\text{LOC}}$ which generates an identical effect on Bantu locative inflections.\(^2\) With this analysis at work, however, a question remains unsolved,

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\(^2\) Hankamer & Mikkelsen (2018) argue that the identity of a prefix as well as a suffix is recognized during Vocabulary Insertion (VI) within the framework of Distributed Morphology (Halle & Marantz 1993, 1994). Richards (2016) additionally provides a way of distinguishing prefixes from suffixes by identifying the location of metrical boundaries initially detected in narrow syntax. This paper is in favor of these proposals and suggests that the placements of the locative prefixes and suffixes in Bantu languages are predictable from a generative perspective of viewing language.
for (17d), (17e), and (17f) remain ungrammatical despite their seemingly appropriate realizations. Further entanglement is applied to the problem when we realize that these nominal constructions rejected in Swahili are in fact readily available in Bemba and Cuwabo. Consider the following data which patterns dissimilarly with (17d), (17e), and (17f).

(18) a. pà-mù-shí  pà-lyá
     16-village | 16-DEM
     ‘at that village’
 b. kù-mù-shí  kù-lyá
     17-village | 17-DEM
     ‘to that village’
 c. mù-mù-shí  mù-lyå
     18-village | 18-DEM
     ‘in that village’  (Bemba, Kula 2012)

(19) mu-papóóro- ni  mpúle
     18-boat-LOC | 18-that
     ‘into that boat’  (Cuwabo, Guérois 2016)

Here, the well-formedness of (18) and (19) becomes a crucial evidence supporting the idea that Swahili -ni-type locatives realized within \(n_{\text{LOC}}\) are structurally primitive due to their lack of DPs. Unlike Bemba and Cuwabo nominal locatives which are compatible with demonstratives inflected to the locative gender classes of 16, 17, and 18, the reduced nominal locatives in Swahili are at odds with such entities for a full DP is absent. Hence, Bemba and Cuwabo are freely able to construct their nominal locatives using DPs, whereas Swahili nominal locatives cannot due to their restrictions on introducing demonstratives. In order to compensate for such loss, however, Swahili forms locatives with demonstratives using a different mechanism which has already been discussed in section 3. Such mechanism is once again repeated in the following data:

(20) a. kwa  nyumba hii
     LOC | house | this
     ‘in this house’
 b. kwa  nyumba ile
     LOC | house | that
     ‘in that house’

The proper way of expressing well-formed locative expressions bearing demonstratives in Swahili is through the use of a prepositional head (e.g., kwa) which is fully capable of summoning a DP. (20) shown above repeats the central ideas previously mentioned in (6) as well as (13) and reemphasizes the notion that Swahili demonstratives such as hii and ile demand a PP hosting a full nominal expression instead of a \(n_{\text{LOC}}\) which is diminished in morphological size. In fact, the analysis made thus far seems to account for Marten’s (2010) observation on Swati, a Southern Bantu language, that locatives in the language behave as preposition phrases instead of noun phrases. In addition to such discovery, I argue that Swahili, an Eastern Bantu language, is capable of utilizing both a propositional system (e.g., kwa) as well as a nominal system (e.g., -ni) in terms of expressing locatives.
5. Additional evidence from Korean locatives

As opposed to Bantu languages assigning locatives through their nominal gender system(s), Korean adopts a system driven by Case which cannot be analyzed using the stacked $n_{\text{LOC}}^3\theta$P demonstrated in (13b). Owing to its lack of $n_{\text{LOC}}^3\theta$P, Korean bears no possibility of introducing reduced nominal locatives which certainly contrasts with Swahili (e.g., nyumba-ni) from a cross-linguistic point of view. Nevertheless, it is worth mentioning the fact that the coexistence of a locative Case as well as a demonstrative expression in Korean provides additional support to the claim that Swahili -ni-type nominal locatives are truly dwindled in morphosyntactic size and structure.

\begin{align*}
(21) & \quad \text{a. Inwu-ka} \quad \text{ku} \quad \text{cip-ey} \quad \text{ka-ss-ta} \\
& \quad \text{Inwu-NOM} \quad \text{that} \quad \text{house-LOC} \quad \text{go-PST-DECL} \\
& \quad \text{‘Inwu went to that house.’} \\
& \quad \text{b. Inwu-ka} \quad \text{i} \quad \text{cip-eyse} \quad \text{sal-ass-ta} \\
& \quad \text{Inwu-NOM} \quad \text{this} \quad \text{house-LOC} \quad \text{live-PST-DECL} \\
& \quad \text{‘Inwu lived in this house.’}
\end{align*}

At any rate, the Case locatives, -ey and -eyse, in (21) are arguably realized in KPs or DPs which are not in harmony with the Swahili $n_{\text{LOC}}^3\theta$P locative element, -ni. Evidence comes from the realization of -ey and -eyse used with demonstratives such as i ‘this’ and ku ‘that’ which are projected on the same or a lower domain posited for Case locatives in Korean. In contrast to Korean locatives, the $n_{\text{LOC}}^0$-type locative, -ni, in Swahili cannot host a demonstrative as we have already seen in (8), (10), and (17). This indicates that the realization of -ni-type locatives cannot take place on a KP or a DP which bears the possibility of introducing demonstratives such as hii ‘this’ and ile ‘that’. Considering the discussion made up to this point, we have gained explicit motivations for arguing that the Swahili -ni-type locatives and the Korean -ey/-eyse-type locatives are situated in different nominal layers and that the -ni-type locatives are projected lower than KPs or DPs unlike their prepositional counterpart, kwa.

6. Conclusion

This work mainly investigated the morphosyntactic dissimilarities between the Swahili locatives, kwa and -ni. In the case of nominals formed under the realization of the prepositional head, kwa, a full-fledged DP is required since the preconditioning of the overt Case and θ-role assigner/assignee relation ought to be satisfied similar to what we have observed for English locatives projecting complete nominal DPs. As for those that are realized with the locative morpheme, -ni, neither a PP nor a full-blown DP is projected within the structure since there is no preconditioning of the overt Case and θ-role assigner/assignee relation. Further support on this analysis derives from the complete absence of demonstratives (un)inflected by Swahili gender classes of 16, 17, and 18 when the locative engendering morpheme, -ni, surfaces. This directed us toward the notion that -ni-type locatives in Swahili are realized within a stacked nP layer that is somehow reduced in morphosyntactic size. With the attempt of collecting additional evidence verifying such reduction in size for Swahili locatives, this paper presented dissimilar patterns displayed in other Bantu languages such as Bemba and Cuwabo. In the end, Swahili turned out to be the
only language among the three to reject the usage of demonstratives with nominal locatives. As an alternative, Swahili allowed the *kwa*-type locatives to introduce demonstratives for they exhibited no reduction in form. As it has been predicted and postulated throughout this paper, the necessity of reduced nominal expressions for Swahili locatives comes to light when the *-ni*-type locatives is given consideration from numerous perspectives.

References


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Factivity Alternation of the Verb ‘know’ in Korean, Turkish and Hungarian

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1. Introduction.

This paper is concerned with characterizing the understudied factivity alternation of the verb ‘know’ in Korean, Turkish and Hungarian. The verb ‘know’ here is a generic term for the cognitive epistemic attitude report ‘know’ in most languages that is typically factive with the form ‘S knows that P,’ where P is factively presupposed and an ensuing contradictory $\neg P$ cannot be conjoined with the ‘know’ sentence. It is in distinction to another cognitive but doxastic attitude report ‘believe’ in that the ‘believe’ sentence can be followed by $\neg P$. (cf. Kiparsky and Kiparsky 1970.) Another test for factive presupposition of ‘know’ is that it is maintained even if it is negated by ordinary sentential negation (not by external negation), as in ‘S doesn’t know that q’, where q is simply presupposed to be true (Horn, 1985). This kind of projected factive presupposition cannot be expected from the non-factive alternant of ‘know’ in the three languages. Still two additional diagnostics for factive ‘know’ are that it is not a ‘neg-raiser’ unlike ‘believe’/‘think’ and that it is question-embeddable (Hintikka 1975 ch. 1), whereas ‘believe’ is anti-rogative, i.e., not question-embeddable. These two diagnostics force the non-factive alternants of ‘know’ in the languages belong to the ‘believe’ type, which is non-factive by default. The non-factive alternants of the verb ‘know’ in the three languages strikingly undergo neg-raising alike, siding with the ‘believe’ verb type. We will also see how the non-factive alternants of ‘know’ are anti-rogative just like the non-factive ‘believe’ type.

Although separate facts of non-factive use of ‘know’ and its contrast with factive use in the three languages have been reported in Lee (1978), Kiefer (1978) and Ozildiz (2017), the rare phenomenon of factivity alternations of ‘know’ has not been discussed in one place to see their typological characteristics and theoretical implications. In Korean, the alternation is conditioned by structural vs. oblique case marking on the nominalized complement. The structural case-marked nominalized DP complement involves factive presupposition, whereas the oblique adjunct/complement type does not. Similar alternations occur in Turkish and Hungarian. The attitude report inferences are derived typically via composition rather than via purely ‘triggering’ by verbs or by complement types alone, although complement typing is predominant in Korean and Turkish, although Turkish complement typing is less solid and may call for composition in particular (Ozildiz (2017)). Hungarian involves DP anaphor like ‘it’ for factive and CP anaphor ‘so’ in non-factive just before ‘know’ in the embedding clause, referring forward to the respective factive and non-factive complement clauses, which are identical in surface but different in underlying structure.

The question then arises as to why the separate non-factive alternants arise in the languages if they behave like regular non-factive ‘believe’ sentences in all conceivable diagnostics. That is a tough question. But as we found so far, non-factive ‘know’ utterances tend to occur with overt or
covert evidential justification in an effort to meet the epistemic requirements for the factive alternants of ‘know,’ attested in a corpus survey in Korean and revealed by close consultations with native speakers. Minimal experiments are also provided.

2. Factivity Alternation Facts in Korean and Other Two Languages.

2.1 The factive vs. non-factive distinction is crucially made by different compositions of nominalized complement cases of factive ACC vs. non-factive oblique inherent DIRECTIONAL case in Korean with the embedding verb al- ‘know,’ as in (1a,b). In (1a), the complement nominalized by the prenominalizer –nt+[PAST], appositional relator (modifier) to the following dependent nominal kes, takes the structural case marker ACC, reflecting its status as the THEME argument of the embedding transitive verb al- ‘know.’ It is a discourse referent in the Common Ground (CG). If the sentence is passivized, the nominalized complement becomes the subject, taking still a structural case NOM, as in (2). The NOM-marked subject complement, factively presupposed, can take any predicate except a factivity-cancelling one. (1b), with the DIRECTIONAL case marking, cannot be passivized but even if it takes a passive-like construction, the DIRECTIONAL case marking and non-factivity are preserved.

(1) a. Mia-nun [Hia-ka ttena leave-n PREN(PST) -kes-ul ACC] al know-ko iss-stative-ta. DEC (factive)
   ‘Mia knows that Hia left.’ [PREN=prenominal, PST=past; N=nominal; DEC=declarative]

b. Mia-nun [Hia-ka ttena leave-n PREN(PST) -kes-N uro DIR] al know-ko iss-ta. (non-factive)
   ‘(Lit) Mia knows toward it that Mia left.’ [uro DIR=DIRECTIONAL inherent case, ‘toward’]

(2) [Hia-ka ttena leave-n PREN(PST) -kes-N i NOM] (Mia-eykey DAT) al know-li-e-ci PASSIVE -ess-ta
   ‘That Hia left is known (to Mia).’

(3) [Hia-ka ttena leave-n PREN(PST) -kes-N false-i BE] kecis false-i BE-ta DEC (marks semantic anomaly)
   ‘That Hia left is false.’

The structural case-marked nominalized clausal complement in (1a) is constantly factively presupposed and its sentence (1a) cannot be followed in a discourse by Kurena but Hia-nun [Hia-ka ttena leave-ci anh neg-ass PST-ta DEC] ‘But Hia didn’t leave,’ which is contradictory; but (1b) can. The passive form of the factive sentence in (2) cannot be followed by the contradictory ‘But Hia didn’t leave,’ either. As (3) shows, the NOM structural case-marked nominalized clausal complement, which is constantly factively presupposed, cannot take a presupposition-cancelling predicate ‘is false.’ Though to be explained later, the structural case–marked complement type introduced here can also be embedded by the verb mit- ‘believe’ in special contexts and can be passivized with facitivity preserved.

Similarly, in Turkish, alternation occurs by different compositions of nominalized complement ACC (-i) vs. non-nominalized full tense clause complement followed by the REPORTative COMP (diye) with the verb bil- ‘know,’ as in (4a,b). We can derive a passive construction from the factive ‘know’ sentence, as in (5). As in Korean, the nominalized structural ACC-marked THEME moves to the front to become a sentential subject with factive presupposition. Therefore, both the factive ‘know’ sentence of (4a) and its passive cannot be followed by Fakat but Su git go - me NEG – di PST ‘But Sue didn’t leave,’ which is contradictory. The nominalized complement subject in (6) is also constantly factively presupposed and cannot be followed by a contradictory predicate, as in

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2.2 In Hungarian, alternation occurs by different compositions of nominalized complement ACC (-i) vs. non-nominalized full tense clause complement followed by the REPORTative COMP (diye) with the verb isz- ‘know,’ as in (7a,b). We can derive a passive construction from the factive ‘know’ sentence, as in (8). As in Korean, the nominalized structural ACC-marked THEME moves to the front to become a sentential subject with factive presupposition. Therefore, both the factive ‘know’ sentence of (7a) and its passive cannot be followed by Tehát but a nem me neg PST ‘But a didn’t leave,’ which is contradictory. The nominalized complement subject in (9) is also constantly factively presupposed and cannot be followed by a contradictory predicate, as in
(6). However, the same nominalized complement type as in (4a) can be embedded by the non-factive doxastic verb ‘believe’ but without any factive presupposition involved in the nominalized complement with the ACC case identical in form with that in (4a) (see Ozyildiz 2017). This remains a puzzle but in our account the ACC case in (4c) is not a structural but a surface or pseudo-case. The structural ACC case, when moved to the front by passivization, becomes a structural NOM case and typically preserves the original factive presupposition, as in (5). But here as in (6), the NOM-marked complement can be denied, showing that it can be without factive presupposition (Gizem Turkmenoglu, Jaklin Kornfilt p.c.). In the Topic/Subject position typically only a structural case survives. The passive-like form with the complement immediately preceding the verb ‘think’, i.e. *Su’nun gittiği düşünülüyor* ‘It is thought that Sue left’ is possible but it cannot take *Da tarafından* ‘by Da,’ which the factive *biliniyor* can take. This much it is defective.

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(4) a. Da [Su-nun \(^{\text{GEN}}\) git\(^{\text{leave}}\) –ti \(^{\text{PST}}\) -gin \(^{\text{NMZ}}\) -i \(^{\text{ACC}}\)] bil\(^{\text{know}}\) -iyor.
   ‘Da knows that Sue left’ (*factive*)

b. Da [Su \(^{\text{NOM}}\) git\(^{\text{leave}}\) –ti \(^{\text{PST}}\) -diye \(^{\text{REPORT}}\)] bil\(^{\text{know}}\) -iyor.
   ‘Da non-factually knows that Sue left’ (*non-factive*)

c. Da [Su-nun \(^{\text{GEN}}\) git\(^{\text{leave}}\) –ti \(^{\text{PST}}\) -gin \(^{\text{NMZ}}\) -i \(^{\text{ACC}}\)] dusunuyor\(^{\text{think}}\) (non-factive).

(5) [Su-nun \(^{\text{GEN}}\) git\(^{\text{leave}}\) –tig \(^{\text{NMZ}}\) –i \(^{3\text{rd sg}}\) Ø] bil\(^{\text{know}}\) -in\(^{\text{PASSIVE}}\) -iyor.
   ‘That Sue left is known.’

(6) [Su-nun \(^{\text{GEN}}\) git\(^{\text{leave}}\) –tig \(^{\text{NMZ}}\) –i \(^{3\text{rd sg}}\) Ø] doğru\(^{\text{right}}\) değil\(^{\text{not}}\).
   ‘That Sue left is not true.’

There is a close parallelism between Korean and Turkish in factivity alternation of ‘know.’ In both languages, a nominalized complement and its structural cases of ACC and NOM are required and the complement subject is also constantly factively presupposed. Let’s turn to the third language so far discovered, Hungarian. Observe (7). In Hungarian analogously alternation is ensured by composing definite DP cataphor (*azt* ‘it’ in ACC)\(^2\) in (7a) vs. CP cataphor, placed in the main clause, before ‘know,’ referring to the following overtly same complements. In Hungarian, the cataphor *azt* ‘it’ in ACC precedes the embedding verb *tudja* ‘knows,’ referring forward to the complement clause led by the complementizer hogy ‘that.’ The complement clause must also be in ACC to agree with the cataphor in the same complex sentence. The passive-like constructions corresponding to the factive alternant of ‘know’ is (8), where *tudott* is an adjective, still with the structural NOM-marked cataphor before the complement clause. The CP cataphor *u’gy*\(^8\) cannot form an analogous construction: *u’gy*\(^8\) *tudott*\(^{\text{known}}\) *dolog*\(^{\text{thing}}\) *volt*, *hogy*\(^{\text{that}}\) *Petti elment*\(^{\text{left}}\). After (7a) or (8), a contradicting utterance such as ‘she didn’t leave’ cannot follow, because the complement is factively presupposed. In (8a,b,c), we can see the position of the structural NOM-marked anaphor *az* is rather free: it is either before the complement clause (8a) or after it (8b), or appositive (8c) (Genoveva Puskas via e-mail July 21, 2018). But the structural NOM-marked anaphor *az* is required for its associated clausal complement to be factively presupposed. That’s why the contrast between (8d) and (8e) occurs.

1 Jaklin Kornfilt (p.c.) confirmed this prediction.

2 We discovered the structural ACC vs NOM contrast associated with their respective complement clauses. Genoveva Puskas gladly agreed with us and confirmed it.
(7) a. Agi (azit-ACC) tudja [hogy that Ema elment left].
   ‘Agi knows it that Ema left.’ (factive)
b. Agi u’gy do tudja [hogy that Peti elment left].
   ‘Agi so knows that Peti left.’ (non-f)

(8) a. Az it-NOM tudott [hogy that Ema elment left].
   ‘It is a known thing that Ema left.’
b. [Hogy that Ema NOM elment left], az it-NOM tudott [dolog thing]
   ‘That Ema left, it is a known thing.’
c. Az it-NOM, [hogy that Ema elment left], tudott [dolog thing]
   ‘It, that Ema left, is a known thing.’
d. #Az it-NOM [hogy that Ema elment left], valótlan / nem not igaz true
   ‘It, that Ema left, is a known thing.’
e. Nem not igaz true, hogy Ema elment.

The claim that nominalizations are responsible for the factive inference (Moulton 2009; Kastner 2015; Hanink & Bochnak 2017) seems to be on the right tract. The only modification we need is that the nominals involved should be structurally motivated and structural case-marked. The apparent Turkish counter-examples might not be structurally motivated in this sense.

So far, we discussed the structural conditions of factivity alternations of the verb ‘know’ in the three languages but now let’s turn to some further factive verbs.

2.2 Interestingly, in the three languages, cognitive attitude verbs like ‘remember’ (kiekha-in Korean) and ‘understand’ (ihayha-in Korean) that are close in meaning to ‘know’ are commonly factivity alternation attitude verbs, whereas the negative counterpart of ‘remember’, i.e. ‘forget’ (ic-in Korean) (‘not remember any longer’) is commonly not a factivity alternation attitude verb but a constant factive verb in the three languages.

(9) a. Mia-nun [Hia-ka ilpon-ey ka-n kes-ul] kiekha-n-ta
   Mia-nun [Hia-ka ilpon-ey ka-n] kiekha-n-ta
   ‘Mia remembers (the fact) that Hia went to Japan.’
b. Mia-nun [Hia-ka ilpon-ey ka-n] kiekha-n-ta
   Mia-nun [Hia-ka ilpon-ey ka-n kes-uro] kiekha-n-ta
   ‘Mia remembers such that Hia went to Japan.’

(10) Mia-nun [Hia-ka ilpon-ey ka-n] kiekha-n-ta
    Mia-nun [Hia-ka ilpon-ey ka-n] kiekha-n-ta
    ‘Mia remembers (the fact) that Hia went to Japan.’
In this connection, the lexically negative verb moru- ‘do not know’ in Korean is always factive and takes only the structural ACC-marked case. Why do lexically negative counterpart verbs take only

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3 Genoveva Puskas also provided a passive construction with a different verb ismer ‘know,’ as follows: Az it-NOM Agi által to ismer known, [hogy that Ema elment left]. However, she adds, the active of this verb does not have the azu’gy alternation.
factive complements? We must explain this. When with negation, the ACC-marked factive takes wide scope. On the other hand, emotive factive predicates such as *hwuhwoyha*—regret—in Korean, Turkish and Hungarian have no non-factive alternants either, because emotions are typically caused by various moods and facts and their presuppositions are deeper, further from at-issue and attitude holders’ emotion expressions are far or separated from their ‘not-at-issue’ presupposed embedded p (cf. Djärv et al.’s experiments), unlike cognitive (factive) verbs like ‘know,’ which are also called semi-factives.

Those attitude verbs that do not show factivity alternation are a doxastic attitude verb ‘believe’ or ‘think,’ and future-oriented verbs such as ‘hope,’ ‘expect,’ in Turkish and Hungarian, but in Korean, ‘believe’ and ‘think’ are factivity alternating in some contexts. Typically, in Korean, *mit*—‘believe’ embeds a non-factive complements but in special contexts where ‘believing or not’ is an issue, it can embed the factive complement type we saw. So, we treat *al*—‘know’ and *mit*—‘believe’ as embedding verbs that take the factive complement type for convenience.

3. Complement Types and Factivity.

3.1 The nominalized complement with *kes*, as in (1a), is constantly factively presupposed, if followed by a structural case marker in Korean. This complement type with a structural case we call perceptual/internal is typically used for a scene or ongoing event of direct perception. In this case, the complement content is an event type and the nominal *kes* is not interchangeable with *sasil* ‘fact,’ unlike all other propositional type factive nominal *kes*. Still it is factive. This is just to show the original perceptual/internal type of factivity complementation. Here the embedded prenominalizer present tense is co-temporal with the matrix tense. Observe.

(11) Mia-nun *TOP* [Hia-ka *NOM* leave-nun *PREN(PRS)* kes*N-ACC*] po-sec-ass-ta. (PRS= present)

‘Mia saw Hia leave.’ [‘evidential factive’ in English (Anand & Hacquard 2014)]

This evidential (via seeing, hearing, feeling) factive complement is covert in internally headed relative clauses (IHRC), An IHRC can be embedded under transitive action verbs such as *cap*—‘catch’, as in (12). We posit a covert evidential factive verb *po*—‘see’ or *kamciha*—‘perceive’ with –*ko* ‘and’ right after *kes*. (cf. Chung 1999.) Then, the *kes* in the first conjunct is an appositive factive *kes* and the *kes* in the second conjunct becomes a concrete human *kes* and can license the body-part in the double object construction. It is a panoramic view. Otherwise, the selection restrictions for the concrete action verb will be infinitely many.

(12) Hia-nun [kangdo-ka *eunhaying-eyse* na-o-nun *kes-ul*] (tari-rul) cap-ass-ta

H.-Top robber-Nom bank-from come PREN(PRS) KES-Acc leg-Acc caught

‘Hia caught the robber coming out of the bank (by the leg).’

Two panoramically overlapped clauses are in one: The initial perception complement as a set of situations <s, t> (appositional with *kes*) undergoes transition to the second relative clause as a set of entities (modifying *kes*). Catching something without perceiving its situation is contradictory. The complement nominalizing dependent noun *kes* here was analyzed by Kim (2009) and basically adopted by Bogal-Allbritten and Moulton (2017), as (13). Individuals and situations are amalgamated in one *kes*. There is no full appreciation of complementation that requires complete arguments, which are provided in IHRC. We propose a departure from this.
The same internal nominalized complement with a structural case ACC -n kes-ul, without the embedded DEC ending comes to compose with the cognitive verb al- ‘know,’ as in (1a), presupposing the complement p. This type of internal nominalized complement with a structural ACC-marked -n kes-ul or a structural NOM-marked -n kes-i is constantly factive with no regards to embedding verb al- ‘know’ or ‘mit- ‘believe.’

3.2 The external nominalized complement type, with its tensed, and DEC marked full clause, is distinct (Lee 1976 for ‘internal’ vs. ‘external’). The external nominalized factive type -ta-nun kes-ul has been grammaticalized from -ta-ko ha-nun kes-ul (DEC REPORTative say-PREN-kes-ACC), which involves REPORTative (or quotative) plus the verb ‘say.’ Examine.

    M.-Top friend-Nom leave-PST-DEC-PREN KES-Acc  know-PRS-DEC
    ‘Mia knows (externally) that her friend left.’

The external type thus is used to imply that the embedded clause proposition p has been asserted elsewhere in the context via a discourse move and that it has been conveyed in an indirect evidence acquisition to the attitude holder as something like shared knowledge to be in Common Ground. As a nominalized clause, it also refers to a covert definite description if embedded by al- ‘know.’ If embedded by a verb such as mit- ‘believe,’ this external type, even with structural case-marked, its factivity is denied by about 70% of the selected native speakers and is accepted by slightly more than 30% (See Fig 1 Section 3.4 ).

3.3 Non-factive REPORTative COMplementizer -ko Type. A full embedded clause with the DEC ending, followed by the reportative complementizer -ko is typically embedded by assertive speech act verbs such as malha-‘say,’ cwucangha- ‘claim,’ and doxastic verbs such as mit- ‘believe’ and sayngkakha- ‘think.’ The complements of these verbs newly put forth the complement ideas. They take the head –ko COMP with its full TP complement, forming CP. This contrasts with the internal and external nominalized complements that compose with a DP for definite descriptions that dominate a CP underneath. This type never involves factivity.

    M.-Top H.-Nom leave-PST-DEC REPORT  said/believed
    ‘Mia said/believed that Hia left.’

What if we embed this complement under the verb al- ‘know’? Though quite odd, it is sometimes used and interpreted as non-factive, being similar with (1b), the non-factive alternant of al- ‘know.’ If the -ko complement takes the subject position with the passivized al-li-eciess-ta ‘was known,’ it becomes almost acceptable as non-factive.

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4 In contrast to this external factive type, if the structural case ACC is replaced by the inherent case DIRectional -uro in (14), its result becomes non-factive [and its interpretation involves -ha ‘say’ more vividly to be true or false with respect to the information conveyance rather than p itself for most natives].
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(16) "Mia-nun [Hia-ka tien-leave-ass PST-ta REPORT] al know-iss STATIVE -ta
‘(Lit) Mia knows non-factively that Hia left.’

On the other hand, there is a separate kind of –ko, which typically co-occurs with emotive factives. See (17). Its main meaning is “for the reason that ---.”

M.-Top baby-Nom book-Acc tear-PST-DEC-KO anger-Acc express-PST-DEC
‘Mia got angry for the reason that the baby got her book torn.’

Here the reason clause is presupposed and this use of –ko is different from the REPORTative function that is for non-factive ideas. In this sense, Shim and Ihsane’s (2015) example (4a) is misleading because an emotive factive and a non-factive mit- ‘believe’ are put together as predicates of the same –ko clause.

3.4 When Nominalized Complements Meet Attitude Verbs. What happens if the internal and external factive types with al- compose with doxastic verbs such as mit- ‘believe’? The internal type remains constantly factive even with these verbs if believing or not is an issue in contexts. So if a commonly known true proposition is embedded, it is OK, as in (18a), but if a false proposition is embedded it’s odd, as in (18b). However, the non-factive –ko clause if fine with the wrong proposition, as in (18c). Also with al-‘know,’ together with mit-‘believe,’ if the proposition is wrong in common sense, whether the internal or external factive type occurs, the results are bad, as in (18d). But with non-factive alternant complementizers -uro and –ko, embedding a well-known false proposition is OK.

(18) a. ku ai-nun [pakcwi-ka cecmeki tongmul-i{-n/-ra-nun}]
that child-Top bat-Nom mammal-COP-PREN-COP-PREN/DEC-PREN
KES-Acc believe-DEC
‘That child believes that bats are mammals.’
b. #ku ai-nun [pakcwi-ka say-i{-n/-ra-nun}]
that child-Top bat-Nom bird-COP-PREN/DEC-PREN KES-Acc
mit-ko iss-ta.
believe-DEC
‘That child believes (as a fact) that bats are birds.’
c. ku ai-nun [pakcwi-ka say –i-ra-ko] mit-ko iss-ta
that child-Top bat-Nom bird-COP-DEC-ko believe
‘That child believes that bats are birds.’
d. #cwungseyin–tul–un [ cikwu-ka phyengphyengha-n/-ta-nun kes-ul]
middle;age;man-Pl-Top earth-Nom flat-REL/-DEC-REL KES-Acc
al/mit-ess-ta
knew/believed
‘The Middle Age people knew/believed that the earth was flat.’
The external type with *mit- ‘believe’* is also used in contexts where there is some already asserted complement content conveyed to the attitude holder via indirect evidence acquisition, as in (19).

    M.-Top  H.-Nom leave-PST-DEC-REL KES-Acc believe
    ‘Mia believes <external> that Hia left.’

Interestingly, when 49 subjects were asked whether ‘Hia left’ in the external type complement is a fact, more than 30% said ‘yes’ and 49% said ‘not certain’ (with 20.4% ‘no’). Although the majority (69.4%) leans to non-factive, we cannot ignore the responses by more than 30%. Take a look at Fig. 1.

![Figure 1 Responses for the question whether the external nominalized complement content under the doxastic verb *mit-* ‘believe’ is a fact or not. 49 subjects responded.](image)

3.5 The Interaction between Complement Types and Attitude Verb Types. In Japanese, where we don’t find the non-factive(NF) alternant of *siru ‘know,’* we see the type of nominalized complement with *koto* (NMZ), equivalent to the Korean internal type with –н *kes.* The internal *koto* complement can be embedded under the usual non-factive belief verb *omou ‘think/believe’* or *shinjuru ‘believe/trust’*, being factively interpreted most of the time with certain limited contexts. This internal type is constantly factive and dominant in the interaction between complement and embedding verb, as in Korean and Japanese. But in Turkish, the nominalized complement with -гин–и [NMZ+ACC], though factively presupposed under the factive verb *bil– ‘know,’* it loses factive presupposition if embedded under the non-factive belief type of verb *дүн–ин–‘think.’* The complement type may not be a determining factor (or some different analyses may apply), although for the verb *bil– ‘know,’* factivity alteration distinguishes the complement types quite typically between the structural ACC-marking on the nominalized complement and the non-nominalized full-clause REPORTative complementation. The latter is typical with the doxastic (belief) type verbs without factivity.

If a language has two different attitude verb categories of ‘know’ and ‘believe,’ it is most typical to have a factive ‘know’ and a non-factive ‘believe.’ That’s why most languages have that division. But as we learned, understanding of structure and interpretation points to the direction of factive nominal DP structure (as shown in the Hungarian structural cases of the
anaphor azt ACC az NOM required for factive in the tud ‘know’ clause) and non-factive CP/Small Clause division. It is not purely a matter of surface.

4. Factivity Alternation: Structural Ingredients and Semantic Sketch

The nominalized complement with kes, as in (1a), if followed by a structural case marker and composed with ‘know’ al- (and other verbs such as ‘remember’ and ‘forget’) is posited to form a definite DP (Kastner 2015) with a covert definite determiner Δ. This Δ selects for a CP as its complement. But the nominalized complement with kes, as in (1b), if followed by a directional case marker and composed with ‘know’ al- (and other verbs such as ‘remember’) forms a CP. Therefore, the complement in (1a) can have a DP anaphor ku kes-ul ‘it,’ whereas that in (1b) can have a CP anaphor/pro-form kurehkey ‘so.’ This also happens in Hungarian. Complement types differ in Korean and Turkish commonly for alternation. The complement in (1a) with factive presupposition is in the Common Ground as a discourse referent, whereas that in (1b) is a proposition as a set of situations <s, t>. The meaning of the complement nominalizer kes is (13) with its factive presupposition, supposing it takes structural case, embedded by attitude verbs.

\[
(13) \left[\left[\text{kes} \ R\right]\right]^{\text{FC}} = \lambda w \lambda s \lambda x. R(x)(p)(s)(w) \] (Cf. Kim 2009). [s is in the domain of situations; R is a suitable <perceptual> acquaintance relation defined iff s is <unique and familiar> in C; x is an entity (attitude holder); p is a complement proposition; w is a maximal evaluation situation] (If not <perceptual>, not <unique and familiar>, then non-factive (1b)).

If we summarize relevant structures, the factive structure would be (14) and the non-factive ‘know’ structure would be (15).

(14) [VP [DP[D[Δ] NP] V];
(15) [VP [KP DP1 [RP e1 [RP [DirP [Dir [DP2 ... ]]-uro] R]]]] V]

(15') [Directional=uro] = λπ.λx. [TOWARD (π, x)]: The property <s, t> denoted by its complements to be directed atelically toward its specifier Theme/Topic res, ⊴:
[DirP](15)=> [DP](14).

(16) Mia-nun[Hia-ka[ttena leave-ci anhNEG-un kesN-ulACC]Theme-res [Hia-kaNOM [ttena-n kes- uro\textsuperscript{toward} al-ass-ta knew] ‘Mia despite the fact that Hia didn’t leave, knew non-f that Mia left.’

Taking composition between the verb and its complement (cf. Ozyıldız ‘17) for the Korean nominalized complement with kes, the truth condition of [[al-‘know’]]g(w)(s)(p)(x) would be: the suitable acquaintance R relation and \(\forall w'[w' \in \text{DO}x, w \rightarrow p(s'[R(x, s', w')])][x's \text{possible universal doxastic alternatives considered a la Hintikka}]. The function denoted by al-composes with a situation w for evaluation, the res situation s, a proposition p, and an individual (attitude holder). The non-factive alternant of al-‘know’ is derived if it is directed toward the res. Factive: the res situation [res Δ Hia leaving] is hit by the belief [dox Hia left] to match each other [with proper R], with a structural case. The attitude holder’s <perceptual/internalized> acquaintance relation must be ascertained via full evidential justification for truth. The R is familiar (definite), EXEMPLIFYING p (Kratzer 2015), with DirP. Because of lack of full evidential justification, the res situation and the belief may mismatch and non-factivity ‘know’ may result. How is it different
from a doxastic verb ‘believe’? The answer is in the Gettier problem with knowledge: Justified True Belief. The contextual data from Sejong Korean Corpus show that the attitude holder provides at least a piece of evidence for a non-factive ‘know,’ but not necessarily for ‘believe.’

5. Neg-Raising for Non-factive Alternant– Experiments

Neg-raisability was born out by experiments in Korean and consultations with the two other languages’ native consultants. First, in our survey with 49 subjects, the result 87.2% ‘yes’(neg-raisable) was obtained. The question was: “For both the higher neg S and lower neg S, is it possible that the complement content is not the case? (With “Hia didn’t leave?”). Because the embedded neg meaning is consistent with the higher verb neg, the response with “Yes” supports neg-raisability. The ratio is clear, as shown in figure 2 below.

![Figure 2. Neg-raisability in the non-factive alternant of al- ‘know.’ [NR=Neg-Raisable; NNR=Non-Neg-Raisable.] Neg-Raisability is strongly supported.](image)

Also, if a verb is neg-raisable, the verb is anti-rogative i.e. not embed questions, as in (17).

(17) *Mia-nun [Hia-ka way*why ttena-n kes-uro*backward al-n-ta know

‘Mia non-f knows why Hia left.’

6. Closing Remarks

Complement clause typing between DP (with uniqueness) and CP/SC and acquaintance via perceptual/internalized evidence are crucial for factivity, with non-factive ‘know’ not reaching it, though with a piece of evidential justification. Typology of factivity alternation follows typicality of complement clause typing and attitude verbs of ‘know’ and ‘believe.’ Interaction is important.

References (selected)


Kratzer 2015. Situations in Natural Language Semantics, Stanford Encyclopedia of Philosophy. Fig. 3 above.


1. Introduction

It is well known in literature that there exists cross-linguistic evidence on the realization of suppletive allomorphy (Bobaljik 2012 and Embick 2010, 2015). Among various idiosyncrasies in form, this paper scrutinizes suppletive allomorphy in Korean which are conditioned by passivization, negation, and honorification. Touching upon some of the previously suggested analyses relevant to the issue at hand, this work attempts to shed light upon the mechanism behind the realization of suppletion within Korean serial verb constructions (SVCs) by adopting the framework of Distributed Morphology (Halle & Marantz 1993, 1994). With the goal of presenting the appropriate motivations for the realization as well as the blocking effects of suppletion in Korean SVCs, this paper proposes that the existence along with the role of the internal $v_1^e$ element is pivotal. The organization of the given paper is as follows: Section 2 deals with previous research done on suppletive allomorphy in Korean, section 3 looks into two major theoretical approaches in explaining suppletive conditioning, section 4 discuss the (post)syntactic mechanism behind the realization of suppletion for SVCs in Korean, and finally section 5 concludes.

2. Previous research on suppletive allomorphy

Among previous studies relevant to Korean suppletive allomorphy, Chung (2007a, 2007b, 2009) initially examines the phenomena triggered by negation and honorification by utilizing the framework of Distributed Morphology (Halle & Marantz 1993). Further, a similar way of analyzing suppletion in Korean is introduced by Kim & Chung (2015). As to suggest a different view concerning locality conditioning, Choi & Harley (2017) reanalyzes these phenomena relevant to suppletive allomorphy. Additional discoveries of suppletion regarding passivization is reported by Kim & Lee (2017) who present an explanation on the conditioning mechanism of suppletive passivization via Distributed Morphology. Significant theoretical implications for suppletive passivization pave way for Lee & Lee (2017) to stand on a slightly different stance using the same framework. So as to provide a thorough summary of the previous proposals, the remaining subparts of section 2 covers the
fundamental basis of the ways in which suppletive passivization, negation, and honorification are realized.

2.1. Suppletive passivization

As briefly mentioned above, Kim & Lee (2017) sketch an outline on how suppletive passivization takes place within the framework of Distributed Morphology. In detail, they focus on demonstrating that the Korean verb, *mac* ‘to be hit’, is the suppletive passive form of *ttayli* ‘to hit’. Notice that neither *i/hi/li/ki* nor *eci* passive morphemes in Korean can be attached to the verb in the case of suppletive passivization.

**(1) a.** Cinha-ka Inwu-lul cap-ass-ta  
Cinha-NOM Inwu-ACC catch-PST-DECL  
‘Cinha caught Inwu.’  

**(1) b.** Inwu-ka Cinha-ey uyhay cap-hi-ess-ta  
Inwu-NOM Cinha-by catch-PASS-PST-DECL  
‘Inwu was caught by Cinha.’

**(2) a.** Cinha-ka Inwu-lul ttayli-ess-ta  
Cinha-NOM Inwu-ACC hit-PST-DECL  
‘Cinha hit Inwu.’  

**(2) b.** Inwu-ka Cinha-eyuyhay mac-ass-ta (*ttayli-i/eci-ess-ta)  
Inwu-NOM Cinha-by be-hit-PST-DECL  
‘Inwu was hit by Cinha.’

Further, Kim and Lee (2017) argue that the realization of *mac* is triggered by the morphosyntactic feature, [+pass], immediately adjacent to the feature, √HIT. Otherwise, the form, *ttayli*, is realized as the default morphological form in contexts where [+pass] is absent.\(^1\) This, in turn, suggests that there are two phonological items, namely *ttayli* and *mac*, competing for the same abstract feature, √HIT, during the course of Vocabulary Insertion (VI) at Phonetic Form (PF):

\[
\text{√HIT} \leftrightarrow \text{mac} / \_ \_ \_ \_ \_ [+\text{pass}] \leftrightarrow \text{ttayli} / \text{elsewhere}
\]

Here, it is crucial to bear in mind the common traits of *mac* and the *i/hi/li/ki*-type of passive forms, for the subcategorizing of the two distinct morphological realizations comes to light when the *eci*-type morpheme is given consideration.\(^2\)

2.2. Suppletive negation

According to Chung (2007a), the realization of *molu* ‘to not know’ is triggered by the morphosyntactic feature, [+neg], which is in a sister relation to the root, √KNOW. As the

\(^1\) Such view in favor of the postsyntactic operation known as fusion will be reintroduced in section 3, for additional implications arise when a dissimilar analysis based on the zero exponent approach is adopted.  
\(^2\) Refer to Kim & Lee (2017) for further analysis on the morphology-syntax mismatch between *mac* ‘to be hit’ and the *eci*-type morpheme in Korean.
default morphological form, √KNOW is realized as the phonological entity, al ‘to know’, which appears within the contexts where [+neg] is absent. Such conditioning of suppletive negation can be observed when (5) is given consideration in comparison to (4):

(4) a. Cinha-ka Inwu-lul po-ass-ta
    Cinha-NOM Inwu-ACC look-PST-DECL
    ‘Cinha looked at Inwu.’

  b. Cinha-ka Inwu-lul an po-ass-ta
    Cinha-NOM Inwu-ACC NEG look-PST-DECL
    ‘Cinha did not look at Inwu.’

(5) a. Cinha-ka Inwu-lul al-ass-ta
    Cinha-NOM Inwu-ACC know-PST-DECL
    ‘Cinha knew Inwu.’

    Cinha-NOM Inwu-ACC not.know-PST-DECL
    ‘Cinha did not know Inwu.’

The findings above lead to the notion that the realization of short form negation, an ‘not’, with the factive verb, al ‘to know’, is not possible in Korean. This essentially speaks in favor of suppletion taking place for √KNOW when short form negation is required. This, in turn, suggests that the verb, molu ‘to not know’, is subject to suppletive negation which contrasts with the verb, po ‘to see’ shown in (4). Similar to what Chung (2007a) argues, the competition between the two phonological forms, al and molu, during VI can be generalized as below:

(6) √KNOW ↔ molu / [+neg] ______
    ↔ al / elsewhere

For further scrutiny, the (post)syntactic derivation of these two forms will be discussed in section 3 as well as section 4. Certainly, additional theoretical implications arise when different approaches are taken into consideration.

2.3. Suppletive honorification

In favor of the late-insertion mechanism utilized in Distributed Morphology, Kim & Chung (2015) presents an analysis on how the morphological forms, mek ‘to eat’ and capswu ‘to eat.HON’, are realized in terms of suppletive honorification. In their view, the two phonological items, mek and capswu, are in competition during VI. To systematically enable their realization at PF, the honorific feature, [+hon], which is later realized as the phonological item, si, serves as the catalyst for suppletion.

(7) a. Cinha-ka kongwen-ey ka-ss-ta
    Cinha-NOM park-LOC go-PST-DECL
    ‘Cinha went to the park.’

  b. halapeci-kkeyse kongwen-ey ka-si-ess-ta
    grandfather-HON.NOM park-LOC go-HON-PST-DECL
The (In)applicability of Suppletive Allomorphy within Serial Verb Constructions (SVCs)

‘Grandfather went to the park.’

(8) a. Cinha-ka panchan-ul mek-ess-ta  
Cinha-NOM side.dish-ACC eat-PST-DECL  
‘Cinha ate the side dish.’

b. halapeci-kkeyse panchan-ul capswu-si-ess-ta  
grandfather-HON.NOM side.dish-ACC eat.HON-HON-PST-DECL  
‘Grandfather ate the side dish.’

As shown in (8b), the form, capswu, is realized when the honorific-indicating morpheme, si, surfaces. In line with the general discussion on suppletive allomorphy, Kim & Chung (2015) along with Choi & Harley (2017) argue that such phenomenon can be explained through competition between two phonologically dissimilar yet morphosyntactically identical entities during VI:

(9) √EAT ↔ capswu / _____ [+hon]  
↔ mek / elsewhere

Parallel to what has been demonstrated in (3) and (6), (9) illustrates the competition between two phonologically dissimilar entities which are distributed to their respective contextual environments shaped by unidentical (post)syntactic derivations. While the comprehensive designs in which suppletion takes place are to be discussed in section 3, much of the fundamental motivations for suppletive passivization, negation, and honorification in Korean have been introduced. Reasonings for the blocking effects of suppletive allomorphy will additionally follow.

3. The fusion based approach and the zero exponent based approach

This section mainly focuses on discussing the two major approaches to analyzing suppletive allomorphy in Korean. Namely, they are the fusion based approach and the zero exponent based approach. By means of delving into the two mainstream arguments, this paper narrows in on the (post)syntactic derivations of the suppletive verbs, molu ‘to not know’ and mac ‘to be hit’, which have gained attention from both sides of the panel. Despite the ongoing debate, the current work adopts the latter approach which carries merits encompassing the minor exceptions left untouched by the former. Even so, the basic tenets proposed within Distributed Morphology is maintained throughout the discussion to be put forward.

3.1. Fusion based approach

As briefly mentioned in section 2, Kim & Lee (2017) argue that the suppletive passivization of mac ‘to be hit’ is triggered by the morphosyntactic feature, [+pass], which is in sister relation to the root, √HIT. Similarly, Chung (2007a, 2007b, 2009) claims that the realization of molu ‘to not know’ is triggered by the morphosyntactic feature, [+neg], which
is also structurally most adjacent to the root, √KNOW. Such proposals add significance to the device, fusion, which is defined as a postsyntactic operation within the literature of Distributed Morphology:

(10) Fusion takes two terminal nodes that are sisters under a single category node and fuses them into a single terminal node.                         (Halle & Marantz 1993)

The basic concept of fusion is quite simple for the operation only requires the trigger, which is the catalyst of suppletion, and the target, which is the subject of suppletion, to form a sister relation in terms of morphosyntactic structure. So far as the given definition is concerned, fusion may apply to the suppletive verb, mac ‘to be hit’, when its trigger, [+pass], and target, √HIT, are structurally in sister relation. The same condition is demanded for molu ‘to not know’ where the trigger, [+neg], is structurally most adjacent to the target, √KNOW. Consider the following procedures provided below:

(11) a. Structure for mol-ass-ta (not.know-PST-DECL)
     \[ I_C \left[ T \left[ I_{\text{Neg}} \left[ +\text{neg} \right] \left[ V \sqrt{\text{KNOW}} \right] \right] \left[ +\text{pst} \right] \left[ +\text{decl} \right] \right] \]

b. Fusion for Neg and V at Phonetic Form (PF)
     \[ I_C \left[ T \left[ I_{\text{Neg}} \left[ +\text{neg} \right], \sqrt{\text{KNOW}} \right] \left[ \text{fusion} \right] \left[ +\text{pst} \right] \left[ +\text{decl} \right] \right] \]

c. The realization of molu during Vocabulary Insertion (VI)
     \[ I_{\text{Neg}} \left[ +\text{neg} \right], \sqrt{\text{KNOW}} \] ↔ /molu/

While the logic behind fusion provides a rather concise way of illustrating certain suppletive alternations, a conflicting view holds for its line of reasoning is not always convincing from a theoretical perspective. In fact, the actual debate boils down to whether the sister relation of the trigger and target of suppletion required by the postsyntactic apparatus, fusion, truly holds or not.

3.2. Zero exponent based approach

According to those in favor of the zero exponent approach, the fusion based approach is not without problems. Based on what has been demonstrated in (11), the realization of molu cannot take place without the postsyntactic operation, fusion. In this view, the absence of fusion leads to the prevention of the suppletive negation of molu. In spite of such postulation, however, the theoretical notion that heads such as v may intervene between Neg and V in the case of molu ‘to not know’ is a troublesome issue which devastates the structural sisterhood between the trigger, [+neg], and target, √KNOW, of suppletion. Following this string of logic, we would be left with no other choice but to anticipate the prevention of suppletion. Nevertheless, this is not the case as we have already observed that the accusative Case, -ul/-lul, which is assigned from the head, v, may freely surface within a context where suppletive allomorphy is triggered.4

In light of untying such problematic knot, we now turn our attention towards a different approach introduced within Distributed Morphology. According to Choi and Harely (2017), the zero exponent approach provides a way of handling contextual allomorphy without

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4 According to Harley (2009), the realization of v projection can be classified into various types. On Harley’s account, the v projection responsible for accusative Case assignment would be v\_DO.
additionally postulating the postsyntactic apparatus, fusion. Such approach paves way for the realization of *molu*. Consider the following data:

(12) a. Structure for mol-ass-ta (not.know-PST-DECL)
\[ I[c [T ^{Neg} [+neg]] [v \sqrt{KNOW} ] ] [+pst] ] [+decl] ]

b. The realization of *molu* during Vocabulary Insertion (VI)
\[ [v \sqrt{KNOW} ] \leftrightarrow /molu/
\[ ^{Neg} [+neg] ] \leftrightarrow /Neg/\]

Adopting the analysis on cliticization for short form negations in Korean (Han & Lee, 2007), Choi & Harley (2017) are able to do away with fusion which naturally leads to the zero exponent based computation during VI as shown in (12b). While this may run counter to Chung’s (2007) and Kim & Lee’s (2017) analysis on viewing suppletive allomorphy, imposing a structural sisterhood between the trigger and target of suppletion while also validating the existence of a functional head between the two elements is nullified and no longer poses a great threat of creating theoretical inconsistencies. Further commenting on the zero exponent based approach, Lee & Lee (2017) elaborates on how suppletive passivization of *mac* ‘to be hit’ can be examined without the utilization of the postsyntactic intervention of fusion.

While the controversy on the given two approaches is not entirely settled at the moment, for purposes to be enlightened, this work adopts the zero exponent based approach in analyzing the (in)applicability of suppletion for verb serializations in Korean. Additionally, this work adopts the theoretical establishment that Neg is not obligated to hold onto a maximal projection (e.g., NegP) within syntactic constructions bearing short form negation in Korean. Alternatively, the paper argues that the head, Neg, is cliticized onto the *v* projection as briefly demonstrated in (12a). Such analysis, in turn, is in line with Han & Lee (2007) along with Choi & Harley (2017).

3.3. Locality conditioning and blocking effects

From a cross-linguistic stance, locality conditioning as well as the blocking effects of suppletive allomorphy have been dealt quite exhaustively within previous literature (see Bobaljik 2012 and Embick 2010, 2015 in particular). Following the analysis in line with the zero exponent approach established within the framework of Distributed Morphology, this paper further investigates the locality conditioning as well as the blocking effects of suppletive allomorphy in Korean. Consider the following data initially pointed out by Chung (2007a):

\[ I[c [T ^{Neg} [+neg]] [v \sqrt{KNOW} ] [+caus] ] ] [+pst] ] [+decl] ]

b. The realization of an-al-li- during Vocabulary Insertion (VI)
\[ [v \sqrt{KNOW} ] \leftrightarrow /al/
\[ ^{Neg} [+neg] ] \leftrightarrow /an/
\[ [+caus] ] \leftrightarrow /li/

As it is illustrated in (13a), suppletion of the target, √KNOW, and the trigger, [+neg], is blocked by an intervening element, [+caus], which is later realized as the overt exponent, *li*. As a consequence, only *an-al-li-* becomes the well-formed phonological realization of
\[[\text{Neg}^{+\text{neg}}][[v\sqrt{\text{KNOW}}][+\text{caus}]\]
, whereas \text{molu-li-} does not. Such prevention on the realization of the suppletive form, \text{molu}, illustrates a blocking effect which dissatisfies whatever locality conditioning is at play. As for (13a) on Chung’s (2007a) account, it can be said that the trigger and target are not structurally adjacency enough to arouse suppletion due to the intervening element, [+caus]. In other words, fusion cannot take effect. Hence, the significance of locality conditioning comes to light as well-formed realizations must be distinguished from the ones that are ill-formed prior to Vocabulary Insertion at PF. Otherwise, the computation during VI runs counter to the expected results.

Complication to locality conditioning appears when the three-way suppletive allomorphy, namely, \text{iss} ‘to exist’, \text{eps} ‘to not exist’, and \text{kyey} ‘to exist.HON’, is given consideration. So as to provide an explanation for such complication, Chung (2009) suggests that the well-formedness of \text{an kyey-si} (NEG \text{\sqrt{EXIST-HON}}, ‘to not exist.HON’) is derived from the following (post)syntactic procedure:

\begin{equation}
\text{(14) Structure for an-kyey-si- (NEG-\sqrt{EXIST-HON-}) during VI}
\end{equation}

\begin{itemize}
\item[(a)] \quad \text{Neg} \quad \text{Hon} \\
\quad [+\text{neg}] \quad \text{[EXIST]} \\
\item[(b)] \quad \text{Hon} \\
\quad \text{Neg} \quad \text{V} \quad \text{[+hon]} \\
\quad [+\text{neg}] \quad \text{kyey/} \\
\item[(c)] \quad \text{Hon} \quad \text{Neg} \\
\quad \text{V} \quad \text{[+hon]} \\
\quad /\text{am()}/ \quad \text{kyey/}
\end{itemize}

\text{Chung (2009)}

Cited from Chung (2009), (14c) illustrates the limits that the mechanism of structural locality faces when the three-way suppletive allomorphy is given consideration. That is, the feature, [+hon], is able to trigger suppletive honorification of \text{kyey} ‘to exist.HON’ subsequently preventing the feature, [+neg], from triggering suppletive negation of \text{eps} ‘to not exist’, which clearly contradicts the way that the structure is constructed in (14a). With the attempt of presenting an adequate solution, Chung (2009) introduces the concept of c-command requirements which is utilized for triggering and preventing suppletion prior to the realization of phonological forms. The gist of the proposal is as follows:

\begin{equation}
\text{(15) Vocabulary Items for } \sqrt{\text{EXIST}}
\end{equation}

\begin{align*}
\sqrt{\text{EXIST}} & \leftrightarrow \text{kyey} \quad \text{when c-commanded by } [+\text{hon}] \\
& \leftrightarrow \text{eps} \quad \text{when c-commanded by } [+\text{neg}] \\
& \leftrightarrow \text{iss}
\end{align*}

However, Choi & Harley (2016, 2017) present a different view on the given phenomenon which works in favor of structural locality. According to their analysis, the location of the triggers, [+neg] and [+hon], are not in accordance with what is illustrated in (14). Instead, further precision is added to the structure built in narrow and post syntax by situating the trigger, [+hon], in a relatively more local position than the feature, [+neg]. Such analysis adopts the morphosyntactic operation referred to as node sprouting which enables the honorific feature, [+hon], to be realized closer to the target, \sqrt{\text{EXIST}}, than [+neg] within the v domain. The structure that Choi & Harley (2017) propose is shown below in (16) where node sprouting takes place on the head of \(v^0\):
With the arguments suggested thus far, this paper demonstrates that locality conditioning for suppletion paves way for a reasonable explanation on the motivation as well as the prevention of suppletion within Korean serial verb constructions (SVCs). Up to this point, no previous work utilizing the framework of Distributed Morphology has given an encompassing analysis on the (in)applicability of suppletive passivization, negation, and honorification within Korean SVCs. In light of observing the interaction between SVCs and suppletion, further discussion continues in the following section.

4. Suppletive allomorphy within verb serialization

By adopting the general framework of Distributed Morphology (Halle & Marantz 1993), this work demonstrates that the realization of suppletive allomorphy within serial verb constructions (SVCs) in Korean is highly sensitive to structural locality even within a complex head (\(v^o\)-\(v^\circ\)-\(C^0\)) formed via head movement. According to previous literature investigating Korean suppletion (Chung 2007a, 2007b, and 2009; Choi & Harley 2017; and Kim & Lee 2017 among others), the verbs, \(tta\) ‘to hit’, \(al\) ‘to know’, and \(mek\) ‘to eat’, have their suppletive forms, \(mac\) ‘to be hit’, \(mol\) ‘to not know’, and \(capsw\) ‘to eat (honorific)’, which are respectively conditioned by passivization, negation, and honorification in Korean.

\[\begin{align*}
(17) & \quad \sqrt{\text{HIT}} & \leftrightarrow & & mac & / & \_\_\_\_ & [+\text{pass}] \\
& & & & tta\ & / & \text{elsewhere} \\
& \quad \sqrt{\text{KNOW}} & \leftrightarrow & & mol & / & [+\text{neg}] & \_\_\_\_ \\
& & & & al & / & \text{elsewhere} \\
& \quad \sqrt{\text{EAT}} & \leftrightarrow & & capsw & / & \_\_\_\_ & [+\text{hon}] \\
& & & & mek & / & \text{elsewhere}
\end{align*}\]

Nevertheless, further elaboration is inevitable for additional implications arise when profound considerations are given to serial verb constructions (SVCs). Within Korean SVCs, there exist cases in which suppletive allomorphy of the verbs listed in (17) are (in)applicable due to the (dis)satisfaction of structural adjacency motivated by the internal \(v^i\) head situated between the trigger and the target of suppletion. In line with such analysis, this work scrutinizes suppletive passivization, negation, and honorification in further detail.

4.1. Suppletive passivization within SVCs

Suppletive allomorphy of the verb, \(mac\) ‘to be hit’, is not applicable when there is a consecutive SVC verb selecting the eci-type of passive morpheme which is neither local nor viable to the single verbal root, \(\sqrt{\text{HIT}}\).
(18) a. Inwu-ka Cinha-eyuyhay maca-Ø PASS-cwuk-Ø PASS-ess-ta
   Inwu-NOM Cinha-by hit-PASS-die-PASS-PST-DECL
   ‘Inwu was hit and was killed by Cinha.’
b. Inwu-ka Cinha-eyuyhay ttaylie(*maca)-nwup-hi-eci-ess-ta
   Inwu-NOM Cinha-by hit-lie-CAUS-PASS-PST-DECL
   ‘Inwu was hit and was lain by Cinha.’

Similar to the SVC structure, cap-hi(e)-ka- ‘to be taken in (√GRAB-[+pass]-√GO-)’, the structure, mac(a)-Ø PASS-cwuk-Ø PASS, in (18a) hosts a passive morpheme within its internal $v_1^o$ domain which satisfies a structural account of locality conditioning between the trigger, [+pass], and target, √HIT, of suppletion. However, the SVC in (18b) undergoes passivization via inserting the eci-type morpheme beyond the scope of the internal $v_1^o$ domain which dissatisfies locality conditioning. Here, the possibility of inserting Ø PASS in the internal $v_1^o$ domain is ruled out, since the null passive morpheme, Ø PASS, patterns with the i/hi/li/ki-type of passive morpheme but not with the e/a ci-type (Kim & Lee 2017).

Interestingly, however, when the SVC, ttaylie-nwup-hi-eci-, in (18b) is separated into two sentence structures which respectively convey the passivized action of ‘being hit’ and ‘being lain’, the realization of the suppletive form, mac ‘to be hit’, surfaces as shown in (19a).

(19) a. Inwu-ka Cinha-eyuyhay mac(*ttayli)-Ø PASS-ass-ta
   Inwu-NOM Cinha-by hit-PASS-PST-DECL
   ‘Inwu was hit by Cinha.’
b. Inwu-ka Cinha-eyuyhay nwup-hi-eci-ess-ta
   Inwu-NOM Cinha-by lie-CAUS-PASS-PST-DECL
   ‘Inwu was lain by Cinha.’

(19a) and (19b) illustrate the notion that the null passive morpheme, Ø PASS, may appear when the eci-type morpheme is absent. The realization of the covert morpheme, Ø PASS, in turn, triggers the allomorphy of the verb, mac. Evidently, a mismatch between the forms, ttayli and mac, is detected when the SVC in (18b) is compared to the verbs presented in (19a) and (19b). To be more specific, while the interpretative readings of (19a) and (19b) compositionally add up to create the interpretation conveyed in (18b), the forms simply do not. From what has been demonstrated so far, it only seems plausible to assert that the eci-type passive morpheme takes effect over the whole SVC, ttaylie-nwup-hi-, in (18b), which disenables the null passive morpheme, Ø PASS, from participating in triggering passivization. Hence, the lack of the suppletive trigger, Ø PASS, prevents the target, mac ‘to be hit’, from being realized. Consider the following data summarizing the (in)applicability of suppletive passivization:

(20) | The presence of [+pass] in $v_1$ | The absence of [+pass] in $v_1$ |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(18a) $[\sqrt{v_2[v_2]\sqrt{v_1}[\sqrt{mac}]\sqrt{v_1}}\sqrt{0}PASS\sqrt{0}cwuk]\sqrt{0}PASS]$</td>
<td>(18b) $[\sqrt{v_1}\sqrt{v_2[v_2]}\sqrt{v_1}[\sqrt{ttaylie}]nwup]\sqrt{hi}\sqrt{eci}$</td>
</tr>
</tbody>
</table>

4.2. Suppletive negation within SVCs

By adopting Neg$^o$-to-$v^o$ cliticization suggested by Han & Lee (2007), this work claims that the realization of the suppletive verb, molu ‘to not know’, within SVCs depends on whether the negative feature, [+neg], is cliticized onto the internal $v_1^o$ element or to the
external \( v_2^o \) element. For additional data on al(a)/moll(a)-type SVCs, refer to Lee (2008).

(21) a. Cinha-ka Inwu-uy maum-ul \( \overline{\text{NEG}} \) molla-cwu-ess-ta
    Cinha-NOM Inwul-GEN heart-ACC NEG know-give-PST-DECL
    ‘Cinha did not understand Inwu’s feelings.’

   b. Cinha-ka Inwu-uy maum-ul an ala(*molla)-cwu-ess-ta
    Cinha-NOM Inwul-GEN heart-ACC NEG know-give-PST-DECL
    ‘Cinha did not understand Inwu’s feelings.’

(22) a. Cinha-ka Inwu-lul \( \overline{\text{NEG}} \) molla-po-ass-ta
    Cinha-NOM Inwul-ACC NEG know-see-PST-DECL
    ‘Cinha could not recognize Inwu.’

   b. Cinha-ka Inwu-lul mos ala(*molla)-po-ass-ta
    Cinha-NOM Inwul-ACC NEG know-see-PST-DECL
    ‘Cinha could not recognized Inwu.’

In light of such finding, this paper suggests that the suppletive realization of the SVC, molla-cwu-, in (21a) is possible through Neg\( ^o \) cliticization to the internal \( v_1^o \) domain where the verbal root, \( \sqrt{\text{KNOW}} \), is structurally adjacent enough to see [+neg] and participate in suppletive allomorphy. On the contrary, the inapplicability of suppletion for an ala(*molla)-cwu- in (21b) is due to the absence of [+neg] in the internal \( v_1^o \) domain. To compensate for such absence, Neg\( ^o \) cliticization takes place in the external \( v_2^o \) domain or possibly even beyond the given scope. This, in turn, distances the trigger, \( \sqrt{\text{KNOW}} \), away from the target, Neg\( ^o \), which disallows suppletion from taking effect. The same line of argument holds true for the distinction between (22a) and (22b). Further note that the semantic dissimilarity between molla-po- in (22a) and mos ala-po- in (22b) comes to light when certain adverbs are additionally realized. Consider the following data illustrating a difference in scope:

(23) a.*Cinha-ka ku posek-uy cinka-lul hwaksilhi
    Cinha-NOM that jewel-GEN true.value-ACC clearly
    \( \overline{\text{NEG}} \) molla-po-ass-ci.man enujengto-nun ala-po-ass-ta
    NEG know-see-PST-but somewhat-FOC know-see-PST-DECL
    ‘Though Cinha clearly did not recognize the true value of that jewel, he did somewhat recognize it.’ (*Neg > Adv) / (Adv > Neg)

   b. Cinha-ka ku posek-uy cinka-lul hwaksilhi
    Cinha-NOM that jewel-GEN true.value-ACC clearly
    mos ala-po-ass-ci.man enujengto-nun ala-po-ass-ta
    NEG know-see-PST-but somewhat-FOC know-see-PST-DECL
    ‘Though Cinha did not clearly recognize the true value of that jewel, he did somewhat recognize it.’ (Neg > Adv) / (Adv > Neg)

(23b) contrasts with (23a) in terms of scope ambiguity, since only the former may host an interpretation which allows Neg to take wide scope over the adverb, hwaksilhi ‘clearly’. This nicely captures the notion that Neg in (22b) and (23b) is projected well beyond the internal \( v_1^o \) domain and possibly near the external \( v_2^o \) domain where scope ambiguity between Neg and the adverb can be calculated depending on the derivational process of syntax. As opposed to (23b) showing scope ambiguity, (23a) only hosts a single reading in which the adverb takes wide scope over Neg. Following the logic revealed thus far, this would indicate that the
cliticization of Neg in (22a) as well as (23a) does not take place in the upper $v_2^o$ layer, but rather in the internal $v_1^o$ projection where ambiguity due to scoping effect is not at risk. Surely, such analysis explains why suppletive allomorphy of *molla* is observed in (23a), but not in (23b). Simply put, the internal $v_1^o$ domain in (23a) hosts both the target, $\sqrt{\text{KNOW}}$, and the trigger, $[+\text{neg}]$, which gives rise to suppletion obeying structural locality, whereas the internal $v_1^o$ domain in (23b) does not due to the realization of the trigger, $[+\text{neg}]$, in the external $v_2^o$ domain or perhaps even beyond. The following data illustrates the structural differences of SVCs in (21) and (22) depending on where $[+\text{neg}]$ is realized.

<table>
<thead>
<tr>
<th>Presence of $[+\text{neg}]$ in $v_1$</th>
<th>Absence of $[+\text{neg}]$ in $v_1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(21a) $[v_2^v \neg = v_1 \Omega_{\text{NEG}}[[v_1 \text{molla}]] \text{cwu}]$</td>
<td>(21b) $[\neg = v_2 \text{an}[[v_1 \sqrt{\text{ala}}] \text{cwu}]$</td>
</tr>
<tr>
<td>(22a) $[v_2^v \neg = v_1 \Omega_{\text{NEG}}[[v_1 \text{molla}]] \text{po}]$</td>
<td>(22b) $[\neg = v_2 \text{mos}[[v_1 \sqrt{\text{ala}}] \text{po}]$</td>
</tr>
</tbody>
</table>

### 4.3. Suppletive honorification within SVCs

According to Park (2014), the morphosyntactic structures of verb serializations conveying idiomatic interpretations are distinct from fully compositional SVCs as the former lacks a full-fledged internal $v_1^o$ element, whereas the latter does not. Such analysis gains additional support when the (in)applicability of suppletive honorification is examined. In line with Choi and Harley (2017) on the notion that the honorific feature, $[+\text{hon}]$, in Korean may be realized within the $v$ projection (here, $v_2^o$), this work claims that $[+\text{hon}]$ along with its morphosyntactic effects on Korean verbal allomorphy (e.g., suppletion) presents crucial evidence in determining whether the (un)availability of suppletion is sensitive to the presence of a well-developed internal $v_1^o$ element.

#### 4.3.1. Semantic compositionality

Park (2014) claims that there are two types of verb serialization in Korean which are compound verb constructions and serial verb constructions. Between the two, the type of serialization which conveys an idiomatic interpretation is referred to as compound verbs. Such compound verb constructions show little or no semantic compositionality as opposed to serial verb constructions.

(25) a. Cinha-ka kwukpap-ul mal(a)-mek-ess-ta
   Cinha-NOM soup.rice-ACC mix-eat-PST-DECL
   ‘Cinha mixed and ate the rice soup.’ (literal)

 b. Cinha-ka saep-ul mal(a) mek-ess-ta
   Cinha-NOM business-ACC mix-eat-PST-DECL
   ‘Cinha ruined the business.’ (idiomatic)

The compound verb construction, *mal(a)-mek-* ‘(id.) to ruin something’, in (25b) conveys an idiomatic interpretation which distinguishes itself from the serial verb construction, *mal(a)-mek-* ‘to mix and eat’, in (25a) which can only host a literal interpretation. This, in turn, suggests the notion that the compound verb in (25b) is semantically non-compositional, whereas the serial verb in (25a) is semantically compositional. In this view, semantic compositionality provides one of the many apparent motivations for the classification of verb serialization in Korean.
4.3.2. Morphosyntactic compositionality

More significantly, the distinction between compound and serial verb constructions can be explained through their dissimilar morphosyntactic compositionality. In fact, this work goes beyond Park (2014) and suggests that morphosyntactic compositionality of verb serialization can be attested by utilizing the honorific feature, [+hon], licensed within the Korean verbal morphology via feature sharing (see Kim & Chung 2015, Choi & Harley 2017).

(26) a. halapeci-kkeyse kwukpap-ul mal(a)-capswu-si-ess-ta
grandfather-HON soup.rice-ACC mix-eat-HON-PST-DECL
   ‘Grandfather mixed and ate the rice soup.’ (literal)
b. halapeci-kkeyse saep-ul mal(a)-meku(*capswu)-si-ess-ta
grandfather-HON business-ACC mix-eat-HON-PST-DECL
   ‘Grandfather ruined the business.’ (idiomatic)

(27) a. halapeci-kkeyse ppangcokak-ul tteye-capswu-si-ess-ta
grandfather-HON bread.piece-ACC rip-eat-HON-PST-DECL
   ‘Grandfather ripped and ate the piece of bread.’ (literal)
b. halapeci-kkeyse hoysadon-ul tteye-meku(*capswu)-si-ess-ta
grandfather-HON company.fund-ACC rip-eat-HON-PST-DECL
   ‘Grandfather embezzled the company fund.’ (idiomatic)

The morphological realizations of mal(a)-capswu-si- in (26a) and tteye-capswu-si- in (27a) are certainly possible for SVCs which are sensitive to morphosyntactic compositionality, whereas it is not for the verb constructions shown in (26b) and (27b). Here, verb serializations such as mal(a)-mek- ‘(id.) to ruin something’ and tteye-mek- ‘(id.) to embezzle something’ are cases of idioms where the sequence of the verbal roots, √1 and √2, are strongly attached to each other without the presence of a full-blown internal v1 head (Park 2014).5

Thus, the inapplicability of suppletive honorification in (26b) as well as (27b) follows easily, since the trigger, [+hon], in the external v2 head is unable to see the independent target, √EAT, for it only has access to the components, √RIP-√EAT, as a whole. Consider the data provided below:

(28)

<table>
<thead>
<tr>
<th>The presence of a full-fledged v1</th>
<th>The absence of a full-fledged v1</th>
</tr>
</thead>
<tbody>
<tr>
<td>(26a) [v2[v1[mala]capswu]si]</td>
<td>(26b) [v2[v1[mala]meku]si]</td>
</tr>
<tr>
<td>(27a) [v2[v1[ttteye]capswu]si]</td>
<td>(27b) [v2[v1[ttteye]meku]si]</td>
</tr>
</tbody>
</table>

The discussion presented in this section on suppletive passivization (e.g., mac / ttayli), suppletive negation (e.g., molu / al), and suppletive honorification (e.g., capswu / mek) within multiple verb constructions in Korean can be simplified as below:

5 According to Chae (2016), certain idiomatic VV compound verbs allow a few morphological delimiters such as to ‘also’ between the initial verb component and the secondary verb component. However, due to the limited number of possible inflections, this paper does not fully consider the internal v1 head hosting delimiters as being entirely mature. In other words, it is restrictive in usage. At any rate, the existence of a deficient v1 head should not be considered as a complete v1 which introduces suppletive allomorphy for SVCs.
(29) Suppletive passivization

\[ \sqrt{\text{HIT}} \leftrightarrow \text{mac} \ (18a) / \text{ttayli} \ (18b) \]

\[
\begin{array}{c}
\text{Voice}\circ \\
\downarrow \\
v_2^o \quad \text{Voice}\circ \\
\downarrow \\
v_2 \quad \rightarrow \text{suppletion unavailable} \\
\downarrow \\
v_1 \quad \rightarrow \text{suppletion available} \\
\downarrow \\
\sqrt{\text{HIT}} \ (18a) \ [+\text{pass}] \\
\end{array}
\]

(30) Suppletive negation

\[ \sqrt{\text{KNOW}} \leftrightarrow \text{molu} \ (22a) / \text{al} \ (22b) \]

\[
\begin{array}{c}
\rightarrow \text{suppletion unavailable} \\
\downarrow \\
\text{(22b) (neg}^o=\text{)} \ v_2^o \\
\downarrow \\
\rightarrow \text{suppletion available} \\
\downarrow \\
\sqrt{\text{KNOW}} \\
\end{array}
\]

(31) Suppletive honorification

\[ \sqrt{\text{EAT}} \leftrightarrow \text{capswu} \ (26a) / \text{mek} \ (26b) \]

\[
\begin{array}{c}
supertion unavailable \\
\leftarrow \\
\text{(26b) } v_1 \\
\rightarrow \text{suppletion available} \\
\end{array}
\]

\[
\begin{array}{c}
\rightarrow \text{suppletion unavailable} \\
\downarrow \\
v_2^o \\
\downarrow \\
v_2 \\
\downarrow \\
v_1 \\
\rightarrow \text{suppletion available} \\
\end{array}
\]
5. Conclusion

This paper adopted the framework of Distributed Morphology (Halle & Marantz 1993) and demonstrated that there exist cases in Korean serial verb constructions (SVCs) or multiple verb constructions where suppletive passivization, negation, and honorification are (un)available. With the attempt of providing an adequate explanation for the cases showing the (in)applicability of suppletion, we directed our attention towards the morphosyntactic role of the internal \( v_1^o \) element. Consequently, this work verified that verb serialization in Korean has to obey structural locality in order to trigger suppletive allomorphy even within a single complex head derived via head movement. In other words, it has been demonstrated that the determining factor for the (in)applicability of suppletion boils down to the presence of an internal \( v_1^o \) which may host morphosyntactic features such as [+pass] and [+neg]. All in all, depending on whether locality conditioning is structurally satisfied or not by \( v_1^o \), the (in)applicability of suppletive passivization, negation, and honorification of Korean SVCs follows naturally.

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Abstract

This paper investigates four particles in Mayrinax Atayal from a phonological perspective. The four particles are ga’ ‘evaluative particle (EVA-part)’, quw ‘yes-no particle (Q-part)’, pisa’ ‘A-not-A particle (ANA-part)’ and qi’ ‘affirmative particle (AFF-part)’, and they appear in sentence-final and non-sentence-final positions. The different positions of the particles have been attributed to XP movement from a syntactic aspect. The particles are heads of MoodP, and other XPs are moved to fulfill syntactic requirement. However, according to phonetic realizations, the particles should be treated as clitics, simultaneously attaching to hosts when syntax is operated.

1. Introduction

In Atayal, a Formosan language, a particle can appear in a sentence-final position or in a sentence-middle position (Huang 1996, 2000, Huang and Wu 2016, Yu 2015), as shown in (1) and (2).¹

(1) a. m-aʔusaʔ=suʔ m-aniq
    [AF-go=2S.BN AF-eat ]
    ‘You are going to eat’

   b. m-aʔusaʔ=suʔ m-aniq quw
    [AF-go=2S.BN AF-eat Q ]
    ‘Are you going to eat?’

   From Huang (1996: 265)

In (1), the particle quw is a yes-no question marker, usually appearing finally (1b). The intonation is rising in the end. In addition to (1), the particle quw can be in an alternative question as well. In this situation, it appears in a sentence-middle position, as in (2).

(2) pa-qaniq=suʔ quw yaʔ pa-qilaap=suʔ
    [Fut.AF-eat=2S.BN Q Top Fut.AF-sleep=2S.BN]

¹ The gloss in the paper is as follows: AF = agent focus, AFF = affirmative, ANA = A-not-A, AV = agent voice, BN (Ben) = beneficiary, EVA = evaluative, G = genitive, Lnk = linker, Loc = locative, NOM = nominative, Part = particle, Perf = perfective, PV = patient voice, Q = question particle, Top = topic marker, Fut = future, 2S = second person singular.
‘Will you eat or sleep?’

From Huang (1996: 266)

According to Huang (1996), the question particle quw always concurrently occurs with a topic marker, ţaʔ, in a sentence-middle position. According to Huang and Wu (2016), the intonation is rising in the middle position on the topic marker, while it is falling in the end.

Similar phenomena concerning the different positions of particles are also observed in C’uli Atayal. Kao (2010) suggests that particles have two positions: sentence-final or non-final, as in (3).

(3) a. ima sogan m-usa yatux pi
   who willing AF-go top PRT
   ‘Who wants to go to the top (of something)?’

b. ima pi sogan m-usa yatux
   who PRT willing AF-go top
   ‘Who wants to go to the top (of something)?’

From Kao (2010: 73)

The different positions of particles in Atayal have been syntactically analyzed (Kao 2010 for C’uli Atayal and Yu 2015 for Mayrinax Atayal). In the syntactic analyses, there are certain restrictions for particle movement. For example, particles like quw ‘yes-no particle (Q-part)’ cannot appear in an embedded clause (Yu 2015).

This paper adopts a phonological perspective and argues that the syntactic analyses of the particles are incomplete. When phonology is taken into account, the particle movement is treated as cliticization other than head movement. The phonological analysis allows more room for the movement, especially when adjunct is included. This paper focuses on four particles in Mayrinax Atayal: ga’ ‘evaluative particle (EVA-part)’, quw ‘yes-no particle (Q-part)’, pisa’ ‘A-not-A particle (ANA-part)’ and qi’ ‘affirmative particle (AFF-part)’. To provide more syntactic and phonological details of the particles, section 2 discusses the syntactic structures of the particles, and section 3 shows phonetic evidence. According to the phonetics, I suggest that particle movement is cliticization in section 4. Finally, section 5 concludes this paper.

2. Syntactic analyses of particles

The fact that a particle can appear in more than one position in a sentence is not limited to question marker. Yu (2015) has investigated four particles in Mayrinax Atayal: ga’ ‘evaluative particle (EVA-part)’, quw ‘yes-no particle (Q-part)’, pisa’ ‘A-not-A particle (ANA-part)’ and qi’ ‘affirmative particle (AFF-part)’, as shown in (4).

(4) a. m<in>’uwah cuhisa’ ‘i’ Watan ga’
   AV<Perf>come yesterday NOM Watan EVA-Part
   ‘It’s true that Watan came yesterday.’

b. m<in>’uwah cuhisa’ ‘i’ Watan quw?
   AV<Perf>come yesterday NOM Watan Q-Part
   ‘Is it the situation that Watan came yesterday?’
In (4), all the particles appear finally. Likewise, the particles can appear in the middle position, as in (5).

(5) a. m‘in>‘uwah ga’ cuhisa’ ‘i’ Watan
   AV<Perf>come EVA-Part yesterday NOM Watan
   ‘It’s true that Watan came yesterday.’

b. m‘in>‘uwah quw cuhisa’ ‘i’ Watan
   AV<Perf>come Q-Part yesterday NOM Watan
   ‘Is it the situation that Watan came yesterday?’

c. m‘in>‘uwah pisa’ cuhisa’ ‘i’ Watan
   AV<Perf>come ANA-Part yesterday NOM Watan
   ‘Is it the situation or not that Watan came yesterday?’

d. m‘in>‘uwah qi’ cuhisa’ ‘i’ Watan
   AV<Perf>come AFF-Part yesterday NOM Watan
   ‘I’m sure and remind you that Watan came yesterday.’

From Yu (2015: 132-133)

According to Yu (2015), the particles appear after the matrix verb minu ‘uwah ‘has come’ when they are in the middle position.

The different positions of particles in (4) and (5) are considered XP movement. (6) shows the tress for the movement (Yu 2015).

(6) a. (4d)

\[
\text{Mood}^{\text{AFF}} \land \\
\text{Mood}^{\text{AFF}} \land \\
\text{qi’} \quad \text{TP}_1
\]

b. (5d)

\[
\text{Mood}^{\text{AFF}} \land \\
\text{Mood}^{\text{AFF}} \land \\
\text{qi’} \quad \text{TP}
\]

Yu (2015) assumes a Mood phrase (MoodP) with the particle qi’ as its head. The upward movement is triggered by the particle (head). TP in (6a) is moved to the Spec; vP in (6b)
which undergoes predicate-fronting (Yu 2015: 140) is initially moved to [Spec TP] and then to the Spec of MoodP.

The structure in (6), however, does not deal with adjunct, namely, the temporal adverb cuhisa’ ‘yesterday’. Furthermore, the structure (6) does not predict the grammaticality of (7) below.

(7) m<in>’uwah cuhisa’ qi’ ’i’ Watan AV<Perf>come yesterday AFF-Part NOM Watan

‘I’m sure and remind you that Watan came yesterday.’

In (7), the adjunct shows up between the matrix verb and the particle after vP movement (6b). In this paper, I argue that (7) is a grammatical sentence based on my fieldwork. I also suggest that the particles undergo cliticization from a phonological perspective, as they attach to the hosts. In section 3, I show the phonetic realizations of the particles in different positions, and in section 4, I suggest that cliticization accounts better for the different positions of particles.

3. Phonetic realizations of particles

This section shows the phonetic realizations of the four particles in Mayrinax Atayal: ga’ ‘evaluative particle (EVA-part)’, quw ‘yes-no particle (Q-part)’, pisa’ ‘A-not-A particle (ANA-part)’ and qi’ ‘affirmative particle (AFF-part)’. There are three positions for the particles: final position as in (3), the one after matrix verb as in (4), and the one after adjunct as in (7).

The phonetic realizations of the four particles in the three positions are arranged in the following order. The first is the one when the particle appears finally, and the second is the one when the particle immediately follows matrix verb min’uwah ‘has come’. The third is the one when the particle comes after the temporal adverb cuhisa’ ‘yesterday’.

(8) shows the three phonetic realizations of particle ga’ ‘evaluative particle (EVA-part)’ in three positions. Valley is indicated by a red arrow.

(8) a. (final position)

b. (after verb)
The three phonetic realizations of particle *quw* ‘yes-no particle (Q-part)’ are shown in (9).

(9) a. (final position)
b. (after verb)

The three phonetic realizations of particle *pisa* ‘A-not-A particle (ANA-part)’ are shown in (10).

(10) a. (final position)
The three phonetic realizations of particle *qi* ‘affirmative particle (AFF-part)’ are shown in (11).

(11) a. (final position)
b. (after verb)

In (8) - (11), the pitch valley is in the sentence-final position when the particles appear finally. When the particles appear after matrix verbs, another valley emerges in the middle position. This is observed after monosyllabic particles ga′, quw and qi′. Note that the pitch of the disyllabic particle pisa′ is not necessarily low to show another valley in (10b).

Besides the low pitch introduced by the monosyllabic particles, the phonetic realizations of the four particles reveal that there is a larger pause (gap) between the particle and the temporal adverb than that between the particle and the matrix verb. This issue is discussed in section 4 from sister and non-sister (Kaufman 2010).

4. Phonological representations of particles

According to the phonetic realizations in section 3, there is a valley when the particle appears finally. It is also possible to have another valley when the particle appears after the matrix verb min′uwah ‘has come’, especially for monosyllabic particles. The valley indicates an edge of a phonological phrase. Either in the final position or after the matrix verb, the right edge of a particle corresponds to a boundary of an XP. For example, the three examples in (11) differ in the number of phonological phrases, repeated in (12) (PhP = phonological phrase).
If we take the syntactic analysis in (6) into consideration, there are several inconsistencies between syntax and phonology. First, there is one phonological phrase in (12a), which involves TP movement in (6a). Within the phonological phrase, TP movement does not change the mapping of MoodP and phonological phrase. In (12b), nevertheless, there are two phonological phrases. When the vP is moved leftward to the Spec (6b), the particle qi’, the head of MoodP, is left dangling between vP and TP. Given that the first phonological phrase in (12b) contains the matrix verb and the particle, this phonological
phrase cannot match any phrase in (6b). The boundary must be marked before the TP. Regarding the phonological phrases in (12c), the particle qi’ is grouped together with the preceding adverb. Although there is no valley after the adverb, a boundary is still marked after the particle. This is because there is a contour change between the particle and the following NP. Thus, there are two phonological phrases in (12c).

Unlike the syntactic analyses in (6) appealing to XP movement, the different positions of the particles in Mayrinax Atayal can be accounted for from phonology. There are two alternative theories: phonological head movement (Zwart 2001) and cliticization (Kaufman 2010). This paper argues that the particle movement in Mayrinax Atayal is better accounted for by cliticization other than by head movement with a spell-out procedure at PF.

The phonological head movement (Zwart 2001) is a syntax-related approach, which from a phonological perspective resembles that in (6), shedding light on moving XP. It appeals to spelling out the head at PF, verb movement in particular. If we compare the phonological representations of (12a) and (12b) with the tree structure in (6), there is no significant difference between the syntactic XP movement and phonological head movement. XP can be moved (head can be spelled out), but movement does not conform to the phonetic realizations and overtly indicate any phonological phrase. Then, we turn to the phonological representation in (12c). XP (or head) movement becomes insufficient when the temporal adverb cuhisa’ ‘yesterday’ is taken into consideration. As an adjunct, the adverb does not involve any movement, making it difficult to obtain the output (12c) that the particle attaches to the adverb within a phonological phrase.

The other approach is cliticization (Kaufman 2010). The monosyllabic particles in Mayrinax Atayal are treated as clitics, which attach to hosts within an XP. For example, when the particle ga’ which appears finally in (8a) cliticizes into the preceding NP “i’ Watan”. The output has only one phonological phrase matching the syntactic MoodP. When appearing after the matrix verb min’uwah ‘has come’ or after the adverb cuhisa’ ‘yesterday’, the particle cliticizes to the preceding XP as well. With cliticization, the boundary of the XP is enlarged by the particle, and another phonological phrase is created.

Cliticization outweighs phonological head movement, which does not necessarily create a corresponding phonological phrase. One fact is neglected in the syntactic analyses. As the syntactic structures in (6) do not pay specific attention to adjunct, Yu (2015) forsakes the possibility that the particles can appear after the temporal adverb cuhisa’ because the adverb is only an adjunct. There is a merit in the phonological analysis. That is, cliticization does not check the internal structure but look only into the host. Wherever there is a host, there is cliticization of the particles, as shown in (13).

(13)  min’uwah (qi’) cuhisa’ (qi’) ’i’ Watan (qi’)

Before we leave this section, one issue deserves discussion. As indicated by the phonetic realizations in section 3, the particles after the temporal adverb cuhisa’ ‘yesterday’ are more detached than after the matrix verb or in the final position. The fact suggests that the particles behave differently as sister clitics and non-sister clitics (Kaufman 2010: 111). When a particle is within a vP or under S, it is a sister clitic; when a particle is outside of a vP or adjacent to adverbials, it is a non-sister clitic. The phonetic realizations have shown that the particles are more detached from the temporal adverb cuhisa’ than from the matrix verb (= within vP). In
other words, the particles after the matrix verb are sister clitics, but they are non-sister clitics after the adverb. The particles are also sister clitics when they are in the final position.

5. Conclusion

This paper has re-examined the behaviors of four particles in Mayrinax Atayal from a phonological perspective with phonetic evidence. The results do not reject the syntactic analyses (Yu 2015) but provide another angle to look into the particles. In Yu (2015), the four particles appear in two positions: after the matrix verb and in the final position. In this paper, the four particles appear in a new position: after the adverb. When the particles are in the middle positions, there is a new phonological phrase. According to the phonetic realizations in section 3 and the phonological representations in section 4, this paper suggests that the particles can appear in different positions due to cliticization.

Although this paper bases the arguments on the phonetic realizations and phonological representations, syntactic analyses are not completely ignored. According to my fieldwork, when a sentence becomes complex, such as embedded clauses, it is observed that the four particles are allowed only in embedded clauses, as in (14).²

(14) a. tal-an ru’ m<in>’uwah ku’ pa-qliq quw?
   look-PV Lnk AV<Perf>come NOM thief Q-part
   ‘Is it the case that it looks like that the thief has come?’

b. *tal-an quw ru’ m<in>’uwah ku’ pa-qliq?
   look-PV Q-part Lnk AV<Perf>come NOM thief

Although the particle quw appears after the matrix verb tal-an ‘look-PV’, (13b) is ungrammatical because the particle quw appears in the matrix clause. It is so far not clear what the restriction is for the particles in complex sentences. The restriction needs more discussion in the future.

References

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² Yu (2015) suggests that the example in (i) is ungrammatical.

(i) *tal-an ru’ m<in>’uwah quw ku’ pa-qliq?
   look-PV Lnk AV<Perf>come Q-part NOM thief
   ‘Is it the case that it looks like that the thief has come?’

When the particle appears in the embedded clause, the sentence is ungrammatical. Yu’s (2015) analysis predicts (14) to be legitimate. Nevertheless, according to my fieldwork, example (i) is grammatical, but (14) is ungrammatical. What the exact restriction is left for future research.
Embedded Existential Constructions in Mandarin Chinese: an alternative view

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0. Introduction

The Definiteness Effect (DE) in Existential Constructions (ECs) has been widely acknowledged and discussed since Milsark's 1974 distinction between weak and strong determiners. Only weak determiners (such as a, some, many and cardinals) are allowed to occur in ECs, whereas strong determiners (such as all, every, most; for Milsark, definite NPs such as the, this, that, pronouns are strong) are barred. In (1a), the post-copular noun phrase is referred to as the pivot, and the constituent that follows the pivot is called the coda\(^1\).

\[(1)\]
\[
a. \text{There is } [\text{pivot a book}] [\text{coda missing from the shelf}]. \quad \text{Chomsky 1995: 272}
\]
\[
b. \text{There are } [\text{pivot three dogs/some dogs/many dogs}] [\text{coda in the room}].
\]
\[
c. *\text{There is } [\text{pivot the dog/John's dog/that dog/he/every dog}] [\text{coda in the room}]. \quad \text{Milsark 1974}
\]


\[(2)\]
\[
A: \text{Is there anything to eat?}
B: \text{There is the leftover chicken from last night.}
\]

\[(3)\]
\[
A: \text{I guess we've called everyone.}
B: \text{No, there's still Mary and John.}\(^2\) \quad \text{Abbott 1993: 1993: 42, (4), (5)}
\]

\[(4)\]
\[
\text{Vaig anar a la festa i saps qui hi havia? Hi havia la Joana!}
\]
\[
\text{Aux-isg. Go to the party and know-2sg. who there was there was the Joan}
\]
\[
"I went to the party and do you know who there was? There was Joan!"
\]
\[
\text{Catalan, McNally 1997/1992: 128: (234)}
\]

Furthermore, ECs are also used to demonstrate the distinction between stage-level and individual-level predicates (sick, drunk, open vs. tall, intelligent, Carlson's 1977 labels): only stage-level predicates are found in the coda of there-constructions. This is called Predicate Restriction (PR) in the literature.

\(^1\) It's worth reminding that the term coda defined by Milsark 1974 (also in Barwise and Cowper 1981) refers to whatever follows the copula be in an existential sentence.

\(^2\) Hu & Pan 2002 studies ECs with a focus particle hai 'still' in Mandarin Chinese, similar to Abbott's example. In this paper, we don't discuss this type of ECs.
Embedded Existential Constructions in Mandarin Chinese

(5) There were [pivot people] [coda sick/*tall].  

Milsark 1974: 53

Turn to Mandarin Chinese. In root contexts, it is of no surprise to observe DE in you 'copula'-ECs, which are recognised by Huang 1987 as the closest counterpart to English ECs.

(6) you [pivot *Zhangsan/yi-ge ren] [coda zai zhaogu Lisi].  

Root clause

cop.  Zhangsan/one-Cl person  prog. take care Lisi

"there is Zhangsan/a person taking care of Lisi"

Interestingly, as observed by Audrey Li 1996, Mandarin Chinese allows definite pivots in certain syntactic contexts such as in the adjuncts clause headed by ruguo 'if' and suiran 'though', but not in the complement of bridge verbs (in addition to root clauses). She named the ECs with definite pivots D(efinite)-type ECs, and the ECs with indefinite pivots Ind(efinite)-type ECs.

(7) ruguo you [pivot Zhangsan] [coda zhaogu Lisi], ta yiding mashang keyi fuyuan.

If-clause

If  cop. Zhangsan care Lisi, he certainly immediately can recover.

'if there is Zhangsan takes care of Lisi, he can certainly recover immediately.'  

Li 1996: 178, (7b)

(8) *wo renwei/xiangxin you Zhangsan zai zhaogu Lisi

Bridge verb

I think/believe cop. Zhangsan prog. care Lisi

"I think/believe there is Zhangsan taking care of Lisi"  

Li 1996: 180, (14b)

She further notes that D-type ECs do not allow individual-level predicates (thus exhibiting PR), in contrast to Ind-type ECs which do not exhibit PR. This contrast is illustrated by the individual level predicate congming 'clever'.

(9) *suiran you Zhangsan hen congming, Li laoshi haishi bu gaoxing.

D-type ECs

though  cop. Zhangsan very clever Li teacher still neg. happy

"Though there is Zhangsan clever, Prof. Li is still not happy"

(10) suiran you liang-ge xuesheng hen congming, Li laoshi haishi bu gaoxing.  

Ind-type ECs

though cop. Two-Cl student very clever Li teacher still neg happy

"Though there are two students clever, Prof. Li is still not happy."

Why do DE and PR not hold in the embedded contexts for Chinese ECs? In this paper, we attempt to answer this question which in fact embed many other questions. The paper is structured as follows: in section 1, we start with reviewing the characterisation of the syntactic structures and the semantic differences of the two types of you 'copula'-ECs distinguished by Li 1996; in section 2, we show that D-type ECs distribute like DPs, and there is a subclass of i-level predicates that is possible in D-type ECs, pace Li 1996; besides, new data shed light on a richer structure in D-type ECs than proposed by Li 1996; in section 3, we critically review H.-H Chang's 2004 pragmatic account and Shyu's 2012 analysis based on Kuroda's 1972 judgement forms; in section 4, we propose that D-type ECs be DPs, with the copula you being in fact a D°; at last, we conclude in section 5.
1. Two types of *you* 'copula'-ECs

1.1 the anatomy of *you*-Existential Constructions (ECs)

Chinese *you*-ECs consists of the copula *you*, a noun phrase called the *pivot*, and a phrase following the pivot called the *coda*. They look like their English counterparts but without an expletive. *You*-ECs always have the copula *you*, which is often glossed as 'have, exist' in the literature. Li and Thompson 1981 claims that *you* can be an auxiliary or the type of verbs which do not take aspectual markers (such as *zai* 'be located at', *rang* 'let'). The sentence below illustrates Chinese *you*-ECs in root contexts, in which the Definiteness Effect (DE) is observed.

(6) you [pivot *Zhangsan/yi-ge ren] [coda zai zhaogu Lisi] 

"there is Zhangsan/a person taking care of Lisi"

However, detailed investigations on Chinese ECs reveal that they are more complicated than they appear to be at first glance.

1.2 Ind-type ECs and D-type ECs

Audrey Li 1996 made the important observation that there are two types of *you* 'copula'-ECs in Mandarin Chinese: the type of ECs with the copula *you* preceding an *indefinite* pivot is referred to as the Ind-type, while the type of ECs with the copula *you* preceding a *definite* pivot is referred to as the D-type. They occur in different contexts. In root clauses and in the complement of bridge verbs such as *renwei* 'think', *xiangxin* 'believe', *shuo* 'say', only Ind-type ECs can occur; by contrast, D-type ECs can only occur in certain embedded contexts such as in adjunct clauses headed by *ruguo* 'if', *yinwei* 'because', *suiran* 'though', *jiran* 'now that', *de shihou* 'when', and in sentential subject position.

(11) you Zhangsan zhaogu Lisi hen zhongyao. 

"It is important to have Zhangsan take care of Lisi."

Li 1996: 184

(12) suiran you Zhangsan zhihui jundui, women haishi shu le. 

"Though cop. Zhangsan lead army we still lose LE.

Li 1996 demonstrates that D-type ECs differ from Ind-type ECs syntactically and semantically. Syntactically, modals can occur between the pivot and the coda in Ind-type ECs but not in D-type ECs.

(13) a. Ruguo you yi-ge ren dei/yinggai/hui/neng lai … 

"if cop.one-Cl man must/should/will/can come …"
b. *ruguo you Zhangsan dei/yinggai/hui/neng lai …
   if    cop. Zhangsan must/should /will/can come …
   "if there is Zhangsan must/should/will/can come …"
   Li 1996: 178, (8)

The pivot and the coda can be separated by a causal expression headed by *yinwei*
"because/because of" (a sentence-level adverbial) in Ind-type ECs, but not in D-type ECs.

(14) a. ruguo you yi-ge ren [yinwei sili] qu zhaogu Lisi …
   if cop. One-Cl person because self-interest go care Lisi
   "if there is person go to take care of Lisi because of self-interest..."
   b. *ruguo you Zhangsan [yinwei sili] qu zhaogu Lisi …
   if cop. Zhangsan because self-interest go care Lisi
   "if there is Zhangsan goes to take care of Lisi because of self-interest..."
   Li 1996: 179, (10)

A *lian ... dou* 'even'-phrase, which is arguably situated in a clause-internal focus
position (Paul 2005, Badan & Del Gobbo 2015), is permitted to follow the pivot in Ind-type
ECs, but not in D-type ECs.

(15) a. ruguo you yi-ge ren lian Lisi dou zhaogu …
   if    cop. one-Cl person even Lisi all care …
   "If there is a person even takes care of Lisi …"
   b. *ruguo you Zhangsan lian Lisi dou zhaogu …
   if      cop. Zhangsan even Lisi all care …
   "if there is Zhangsan even takes care of Lisi …"   Li 1996: 179, (11)

Object preposing, in which an object is arguably preposed to a clause-internal topic
position (Paul 2005, Badan & Del Gobbo 2015), is possible in Ind-type ECs but not in D-type
ECs.

(16) a. ruguo you yi-ge ren Lisi zhaogu le …
   if    cop. one-Cl person Lisi care LE
   "if there is a person Lisi takes care of …"
   b. *ruguo you Zhangsan Lisi zhaogu le …
   if      cop. Zhangsan Lisi cares LE …
   "if there is Zhangsan Lisi takes care of …"   Li 1996: 179, (12)

These characteristics indicate that the elements between IP and vP are fine to occur in
Ind-type ECs, for which Li 1996 separates the coda from the pivot in (17a); by contrast, these
elements are barred from occurring in the positions between the pivot and the coda in D-type
ECs, Li 1996 therefore proposes a VP structure for the pivot-coda string, see (17b).

(17) a. [you NP] [IP/CP XP],    Ind-type ECs, + DE, - PR
   b. [you [VP NP XP ] ],      D-type ECs, - DE, + PR   Li 1996: 176
Li 1996 claims that the VP analysis of D-type ECs is supported by the ban on individual-level predicates in the coda position, if we assume Diesing's 1992 Mapping Hypothesis, according to which the subject of an individual-level predicate should occur outside VPs and the subject of a stage-level predicate occurs inside VPs. If D-type ECs have a VP structure, the pivot cannot be interpreted outside of VP with an individual-level predicate, yielding ungrammaticality, see (18).

(18) *Ruguo you Zhangsan hen congming, women jiu hui hen gaoxing.
If cop. Zhangsan very clever we then will very happy
"If there is Zhangsan clever, we will then be very happy" Li 1996: 182, (22)

Semantically, Li 1996 claims that Ind-type ECs assert the existence of an entity (denoted by the pivot), whereas the D-type ECs assert the existence of an event (denoted by the VP). Based on her syntactic structures, Li 1996 argues that the copula *you* is a spell-out of an existential operator, which binds the variable in the pivot nominal of Ind-type ECs (giving rise to the entity reading), or binds the event variable of the VP of D-type ECs (giving rise to the event reading).

Despite of Li'1996 simple and elegant account, we would like to bring out some observations based on the new data, which turn out not to fully fit in Li's account.

2. New data

2.1 Constituency

The pivot-coda string forms a constituent in both Ind-type and D-type ECs, as shown by the coordination in (19) and (20). In addition, the copula *you* and the pivot do not form a constituent in both types, see (21) and (22). However, under Li’s analysis in (17) we expect *you* and the pivot to be a constituent in Ind-type ECs. This is not borne out, see (21).

(19) You yi-ge yisheng zhaogu Zhangsan, san-ge yisheng zhaogu Lisi.
Cop. One-Cl doctor care Zhangsan three-Cl doctor care Lisi
"There is one doctor takes care of Zhangsan, three doctor take care of Lisi."

(20) ruguo you Zhangsan zhaogu Lisi, Wangwu zhaogu Chen'er …
if cop. Zhangsan care Lisi Wangwu care Chen'er …
"if there is Zhangsan takes care of Lisi, Wangwu takes care of Chen'er …"

(21) you yi-ge xisheng he (*you) san-ge hushi zhaogu Zhangsan.
Cop. One-Cl doctor and cop. Three-Cl nurse care Zhangsan
"there are one doctor and three nurses take care Zhangsan."

(22) ruguo you Zhangsan he (*you) Wangwu zhaogu Lisi …
if cop. Zhangsan and cop. Wangwu care Lisi …
"if there are Zhangsan and Wangwu take care of Lisi..."

Li’s 1996 syntactic structures in (17) can account for D-type ECs, but not for Ind-type ECs with respect to the coordination test.
2.2 Other embedded contexts

Recall Li’s 1996 observation that D-type ECs only occur in adjunct clauses such as those headed by ruguo 'if' and suiran 'although' and in sentential subject position. Their occurrence in sentential subject position leads us to wonder whether D-type ECs can occur in other argument positions canonically assigned to nominal projections, given the assumption (David & Dubinsky 2000, Halpert 2013) that sentential subjects are DPs in spite of their clause-like appearance.

This is indeed the case. We observe that D-type ECs can occur in the complement of some factive predicates such as zhidao 'know, jide 'remember' in (23), and in the complement of prepositions such as dui 'to' as shown in (24). These positions are used to diagnose the distribution of DPs (Li & S.-Z Huang 2009).

(23) Wo zhidao/jide [zhe-ge gushi] / [you Zhangsan zhaogu Lisi].
    I know/remember this-Cl stor / cop.Zhangsan care Lisi.
    "I know/remember this story/there is Zhangsan takes care of Lisi"

    I to this-Cl matter / cop. Zhangsan care Lisi feel surprised.
    "I am surprised by this fact/there is Zhangsan takes care of Lisi"

By contrast, some predicates such as (hen) haoqi "be curious" allow only a clausal complement. We note that the occurrence of D-type ECs in their complement position is barred along with other nominal complements, see (25) and (26).

(25) a. *wo hen haoqi zhe-jian shi de qiyin.
    I very curious this-Cl matter DE cause
    "I am curious about the cause of this matter."

   b. wo hen haoqi Akiu weishenme bu lai.
    I very curious Akiu why not come
    "I am curious why Akiu will not come" Tsai 1995; 301-302, (51, 52)

(26) *wo hen haoqi you Zhangsan zhaogu Lisi.
    I very curious cop.Zhangsan care Lisi
    "I am curious about there is Zhangsan takes care of Lisi."

This restriction may be illustrated by the bridge verbs mentioned above such as renwei 'think' and xiangxin 'believe', which are at odds with an event-denoting DP in their complement3.

(27) *wo renwei/xiangxin na-ge shigu / you Zhangsan zhaogu Lisi.

3 xiangxin 'believe', shuo 'say, speak' can select a DP which do not denote events.
   (i) Wo xiangxin ta/ta shuo de hua.
       I believe him/ he say DE word
       "I believe him/what he says."
   (ii) Ta shuo fayu.
       He say/speak French
       "He speaks French."
I thought/believe that-Cl accident/ cop. Zhangsan care Lisi.  
"I thought/believed that accident/ there is Zhangsan takes care of Lisi" 

Furthermore, perception predicates such as *kandao* 'see' in (28) can take D-type ECs as complements. What the predicate *kandao* 'see' has in common with the factive verbs in (23) is that it can select a nominal complement. 

(28) wo kandao le you Zhangsan zai pao/ zhaogu Lisi.  
I see perf. cop. Zhangsan prog run/ care Lisi  
"I saw/have seen there is Zhangsan is running/taking care of Lisi".

(29) Wo kandao le na-ge shigu.  
I see perf. that-Cl accident.  
"I saw/have seen that accident."

In this section, we show that some factive verbs and perception verbs which select nominal complements can take D-type ECs as complements; some predicates which do not select nominal complements or are at odds with event-denoting nominals are not compatible with D-type ECs in their complement position. We conclude that D-type ECs distribute like DPs.

2.3 Island effects

If D-type ECs are DPs given that they distribute like DPs, we would expect D-type ECs to show island effects (Complex NP constraint). This is borne out. In (30), the occurrence of non-argumental wh-words such as *weishenme* 'why' between the pivot and the coda gives rise to island effects. However, we think the sentence is ruled out for an independent reason. Recall Li's observation on the illicit occurrence of the causal expression *yinwen* 'because/because of' (a sentence-level adverbial) between the pivot and the coda in (14). When *weishenme* 'why' occurs between the pivot and the coda, its ill-formedness might be due to that same reason which bars *yinwei* 'because/because of'-clause from the intervening position.

(30) *Ni zhidao you Zhangsan weishenme zhaogu Lisi ne?  
you know cop. Zhangsan why care Lisi Q  
"why do you know that there is Zhangsan takes care of Lisi?"

We further observe that *weishenme* 'why' can occur in a pre-copular position and be interpreted as not having scope over the clause as shown in (31) and (32). If *weishenme* 'why' is inside D-type ECs which are assumed to be DPs, this wh-phrase will not be able to undergo movements at LF to the left periphery, due to Complex NP constraint.

(31) Ni zhidao weishenme you Lisi lai ma?  
you know why cop. Lisi come Q  
"Do you know why there is Lisi comes?"

4 This section is inspired by Li & S.-Z Huang 2009.
(32) *Ni zhidaowei, shenme you Lisi lai ne?  

"Why(x) do you know there is Lisi comes (x)?"

In this section, we show that the island effects induced by the LF-movement of wh-adjuncts provide an argument for analysing D-types ECs as DPs.

2.4 Pre-you positions

Li 1996: 189 notes that the object Lisi of the verb zhaogu 'care' can occur in a pre-you position as shown in (33), but she left open whether it is due to movement or base-generation. In (34), we observe Strong Crossover effect, which suggests that the object Lisi undergoes A’ movement from the complement position of the verb zhaogu 'care' to the surface position. The same effect is observed with a wh-phrase ex-situ in (35) as well. Thus both the object Lisi and the wh-argument land in a pre-copular position as a result of movement.

(33) ruguo Lisi, you Zhangsan zhaogu tə, yiyuan lingdao zui bu manyi.  

"If Lisi has Zhangsan's care, the hospital officials are most unsatisfied."

(34) *rugo Lisi, you ta, zhaogu tə, yiyuan lingdao zui bu manyi.  

"If Lisi has he, care the hospital officials are most unsatisfied."

(35) *rugo shei, you ta, zhaogu tə, yiyuan lingdao zui bu manyi?  

"If who, has he, care the hospital officials are most unsatisfied?"

In addition, we observe that in (36), a DP other than the object Lisi can occupy a pre-you position as well if the latter stays in the complement position.

(36) ruguo tamen you Zhangsan zhaogu Lisi, ta yiding mashang keyi fuyuan.  

"If they have Zhangsan's care Lisi, he certainly immediately can recover."

Do these two DPs occupy the same pre-copular position? We argue that they do not occupy the same position. This is shown by the contrast that in (37) the position of Lisi is wh-extractable whereas in (38) the position of tamen 'they' is not.

(37) ruguo shei, you Zhangsan zhaogu tə, yiyuan lingdao zui bu manyi?  

"Who is the person(x) such that the hospital officials are most unsatisfied if he(x) has Zhangsan's care?"

(38) ruguo *shei you Zhangsan zhaogu Lisi, ta yiding mashang keyi fuyuan?  

"Who is the person(x) such that if he(x) has Zhangsan's taking care of Lisi, Lisi can certainly recover immediately?"
In section 4.2, we attempt to provide an explanation for this contrast between (37) and (38).

2.5 Aspectual markers

In this section, we show that some aspectual markers can occur in D-type ECs. If aspectual markers can occur inside D-type ECs, Li's 1996 VP structure in (17) will not be able to accommodate these markers. It is therefore reasonable to assume that these markers head an Aspect projection (or multiple Aspect projections as proposed in Tsai 2008). In (39) and (40), imperfective markers such as the progressive *zai* and the durative *zhe* can naturally be inserted, introducing an progressive semantic effect.

(39) ruguo you Zhangsan zai zhaogu Lisi, women jiu bu danxin le.
if cop. Zhangsan prog. care Lisi we then neg. worry LE.
"If there is Zhangsan is taking care of Lisi, we will not feel worried."

(40) ruguo you Zhangsan zhaogu-zhe Lisi, women jiu bu danxin le.
if cop. Zhangsan care dur. Lisi we then Neg. worry LE.
"If there is Zhangsan is taking care of Lisi, we will not feel worried."

The insertion of the post-verbal perfective marker *le* is judged grammatical as well\(^5\). In (41), the perfective marker contributes to a reading involving a past event of *shoushu* "operation" and a state resulting from this event. In (42), the interpretation is more interesting, which might be due to the context of if-clause. The perfective marker *le* contributes to a reading in which General Li is responsible for leading the army due to a change-of-state.

(41) suiran you mingyi Zhang daifu gei Lisi zuo le shoushu, ta haishi hunmibuxing
though cop. well-known doctor Zhang doctor to Lisi do perf. operation he still in coma
"Though there is Dr. Zhang, the well-known doctor, has done the operation to Lisi, he is still in coma.

(42) rugou you Li jiangju lingdao le jundui, women yiding neng shengli.
If cop. Li general lead perf. army we surely can succeed
"If there is General Li has led the army, we can surely succeed."

A detailed investigation of aspectual markers in D-type ECs is called for. In this paper, these examples are but evidence that the Aspect projection should be assumed in D-type ECs.

2.6 Individual-level Predicates

Recall Li's 1996 discovery that individual-level predicates cannot occur in the coda position of D-type ECs as shown in (43). However, we do find some examples in which

\(^5\) Some sentences with the perfective marker *le* sound less natural, in contrast to the examples with imperfective markers which are always judged natural. Unfortunately, we are not able to explore it here.
individual-level predicates are fine in the coda position, such as *ai* 'love‘, *dong* 'know‘, *hui+V* 'know how to do', *xihuang* 'like’, see (44) and (45). These predicates pass the diagnostics for individual-level predicates, such as incompatibility with certain temporal adverbials such as 'yesterday', when-conditionals (Krazier 1995), the complement of perception verbs (Carlson 1977).

(43)  
*Ruguo* you *Zhangsan* hen *congming*, women jiu hui hen gaoxìng.  
If cop. Zhangsan very clever we then will very happy  
"If there is Zhangsan clever, we will then be very happy" Li 1996: 182, (22)

(44)  
*ruguo* you Zhangsan ai Mali, Mali de fumu jiu bu danxin le.  
If cop. Zhangsan love Mary, Mary DE parents then neg. worried LE  
"If there is Zhangsan loves Mary, Mary's parents will then not feel worried."

(45)  
Ruguo you Li mishu dong Latex, women jiu bu yong zhao qitaren zuo paiban le.  
If cop. Li secretary know Latex we then neg. need look-for others do typesetting LE  
"If there is Secretary Li knows Latex, we then don't need to look for others to do typesetting."

We do not have an explanation for why Li's example in (43) is bad whereas ours are good although all the relevant predicates are individual-level. However, we would like to point out that the individual-level predicates provided by us are all verbs, whereas *congming* 'clever' in Li 1996 is an adjective. We leave this question open.


3.1 H.-H Chang 2004

H.-H Chang's 2004 pragmatic account is based on Abbott's 1993 distinction between "non-contextualised existential sentence (NE)" and "contextualised existential sentence (CE)". According to Abbott 1993, NE with a non-presupposed indefinite pivot can naturally occur at the beginning of a discourse, whereas CE with a pivot NP which presupposes existence requires special contextualisation, and cannot initiate a discourse. In NE, the predicative coda is a separate constituent with respect to the focussed pivot, whereas in CE the predicative coda is part of the focussed NP, illustrated by the examples below. We can see that only NE exhibits DE, in contrast to CE in which definite pivots are fine.

(46)  
a. There's [a book][on the table]. non-contextualised existential sentence (NE)  
b. There's [NP the book on the table]. contextualised existential sentence (CE)  
Abbott 1993: 44, (9)

It is not obvious to us how H.-H Chang 2004 could explain why D-type ECs can occur in the complement of some factive verbs, but not in the complement of bridge verbs, based on Abbott's 1993 pragmatic account, because H.-H Chang 2004 is not very precise with when the sentence is "contextualised". Besides, H.-H Chang 2004 fails in explaining why D-

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6 The individual-level predicate *ai* 'love' should be differentiated from *ai-shang* 'love-up', which means 'fall in love'.

7 *hui+V* 'know how to do' and *xihuang* 'like' are taken from Lin 2008.
type ECs cannot occur in root contexts. In fact, H.-H Chang 2004 claims that D-type ECs can occur in root contexts, if appropriate contexts provided. However, we agree with Li 1996 on the root vs. non-root contrast observed in D-type ECs given the judgement of our informants; apart from this, H.-H Chang 2004 hasn't specified what the right contexts could be to allow D-type ECs to occur in root contexts. Thus we conclude that an account purely based on pragmatics like H.-H Chang's 2004 does not hold.

3.2 Shyu 2012

Shyu 2012, drawing insights from Kuroda's 1972 thetic/categorical judgements, argues that the DE fails to arise in D-type ECs when ECs express a non-categorical judgement, namely a thetic or a quantificational description. Kuroda 1972, following Brentano 1924, claims that the thetic vs. categorical distinction is syntactically encoded by different case marking on the subject in Japanese. Ga-subject sentences express thetic judgements, which reports the perception of a situation or eventuality, while Wa-subject sentences express categorical judgements, which first acknowledge a discourse reference as a logical subject and say something about this logical subject. The categorical judgement is also called as 'double judgement' in contrast with the "simple"(thetic) judgement, because it is composed of two cognitive acts.

(47) neko ga asoko de nemutte iru. Thetic judgement
The/a cat GA there at sleeping be
"The/a cat is sleeping there."

(48) neko wa asoko de nemutte iru. Categorical judgement
the cat WA there at sleeping be
"The cat is sleeping there"

Based on this distinction, Shyu claims that D-type ECs in Mandarin Chinese affirm the existence of an episodic eventuality and therefore express non-categorical judgements. Shyu further claims that categorical construal is not possible in you-ECs. However, this generalisation is too strong. We think that you-ECs, precisely Ind-type ECs can in fact express categorical judgements when they have an entity/individual reading, cf. Li 1996.

Nevertheless, we depart from Li's 1996 claim that Ind-type ECs (only) assert the existence of an entity. In our point of view, Ind-type ECs are semantically ambiguous between an entity/individual reading and an event reading, in other words, they assert the existence of either an individual or an event. A similar observation on English ECs has been made, cf. Milsark 1974 (see also M.-J Kim 2009 and the references therein). As shown in (49) and (50), this semantic ambiguity in Ind-type ECs is brought out by the occurrence of different anaphoric pronouns in the following discourse.

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8 H.-H Chang's 2004 claims that Huang's 1987 observation is also similar to Abbott's 1993. Chang 2004 compares the post-copular NP in CE in Abbott 1993 to a restrictive clause. However, she hasn't given any arguments favouring this view; instead, there is an argument against it: in CE, the pivot can be definite, thus the clause following it should not be restrictive.

9 Shyu 2012: 182-183 proposes that the judgement form that arises from an indefinite numeral subject which is interpreted as presuppositional specific be differentiated from thetic and categorical judgements, called quantification description. We will not go into the details of this specific proposal here.
The example (49) asserts the existence of an individual and expresses categorical judgements which first acknowledge a discourse reference ("a student") as a logical subject and say something ("scolded Prof. Zhang") about this individual; by contrast, the example (50) asserts the existence of an event of "scolding" and expresses thetic judgements. We therefore claim that there is no one-to-one correspondence between Ind-type and D-type ECs on the one hand, and categorical and non-categorical judgements on the other hand. Based on this assumption, if D-type ECs, which express non-categorical judgements, can occur in certain embedded contexts according to Shyu, they should also be able to occur in root contexts, since ECs in root contexts can express non-categorical judgements as well, contrary to the fact as shown in (6), repeated below.

(6) you \[\text{pivot} \,*\text{Zhangsan}/yi-ge ren\] \[\text{coda} \, \text{zai \, zhao gu Lisi}\].
\text{Root clause}
"there is Zhangsan/a person taking care of Lisi"

To summarise, we disagree with Shyu's 2012 claim which discards categorical judgements from you-ECs. Most importantly, Shyu's 2012 account based on judgement forms fails in explaining the root vs. non-root contrast observed in D-type ECs.

4. Analysis

In the previous section, we critically review H.-H Chang's 2004 pragmatic account and Shyu's 2012 analysis based on Kuroda's 1972 judgement forms and conclude that neither of them can provide a good explanation to why D-type ECs only occur in certain embedded contexts, as observed by Li 1996. In this section, we propose that D-type ECs be in fact DPs, with the copula you being a D°, which embeds an AspP; the pivot-coda constituent has more structures than Li's 1996 VP, namely, an AspP.

4.1 D-type ECs as DPs

Recall Li 1996 has argued that D-type ECs, which only occur in certain embedded contexts such as ruguo 'if'-clause, have a reduced VP structure in (17b, repeated below), supported by the observation that the elements between IP and vP such as modals and clause-internal topic and focus cannot occur between the pivot and the coda in this type. In addition to those embedded contexts, we further observe that D-type ECs occur in the positions where DPs occur such as in the complement of some factive and perception verbs (section 2.2). Based on this observation, we propose a DP structure for D-type ECs, illustrated in (51).
(17) a. \[\text{you NP} ([\text{IP/CP} \text{XP}], \text{Ind-type ECs, + DE, - PR})

b. \[\text{you} ([\text{VP} \text{NP} \text{XP}]), \text{D-type ECs, - DE, + PR} \]

Li 1996: 176

(51) \[\text{ruguo 'if'} ([\text{DP you 'copula'} [\text{AspP Zhangsan_i} [\text{Asp'} zhaogu_j 'care' [\text{vP t_j [\text{v_t [\text{VP t_j Lisi}]]}]]]])]

In this structure, the copula you is not a real copula as seen in Ind-type ECs; instead it is a D°. The structure embedded by D° is argued to be an AspP, supported by the occurrence both imperfective and perfective markers inside D-type ECs (section 2.5). These aspectual markers are based-generated in the Aspect head. In (51), the verb zhaogu 'care' is based-generated in V° and then undergoes head movements to v° and Asp°. Concerning the subject Zhangsan, it is introduced by v°, which introduces external arguments without any restrictions in terms of definiteness. Thus the lack of DE in D-type ECs is expected. Furthermore, assuming a DP structure for D-type ECs can account for the island effects induced by the LF movement of wh-adjuncts inside this DP (section 2.3). At last, we need to mention that treating you as D° is not new: Tsai 2003 convincingly argues that partitive you in you-de ren (you-DE person, 'some of the people') and specific plural you in you-xie ren (you-some person, 'some people') are to be treated as determiners.

4.2 Pre-copular positions

In section 2.4, we have observed two different pre-you positions: one position is wh-extractable as shown in (37) and (39) whereas the other one is not, see (36) and (38), repeated below. We further observe that in (36), semantically, tamen 'they' is interpreted as a group who takes Lisi as its member or who is responsible for Lisi. Following this intuition, we tentatively propose that in tamen 'they' and Lisi be based-generated in one DP constituent, interpreted as 'their Lisi', with tamen 'they' being in SpecDP as shown in (52).

(37) ruguo Lisi, you Zhangsan zhaogu t_v, yiyuan lingdao zui bu manyi.
if Lisi have Zhangsan care hospital officials most Neg. satisfied
"If Lisi has Zhangsan's care, the hospital officials are most unsatisfied."

(38) ruguo *shei, you Zhangsan zhaogu Lisi, t_v, yiding mashang keyi fuyuan.
if who have Zhangsan care Lisi he certainly immediately can recover
*Who is the person(x) such that if he(x) has Zhangsan's care?"

(39) ruguo shei, you Zhangsan zhaogu t_v, yiyuan lingdao zui bu manyi?
if who have Zhangsan care hospital officials most Neg. satisfied
"Who is the person(x) such that the hospital officials are most unsatisfied if he(x) has Zhangsan's care?"

(36) ruguo tamen you Zhangsan zhaogu Lisi, ta, yiding mashang keyi fuyuan.
if they have Zhangsan care Lisi he certainly immediately can recover
'If they have Zhangsan's taking care of Lisi, he can certainly recover immediately.'

(38) ruguo *shei you Zhangsan zhaogu Lisi, ta, yiding mashang keyi fuyuan?
if who have Zhangsan care Lisi he certainly immediately can recover
*Who is the person(x) such that if he(x) has Zhangsan's taking care of Lisi, Lisi can certainly recover immediately?"

10 Tsai 2003: 162: "partitive and specific plural readings derive from a pronominal construal of you in Archaic Chinese as a result of grammaticalization".
As regards (36), we propose that the constituent formed by *tamen* 'they' and *Lisi* be based-generated in the complement position of *zhaogu* 'care'; then *tamen* 'they' undergoes 'possessor raising' to a pre-*you* position, as illustrated in (52).

(52) \[ruguo 'if' \[DP [DP *tamen* 'they'] \[DY you 'copula' [AspP Zhangsan, [Asp' zhaogu] 'care [VP t\(_j\) [v t\(_j\) [VP t\(_j\) [DP t\(_j\) [DY D° Lisi]] ]]]]]] Possessor raising

Concerning the illicit wh-extraction targeting the same position of *tamen* 'they' in (38), we argue that given that *tamen* 'they' is assumed to be in SpecDP, the extraction of SpecDP induces Left Branch Condition (Ross 1967), explaining the ill-formedness induced by the wh-phrase.

(53) \[ruguo 'if' \[DP [DP *shei* 'who'] \[DY you 'copula' [AspP Zhangsan, [Asp' zhaogu] 'care [VP t\(_j\) [v t\(_j\) [VP t\(_j\) [DP t\(_j\) [DY D° Lisi]] ]]]]]] Left Branch Condition

4.3 Related phenomena in English and Romance

Under the DP-analysis of D-type ECs, two related phenomena are worth being mentioned: verbal gerunds in English in (54) and pseudo-relative clause in Romance in (61) and (62). First, D-type ECs seem similar to verbal gerunds in English, given that they behave alike in many aspects.

(54) Mary winning the contest was a surprise to everyone.
     Mary's winning the contest was a surprise to everyone. Pires&Milsark 2017: 2

English verbal gerunds show internal properties of clauses although they occur in positions open to DPs: in (55), articles and quantificational determiners are barred; in (56), modification is adverbial; in (57), verbal gerunds do not permit modal auxiliaries. The same properties can also be observed in Chinese D-type ECs, see (58-60)

(55) *The/some leaving the city is difficult.
(56) Leaving the city quickly is difficult. Pires & Milsark 2017: 6, (33)
(57) a. *John's must leaving was surprising
   b. *John's musting leaving was surprising. Pires & Milsark 2017: 7
(58) *ruguo na-ge you Zhangsan zhaogu Lisi …
   if that-Cl cop. Zhangsan care Lisi "if there is that Zhangsan takes care of Lisi …
(59) ruguo you Zhangsan xixinde zhaogu Lisi …
   if cop. Zhangsan carefully care Lisi "If there is Zhangsan takes care of Lisi carefully ..
(60) *ruguo you Zhangsan bixue zhaogu Lisi …
   if cop. Zhangsan must care Lisi ..
   "If there is Zhangsan must take care of Lisi..

Second, pseudo-relative clauses in Romance languages as illustrated in (61) and (62) are similar to Chinese D-type ECs in that they have an eventive reading and they are found in the contexts such as in ECs and in the complement of perception verbs. However, Romance
pseudo-relatives differ from Chinese D-type ECs in that they can occur in root contexts, as shown in (62), in contrast with (6, repeated below), repeated below. If we assume that pseudo-relatives have a DP structure for le téléphone qui sonne 'the phone that rings' in (62), following Kayne 1984, Burzio 1986 and more recently Moulton & Grillo’s 2015, in root contexts the pseudo-relatives as DPs are embedded/licensed by the copula copula avoir; by contrast, under our DP analysis of Chinese D-type ECs in (51), the copula you is in fact the D° head of the whole DP. When the DP occurs alone, there is no licensor or governor to make it syntactically independent as a clause as shown in (6).

(61) Ho visto Mario che correva a tutta velocità. "I saw Mario running at full speed." Cinque 1992: 1, (1)

(62) Y’a le téléphone qui sonne! "there is the phone that rings. Lambrecht 1994: 144

(6) you [pivot *Zhangsan/yi-ge ren] [coda zai zhaogu Lisi]. Root clause
  cop. Zhangsan/one-Cl person prog. take care Lisi
  "there is Zhangsan/a person taking care of Lisi"

A detailed comparative study of Chinese D-type ECs and these two related phenomena in English and Romance is called for.

5. Concluding remarks

This paper argues for a DP analysis of D-type ECs in Mandarin Chinese, with the copula you being a D°. This proposal is supported by the observation that D-type ECs distribute like DPs. However, this analysis is unable to explain one example in Li 1996.

(63) ruguo neng you Zhangsan lai … D-type ECs
    if can cop. Zhangsan come …
    "if it is possible that there is Zhangsan comes …" Li 1996: 179, (9b)

If D-type ECs are DPs with you being D°, we are left with the question as to why the modals can embed this DP.

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1. Introduction

1.1. Introduction

This paper focuses on Japanese partitives in (1) and aims to investigate the syntactic structure of the construction. Peculiar restrictions on the possible word order of the construction are introduced, and I show that they can be accounted for by adopting the multiple functional layers in DPs proposed by Watanabe (2006) and positing DP-internal movement.

(1) Taro-wa tosyokan-no hon-no #(uti-no) san-satu-o yonda. (partitives)

T-Top library-Gen book-NO out-of three-Cl-Acc read

‘Taro read three of the books in the library.’

The paper is organized as follows. In Section 2, I review Sauerland & Yatsushiro (2017), a previous study on the structure of Japanese partitives, and point out problems of their analysis. In Section 3, I describe my proposal for the syntactic structure of partitives in which the “part” and the “whole” each project a DP with a full internal structure based on Watanabe’s (2006) claim. It also explores possibilities of extending the analysis to another related construction, namely the Japanese either/or construction. Section 4 concludes the paper.


In this section, I introduce a previous study on the syntactic structure of Japanese partitives, but before that, let me quickly go through a previous study it is based on, namely Watanabe (2006), which also is important for my analysis. Watanabe (2006) attempts to account for the behavior of non-partitive (Floating Quantifiers), whose basic possible word orders are given in (2), and derives the possible word orders from a uniform source.

(2) Non-partitives
a. Taro-wa hon san-satu-o katta. (NP + Quantifier + Case)
   T-Top book three-Cl-Acc bought
   “Taro bought three books.”

b. Taro-wa hon-o san-satu katta. (NP + Case + Quantifier)

1 The abbreviations used in this paper are the following: Acc = Accusative, Cl = Classifier, Cop = Copula, Gen = Genitive, Nom = Nominative, Top = Topic.
2 I mark (1) without ‘uti-no’ ‘out of’ as #, following Watanabe (2008). Although in my intuition ‘uti-no’ ‘out of’ is obligatory in this sentence, some speakers feel that it is optional.
c. Taro-wa san-satu-no hon-o katta. (Quantifier + NP + Case)

Watanabe (2006) argues for a uniform underlying structure that derives the possible word orders of Floating Quantifiers in (2) through multiple applications of remnant movement. All of the word orders in (2) are derived from the uniform source (3a), in which #P is headed by a Classifier and takes an NP as its complement and a numeral in its Spec position. The order NP + Quantifier + Case (2a) is derived via obligatory movement of the NP to SpecCaseP (3b), required for Case reasons. From (3b), the order Quantifier + NP + Case (2c) is derived via optional movement of #P to SpecQP as in (3c) (according to Watanabe (2006), this movement marks the mass/count distinction). The order NP + Case + Quantifier (2b) is derived from (3c) by optionally moving the CaseP to SpecDP as in (3d) (this movement is claimed to mark non-specificity).

(3) a.  

```
#P  
/   
3   NP  #  
   |    |
   hon 'book' satu (Classifier)
```

b.  

```
NP   CaseP  
/     |
#P   #P  
/     /  
/  3  /  
/    hon/  
/      3  
satu  
```

(c)  

```
QP  
/   
3 tNP satu  
```

(d)  

```
DP  
/   
#P  CaseP  
/     |
/  3  /  
/    tNP  /  
/      hon/  
/        3/  
/          satu/  
```

Watanabe (2006) gives examples like (4) to show that a sentence with the word order in (3d) has only the non-specific reading, giving support to his claim that the word order is derived through movement to SpecDP and there is an agreement between D and the Case head that marks specificity (he does not go into the details of the semantic process by which the non-specific reading becomes obligatory). While (4a,b) are ambiguous between the reading where John wants two specific pianos and any two pianos, (4c) has only the reading where John wants any two pianos.

   John-Top piano 2-Cl-Acc buy-wanted
   ‘John wanted to buy two pianos.’

With this much in mind, let us now move on to Sauerland & Yatsushiro (2017). Building on the argument made by Jackendoff (1977) for English partitives as in (5), Sauerland & Yatsushiro (2017) claim that Japanese partitives also contain nouns in both a “whole” and a “part” (“unit” in their terms), either of which can be unpronounced. They claim that in addition to the typical partitive DP in (6a) (which corresponds to (5b)), (6b), which does not have the partitive interpretation and is usually not regarded as a partitive construction, is also analyzed as a partitive which corresponds to (5c). In their terminology, the first type of partitives are “plain partitives” while the second type of partitives are “reverse partitives.”

(5) a. two books/things of all the books Gina has
   b. two books/things of the books (plain partitives)
   c. two books of all those books/things Gina has (reverse partitives)
   d. two books/things of those books/things

(6) a. hon-no san-satu-ga (plain partitives)
    book-NO three-Ci-Nom
   b. san-satu-no hon-ga (reverse partitives)
    three-Ci-NOM book-Nom

Their derivation of the surface form is partially based on Watanabe’s (2006) derivation of the multiple word order of Floating Quantifiers and they give a uniform underlying structure of partitives in (7). In this structure, the part-whole relation is implemented by no (in English, the word of). Sauerland & Yatsushiro (2017) claim that plain partitives and reverse partitives differ from each other in that in the former the noun in the “part” is elided while in the latter the noun in the “whole” is deleted. The derivation that they claim for the two forms are shown in (8) and (9) respectively.

(7) Underlying structure

(8) plain partitives (= (6a))

(9) reverse partitives (= (6b))
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In both derivations, the obligatory NP movement to SpecCaseP, which Watanabe (2006) proposed in (3b), takes place as the first step. At this stage, according to Sauerland & Yatsushiro (2017), either of the two nouns inside NP can be elided: deleting the higher “part” noun derives the plain partitive sentence in (8) while deleting the lower “whole” noun results in the form in (9b). In their view, one of the advantages of taking sentences like (6b) into the paradigm of partitives is that it maintains the parallelism between English partitives and Japanese partitives in that either of the “whole” noun or the “part” noun can be elided. Although the form in (9b) as it is is ungrammatical because the suffix -no does not have a host to attach to, movement of #P to SpecCaseP in (9c) can solve this problem, deriving the reverse partitive form in (6b). As for the fact that (6b) does not have a partitive interpretation, Sauerland & Yatsushiro (2017) propose that the part-whole relation is vacuous in this sentence since the “whole” noun is elided and the speakers can assign any kind of unspecific noun for this position (e.g. three books of all the stuff in the world). In this way, they unify the no used in both plain partitives and reverse partitives.

Even though Sauerland & Yatsushiro (2017) attempt to make English and Japanese partitives parallel, their analysis faces problems when we take a closer look at partitive data. In Section 2.2, I describe the problems and introduce a brief overview of my proposal.

2.2. Problems of Sauerland & Yatsushiro (2017)

I point out and discuss the problems for Sauerland & Yatsushiro’s (2017) analysis in this section. There are roughly two issues: whether reverse partitives should be treated as partitives, and whether the proposed structure and derivation can be extended to other data.

There are several reasons to doubt whether reverse partitives are indeed partitives. First, there is a theoretical problem which exists both in the analysis of English partitives in (5) and Japanese partitives in (8). That is, eliding a phrase head does not seem to be plausible especially in terms of labeling the phrase. In the analysis of English and Japanese plain partitives in (5b) and (8), ellipsis applies to the part noun, which is the head of the part NP that takes the whole NP as its complement. How would the resulting structure be labeled as NP, or maintain the label as NP, if the head noun is deleted?

Second, if -no in reverse partitives is the same item as that in plain partitives and marks the part-whole relation, we predict that it should be replaceable with -no uti ‘out of’, which emphasizes the part-whole relation, whatever its syntactic status is. This is not the case, however. As shown in (10), using -no uti ‘out of’ in reverse partitives is completely unacceptable.

(10)  * san-satu-no-uti hon-ga
      three-Cl-NO-among book-Nom
      (intended ‘three books (of all the stuff in the world)’)

Third, according to Sauerland & Yatsushiro (2017), there is a silent whole noun in reverse partitives, which is an unspecific noun like mass or stuff. However, there is little evidence that a silent whole noun exists between the numeral + Classifier and the part noun in reverse partitives (cf. Ishizuka (2017)). Consider (11).

Sauerland & Yatsushiro (2017) observe that (11) can only have a reverse partitive reading with a part noun modified by the numeral + Classifier and a Relative Clause, not a partitive reading with a silent whole noun modified by the numeral + Classifier and a Relative Clause. This is puzzling since, based on their claim, -no is always the same item and the difference between the two readings emerge from the numeral + Classifier modifying the part noun or the deleted whole noun. Notice, however, that in (11) under the reverse partitive reading the whole noun is deprived of every semantic role and there is no evidence to prove its presence.

The analysis of Sauerland & Yatsushiro (2017) faces an empirical problem when we try to extend it to other data that they do not consider. There are many possible movement operations that they do not discuss, so there are many sentences whose deviation is unclear according to their analysis. For instance, consider (12) and (13). (12) is unproblematic. It is a plain partitive example like (8) with a modified “whole” noun and without the “part” noun-deletion. What about (13)? We can observe from (13) that both the “whole” and “part” noun can be overt and the “part” can have the word order san-satu-no hon-ga ‘three-Cl-NO book-Case’.

Since Sauerland & Yatsushiro (2017) only consider examples in which the part has the word order hon san-satu-ga ‘book three-Cl-Case’ for plain partitives, it is not clear how (13) is derived.

As shown in this section, Sauerland & Yatsushiro’s (2017) analysis has difficulties in accounting for some partitive data. In the next section, I introduce my proposal for partitives in which both the part element and the whole element project a full DP as in (14). It will be shown that the structure can also be carried on to both the data in (12) and (13) above and it does not need the rescue solution for the deletion of the whole noun.

As shown in the brackets, the numerals and nouns in the whole and the part can be overt or
covert if it is recoverable from the rest of the sentence. Both of them being overt is possible (although it sounds somewhat redundant) and both of them or one of them being covert is natural.

3. Proposal
3.1. The Structure of Partitives

The core of my proposal is the structure in (15b). I propose that, adopting the DP-internal structure of Watanabe (2006), partitives involve two DP projections and that the whole DP is in the Specifier position of the part DP as in (15b). The part-whole relation is implemented by -no. In addition, DP-internal movement proposed in Watanabe (2006) (cf. (3b-d)) can take place in both the part DP and the whole DP independently. For example, in (15b) the obligatory movement of NP in (3b) and the optional movement in (3c) have taken place in the part DP.

(15) a. Taro-wa tosyokan-no hon-no san-satu-no hon-o yonda.
   T-Top library-Gen book-NO three-Cl-NO book-Acc read
   ‘Taro read three of the library books.’
   b. Structure of (15a)

This proposal has several advantages. First, it explains the difference between (12) and (13) repeated below, which was problematic for Sauerland & Yatsushiro’s (2017) analysis. In these sentences, multiple word orders are possible inside the part element since the part projects a DP and DP-internal movement can take place inside it. In (12) the obligatory movement of the NP in (3b) has taken place while in (13) the optional movement of the #P in (3c) has further taken place in the part DP. In a similar manner, the present proposal further explains the sentences in (16), in which the whole element takes the full form with a numeral and a noun and the same kind of multiple word orders are observed.

(12) Tosyokan-no hon-no kookana hon 10-satu
    (Sauerland & Yatsushiro (2017: 7))
    library-Gen book-NO expensive book 10-Cl
    ‘10 expensive books of the library books’
(13) Tosyokan-no hon-no (uti-no) san-satu-no hon-ga
library-Gen book-NO out-of three-Cl-NO book-Nom

(16) a. Taro-wa [DP [CP hondana-ni atta] [CaseP hon [NP go tNP satu-no (uti-no)]]
    T-Top [CaseP hondana-ni atta] [CaseP san-satu-o] yonda.
    books 3-Cl-Acc read

    ‘Taro read three books of the five books which were on the bookshelf.’

b. Taro-wa [DP [CP hondana-ni atta] [QP go tNP satu-no (uti-no)]]
   [CaseP san-satu-no hon-o] yonda.

   Note that, if we adopt the DP-internal structure and movement of Watanabe (2006), we
   predict that (17) is derived from (16b) through movement of CaseP inside the whole DP (the
   movement in (3d)), but the resulting sentence (17) is unacceptable. I claim that this is
   because, on the assumption that phrases cannot have multiple specifiers, the whole DP needs
   a Relative Clause in its specifier position in order to make it a definite expression (cf. Inoue
   (1978)) and this Relative Clause blocks other elements from moving into SpecDP.

(17) * Taro-wa [DP [CP hondana-ni atta] [CaseP hon tNP -no (uti-no)] [QP go-satu tCaseP]](uti-no)
    [CaseP san-satu-no hon-o] yonda.

   As we have seen in (16), it is possible to have a #P in the whole DP as well as in the part
   DP. I propose that in the structure in (15) the numerals and nouns in the whole and the part
   can be overt or covert if it is recoverable from the rest of the sentence. Both of them being
   overt is possible (although it sounds somewhat redundant) as in (16) and both of them or one
   of them being covert is natural. (The whole noun and the part noun being different common
   nouns is a possible option; see note 3.) I further claim that the motivation that Sauerland &
   Yatsushiro (2017) give for analyzing reverse partitives as a kind of partitive, namely that by
   doing so we keep the parallelism between English partitives and Japanese partitives in that
   either of the whole noun or the part noun can be elided, cannot be maintained. With the
   proposed structure in (15), the parallelism between English and Japanese that Sauerland &
   Yatsushiro (2017) are concerned about is simply derived without any movement.

   Since the part element and the whole element project a DP independently in the present
   proposal, we predict that a whole DP does not have to be generated. I claim that reverse
   partitives Sauerland & Yastushiro (2017) and sentences without a partitive reading as in (18)
   are such examples. (Note that the surface form may be the same as the partitive examples.)
   Assuming that no inside the whole element marks the part-whole relation, we can explain the
   lack of the partitive reading since these sentences do not have a whole element with -no but
   only a single DP that corresponds to the part element.

(18) a Taro-wa sansatu-no hon-o yonda. (reverse partitives)
    T-Top 3-Cl-NO books-Acc read

    ‘Taro read three books.’

b. Taro-wa hon san-satu-o yonda.

c. Taro-wa hon-o san-satu yonda.

   In this section, I have laid out my proposal for partitives. It has been shown that the
   present proposal explains the possible word orders of partitives that Sauerland &
   Yatsushiro’s (2017) analysis does not cover. In the next subsection, I briefly discuss a
   possibility of extending the present proposal to a related construction, namely the either/or
   construction.

3.2. Extending the Analysis to the Either/or Construction
This subsection addresses a possibility of extending the present proposal to a related construction, namely the *either/or* construction in (19).\(^4\)

(19) Taro-wa koohii ka otya-no dottika-o nonda.
    Taro-Top coffee or tea-NO either-Acc drank
    ‘Taro drank either coffee or tea.’

Consider the sentence (20) as opposed to the simple *either/or* sentence in (19). Both the whole element and the part element in (20) have a numeral + Classifier and a common noun which the disjuncts are subclasses of.

(20) Taro-wa [Whole koohii ka otya-no futa-tu-no nomimono-no ](uti-no)
    Taro-Top coffee or tea-NO two-Cl-NO drink-NO out-of
    [Part dottika hito-tu-no nomimono]-o nonda.
    either 1-Cl-NO drink-Acc drank
    ‘Taro drank either one drink out of coffee or tea.’

This set of data is reminiscent of the partitive data (16) in which the part element and whole element accompany a numeral + Classifier and a noun. I thus propose that (20) has a structure similar to the one in (15b):

(21) Structure of (19b)

As was the case for partitives, the whole and the part each project a DP and the whole DP is in the Specifier position of the part DP.

One respect in which this structure differs from the partitive one is how to handle *dottika* ‘either.’ A restriction on word order concerning *dottika* ‘either’ is that it has to directly precede the numeral that denotes the number of element that it picks up. Consider (22). In this sentence, *dottika* ‘either’ co-occurs with a numeral and a Classifier, whose form is sensitive to the nouns used as disjuncts. The most general classifier *tu* is used, reflecting the partitive interpretation that Taro chose one from the two kinds of drinks (and not two glasses of drinks). As shown further in (22’), the numeral expresses the number of the

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\(^4\) For evidence that the *either/or* construction is related to partitives, the reader is referred to Miyama (2018).
elements that dottika or doreka picks up. (Note that since dottika ‘either’ can only choose from two options, another item doreka, which can choose from three or more options, is used in (22’).) Only one position is available for the numeral, namely directly following dottika ‘either,’ at least in the reading where the numeral expresses the number of the elements that dottika ‘either’ picks up.

(22) Taro-wa (*hito-tu) koohii ka otya-no (*hito-tu) dottika (hito-tu)-o nonda. Taro-Top 1-Cl coffee or tea-NO 1-Cl either 1-Cl-Acc drank
‘Taro drank (either) one of coffee or tea.’

(22’) Taro-wa koohii ka otya ka juusu-no (uti-no) doreka futu-tu-o nonda. Taro-Top coffee or tea or juice-NO out-of either 2-Cl-Acc drank
‘Taro drank (any) two out of coffee, tea, or juice.’

Other syntactic variations maintaining the basic word order are possible here too, namely the order NP + Quantifier + Case in (23a) and the order NP + Case + Quantifier in (23b), but importantly, the same restriction regarding the position of the numeral classifier obtains here as well.

(23) a. Taro-wa (*hito-tu) koohii ka otya,(,) (*hito-tu) dottika (hito-tu)-o nonda.
   b. Taro-wa (*hito-tu) koohii ka otya-o (*hito-tu) dottika (hito-tu) nonda.

Based on this word order restriction, in (22) and (23) dottika ‘either’ is placed inside the #P so that it directly precedes the numeral classifier. I am assuming the structure of #P in (21) to be like (24) with all elements in their base position.

(24) #P with dottika ‘either’ modifying the numeral

\[
\text{dottika} \quad \text{NP} \quad \# \quad \text{nu}
\]

The proposed structure accounts for a word order which is disallowed in both partitives and the either/or construction. The two constructions do not allow the part element preceding the whole element. In the partitive example (25), the sentence loses the partitive interpretation by placing the numeral classifier before the whole NP. In the either/or construction, too, dottika ‘either’ cannot be placed in front of the DisjP (26). This behavior can be explained for by claiming that the part QP cannot move across the whole DP in both the structures (16b) and (21), assuming that a DP cannot have multiple Specifiers.

(25) # Taro-wa san-satu(-no) tosyokan-no hon-o yonda. T-Top three-Cl-NO library-Gen book-Acc read

(26) * Taro-wa dottika(-no) [koohii ka otya]-o nonda. Taro-Top either-NO coffee or tea-Acc drank

In this section, I have shown that the structure proposed for partitives can be directly extended to the either/or construction. I further claimed that restrictions on the word order of the either/or construction can also be accounted for by making slight modifications to the proposed structure.

4. Concluding Remarks
This paper has focused on the syntactic structure involved in Japanese partitives. I have
proposed that the behavior of the construction can be accounted for by adopting the multiple functional layers and movements in DPs proposed by Watanabe (2006) and arguing for a structure in which both the whole element and the part element project a DP. It has also been pointed out that the behavior of the Japanese either/or construction can also be accounted for with the present proposal.

One remaining issue is the precise structural relation between the part DP and the whole DP. Recall that in the current proposal, the whole DP resides in the Specifier position of the part DP. However, I have not provided evidence that this has to be so. Another plausible possibility concerning the position of the whole DP is the Specifier position of a functional projection above the part DP, as in (27). In this structure, the part DP is the complement of the F head.

(27) Two DPs in the Specifier and the Complement position of FP

\[
\text{FP} \\
\text{DP}_{\text{whole}} \\
\text{DP}_{\text{part}} \\
F
\]

Although there is little evidence for FP so far, the structure in (27) has an advantage that the whole DP and the part DP are split so that the latter cannot precede the former (cf. (25), (26)) and that the F can implement the part-whole relation. I leave detailed investigation for future research.

References


1. Introduction

Scrambling, one instance of the movement phenomena, has been a major topic of inquiry in generative grammar since Ross’s (1967) seminal discussion on the topic. It has been argued that scrambling produces free word order. For instance, consider (1) and (2), where the object scrambles to the front of the sentence, yielding OSV from canonical SOV.\footnote{Abbreviations used in this paper are as follows: NOM = nominative, ACC = accusative, PRES = present, PST = past, DCL = declarative particle, FPRT = final particle, NEG = negation, EXCL = exclamation, COM = completive aspect, A = Set A agreement, B = Set B agreement, 3 = third person, SG = singular.}

(1) a. Sono hon-o Taroo-ga yon-da. \[(OSV)\] \[Japanese\]
    the book-ACC Taroo-NOM read-PST
  b. Taroo-ga sono hon-o yon-da. \[(SOV)\]
     ‘Taroo read the book.’

(2) a. Chyak-ul Chelswu-ka ilk-nun-ta. \[(OSV)\] \[Korean\]
    book-ACC Chelswu-NOM read-PRES-DCL
  b. Chelswu-ka chyak-ul ilk-nun-ta. \[(SOV)\]
     ‘Chelswu reads a book.’ \[(Lee 2007:1)\]

A number of discussions have been made for this movement phenomenon. One of the issues as regards scrambling is exactly where a scrambled element moves. The present paper discusses clause-internal scrambling observed in languages like Japanese and Korean, and considers the position to which a phrase scrambles within the minimalist or biolinguistics approach to language, which seeks the simplest, hence principled account of language under the assumption of the Strong Minimalist Thesis (SMT), the hypothesis that language keeps strictly to Merge and interfaces with the conceptual-intentional (CI) and sensorimotor (SM) systems (Chomsky 2000 et seq., especially Chomsky 2007, 2008, 2010, 2017). Miyagawa (2001) proposes a raising analysis of clause-internal scrambling and Hiraiwa (2010) argues that scrambling uniformly targets the edge of a phase. Hiraiwa’s analysis, combined with Miyagawa’s, will lead to the assumption that a scrambled phrase moves both to Spec,TP and to Spec,CP in clause-internal scrambling. This paper argues that simultaneous movement and step-by-step movement raise non-trivial interpretive and derivational problems. In the paper,
I propose an alternative analysis which can reconcile without causing any problems scrambling to Spec,TP with scrambling to the edge, claiming that Merge plays a key role in the derivation of clause-internal scrambling. I show that the solution to be proposed in this paper goes beyond scrambling, having implications for movement to and out of Spec,TP in general.

The organization of this paper is as follows. In section 2, I consider Miyagawa (2001) and Hiraiwa (2010), and discuss their approaches to clause-internal scrambling. Then in section 3, I propose a Merge-based analysis of clause-internal scrambling. In section 4 and section 5, I discuss subject movement within and out of the clause, showing that the proposed analysis also applies generally to movement to and out of Spec,TP. In section 6, I summarize the discussion and conclude the paper.

2. Clause-internal Scrambling

Given that clause-internal scrambling shows A-properties and that the subject moves to Spec,TP, it has been argued that a scrambled phrase will be adjoined to TP (Saito 1985, Miyagawa 1990, Webelhuth 1992; cf. Mahajan 1990, who argues that adjoined positions are A′-positions) or will move to an outer Spec,TP under the multiple Spec hypothesis (Koizumi 1995, Kuroda 1992, Ura 1994). Miyagawa (2001), developing Miyagawa (1997), proposes a novel analysis of clause-internal scrambling. For our purpose here, consider object scrambling in (1) and (2), taking Japanese for illustration. He argues that the object scrambles to Spec,TP to satisfy the EPP, with only a single Spec created; since the EPP is met, the subject will stay in situ. The object, instead of the subject, undergoes an EPP-driven movement and raises to Spec,TP in clause-internal scrambling. Under the proposed analysis, (1) is analyzed as (3):

(3) \[ TP \text{sono hon-o [\(\star_P\) Taroo-ga [\(v_P\) t yon] \(v^*\)] T-da} \]

Miyagawa discusses scope facts in (4) in support of this argument. Consider the following data:

(4) a. Sono tesuto-o zen’in-ga t uke-nakat-ta (yo/to omou). (Neg > all, [all > Neg])
   ‘That test, all did not take.’
   (Neg > all, all > Neg)
   (Miyagawa 2001:299)

   ‘All did not take that test.’

In (4a), when the object scrambles, negation can take scope over the subject, with the sentence interpreted as partial negation. Suppose that negation is positioned between TP and \(v_P\) (Chomsky 1995, Laka 1990, Pollock 1989) and that scope relations are interpreted based on c-command as defined in (5):

(5) When \(\alpha\) takes over \(\beta\), the former c-commands the latter. (Klima 1964)

Given these assumptions, the scope relation in (4a) can be explained if the object raises to

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2 See Fukui (1986), who argues that scrambling yields adjunction or multiple Specs not in TP but in \(v_P\).
3 In (3) and elsewhere in the paper, “\(\star\)” is used as a symbol for a copy created by movement or Internal Merge (IM); also, in (3) and other syntactic representations, order is irrelevant.
Spec,TP for the EPP, forcing the subject to stay put in the Spec of v*P, which is under the scope of negation:4

(6)  

The relevant scope relation is not possible in canonical SOV in (4b), where the subject, instead of the object, moves to Spec,TP to satisfy the EPP.5

Miyagawa’s analysis is also supported by the Kumamoto dialect of Japanese discussed in Kato (2007). Consider (7).

(7)  

Kato notes that in the relevant dialect, the subject, which is morphologically marked with ga in canonical SOV in Japanese, can be no-marked when the object scrambles. She argues that whether the subject is marked with no or ga depends on its structural positions (see also Kuroda 1992, Kishimoto 2009, Saito 1985 for the argument that Japanese case particles are structurally dependent): the subject in Spec,v*P is marked with no while the one outside is ga-marked:

(8)  

Then (7a) provides morphological evidence for the argument that the subject stays in Spec,v*P and does not move out to Spec,TP in object scrambling. The Kumamoto dialect ar-

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4 (i) argues that the nP is not interpreted in its reconstructed positions when it has A-moved:

(i) Everyone seems not to be there yet. (every > neg, *neg > every) (Chomsky 1995:327)

Hence, the scrambled object, which undergoes A-movement to the Spec of TP for the EPP, does not fall under the scope of negation in its base-generated position. See also Miyagawa (2001:329, footnote 11).

5 As noted, (4a) also allows all > neg. This scope relation is explained by subject raising to Spec,TP and object scrambling to the edge of a phase (i.e., to Spec,CP or some Spec in the left periphery). Bell (2016) reports that scope relations in (4) are also observed in Qinghai Mandarin, arguing that the scrambled object occupies Spec,TP, leaving the subject in-situ in Spec,v*P.
Scrambling to the Edge and the Locality of Movement

In his attempt to derive the Proper Binding Condition (PBC) in the minimalist setting, Hiraiwa (2010) claims that scrambling uniformly targets the edge of a phase. Provided that clause-internal scrambling shows properties of A-movement (e.g., it feeds binding; it does not induce weak cross-over effects), he argues that clause-internal scrambling of an argument in examples like (1a) and (2a) targets Spec,TP in addition to the edge of a phase. Assuming (9), which is independently motivated (Chomsky 2007, 2008, Hiraiwa 2005), he proposes a simultaneous, parallel movement to Spec,TP and to the edge of a phase in clause-internal scrambling:

(9) Every operation except IM applies simultaneously at the phase level.

(10) \[ CP \text{Obj} [TP \text{Obj} [v^*P \text{t}[\text{Subj} [VP \text{t} V^*]] T] C] \]

The derivation (10) creates an A-chain of the scrambled object and its A′-chain at the same time in the CP phase (see also Chomsky 2008 for simultaneous derivation at the phase level).

Hiraiwa’s simultaneous, parallel movement analysis, thought it may reconcile scrambling to the edge with scrambling to Spec,TP proposed in Miyagawa (2001), will raise theoretical and empirical problems and it cannot be the correct analysis of clause-internal scrambling. Clause-internal scrambling, since it yields two chains, creates two occurrences of the object (one in Spec,CP and one in Spec,TP), via simultaneous movement. Suppose that the occurrence in Spec,TP is a copy. If so, a labeling problem will arise with TP: T alone is too weak to serve as a label and cannot label on its own; in order to work as a label, it must have overt or visible Spec,TP when the labeling algorithm Label applies to identify the set headed by T (Chomsky 2015:9-10). Following Chomsky (2013), I assume that overtness or visibility of SOs is defined by (11):

(11) \( \alpha \) is taken to be in the domain D if and only if every occurrence of \( \alpha \) is a term of D.

(Chomsky 2013:44)

It follows from (11) that only the head of a chain or the whole chain, the discontinuous element, is taken to be visible to syntactic operations. Since a copy is part of a discontinuous element and is a lower occurrence of the moved SO, it will be invisible to Label. Provided that label information is required for CI interpretation and externalization at the SM level, if the occurrence of the object in Spec,TP is a copy, TP will not be labeled, with the result that (10) will be ruled out at the interfaces for the unlabeled set (see also Gallego 2017 for this argument).

In (10), the object moves to the edge of \( v^*P \) in the derivation of scrambling since VP is cyclically transferred at the \( v^* \) phase level.

I assume that T, like R, is universally too weak to label. In languages like Italian, which are claimed to have strong T (Chomsky 2015), the agreement morphology functions exactly in the same way as the overt \( nP \) in English, with T strengthening as labelable T. For relevant discussion, see Alexiadou and Anagnostopoulou (1998) and Mizuguchi (2017).

Notice that “TP” refers both to a T-headed set (marked as \( \lambda \) in (i) and elsewhere) and an XP-YP set created by merge of a constituent \( \alpha \) with a T-headed set (marked as \( \gamma \) in (i) and elsewhere):

(i) \[ v, \alpha [\lambda, T [v_P \ldots ]] \]
Now suppose that the relevant occurrence is not a copy and hence is not identified as part of a discontinuous element. In this case, the labeling problem will not arise as the occurrence, which is the head of a chain, forms overt Spec,TP and is visible to Label, with T strengthening as a label. Notice, however, that the derivation (10) will be ill-interpreted at the interfaces if the occurrence in question is not a copy. Since two chains produced by simultaneous, parallel movement are recognized as distinct by the interfaces, the occurrence in Spec,CP and the one in Spec,TP will receive independent interpretations. There is, however, only one theta role available for the scrambled object and one of the occurrences will not be interpreted. In addition, both the occurrences will be externalized at the SM level since they do not form a single chain and are interpreted as distinct. Just as in (12), where the object \(wh\)-phrase and the subject form distinct chains through movement to Spec,CP and Spec,TP, respectively, with the two occurrences recognized as distinct and hence externalized, (10) will be externalized as (13), which is empirically wrong:

(12) \([CP \text{ which book}_i [\text{did}_j [TP \text{ the student}_j [T [\text{v}_j \text{t}_j \text{[v* [read tj]]}]]]]]])?\)

(13) \(*[CP \text{ sono hon-o}_i [TP \text{ sono hon-o}_i [\text{v}_p t [\text{Taroo-ga}_j [\text{VP t yon}_j \text{v*}]] \text{ da}_j \text{C}]\]

It can be concluded that whether or not the occurrence in Spec,TP is a copy, the simultaneous, parallel derivation will raise interpretive problems and will be ruled out at the interfaces.

In order to avoid the problems with the above derivation, suppose that the scrambled object does not move simultaneously as shown in (10) but moves sequentially to Spec,TP and then onto Spec,CP to derive object scrambling. Consider (14):

(14) \([CP \text{ Obj}_i [\text{TP v*P}_i \text{t}_i [\text{Subj}_j [\text{VP t V}_j \text{v*}]] \text{ T}_j \text{C}]\]

The movement will again result in labeling failure of TP as the occurrence created in Spec,TP, which is part of a discontinuous element, is a copy and is invisible to Label. Moreover, the derivation (14) will violate Spec-to-Spec anti-locality, which bans \(A'\)-movement that is too short. Consider (15):

(15) **Spec-to-Spec Anti-Locality**

\(A'\)-movement of a phrase from the Specifier of XP must cross a maximal projection other than XP.                                                                                       (Erlewine 2016:445)

“Crossing” in (15) is defined as follows:

(16) Movement from position \(\alpha\) to position \(\beta\) crosses \(\gamma\) if and only if \(\gamma\) dominates \(\alpha\) but does not dominate \(\beta\).                                                                 (Erlewine 2016:445)

Movement from Spec,TP to Spec,CP will be banned as it crosses only the maximal projection of TP, according to (16). Erlewine argues that (15) is evidenced by Agent Focus (AF) in Kaqchikel, demonstrating that AF on the verb in (17a) is the result of the subject \(wh\)-phrase skipping the position of Spec,TP as shown in (18), with Spec,CP not created. Compare (17a)
with the basic transitive clause VOS in (17b), where the subject moves to the Spec of TP and AF does not appear:

(17) a. Achike *x-ø-u-tëj / `x-ø-u-tj-ö ri wäy?
  ‘Who ate the tortilla?’

b. Iwïr x-ø-u-tëj ri wäy ri a Juan.
   yesterday   COM-B3.SG-A3.SG-eat the tortilla Juan
   ‘Yesterday Juan ate the tortilla.’

(18) [CP subject [C [TP ... [v ... ]]]] ⇒ AF

If clause-internal scrambling undergoes (14), then it will be derivationally ruled out for anti-locality.

In summary, I have argued that scrambling to the edge, which has two derivational possibilities (i.e., (10) and (14)), raises a number of problems. These problems come from the fact that the clause-internally scrambled object needs to be both in Spec,TP (for A-properties) and in Spec,CP (for scrambling). In the next section, I propose a solution that reconciles scrambling to Spec,TP with scrambling to the edge but does not cause the problems noted with the derivations (10) and (14).

3. Scrambling to ‘Two Specs’ without Simultaneous Movement

In this section, I argue that Merge provides a solution to scrambling both to Spec,TP and to the edge. The Faculty of Language (FL) is equipped with the structure-building operation Merge, which yields a digitally infinite array of hierarchically structured expressions or syntactic objects (SOs). It has been assumed that Merge is constrained only by general principles of minimal computation (or what are sometimes called “third factor” principles), which constrain computation in general, and is formulated in the simplest form. Given this formulation of Merge, it operates freely and can apply asymmetrically as well as symmetrically to create SOs: Merge, applying symmetrically, produces a single set out of any two SOs (= (19a)); on the other hand, if it applies asymmetrically, it adjoins one SO to the other and yields an ordered pair, though not imposing any linear order on it (= (19b)):

(19) a. \{α, β\}
  b. <α, β>

For the purpose of distinction, following Chomsky (2015), call the Merge that produces (19a) “set-Merge” and the Merge that generates (19b) “pair-Merge.”\(^9\) Under the assumption of simplest Merge, the two modes of Merge will be available without any assumptions or stipulations, which is empirically supported by substitution and adjunction structures in language.

\(^9\) As noted in Fukui (2017), the ordered pair <α, β> is mathematically equivalent to the set \{α, \{α, β\}\} (or \{α\}, \{α, β\} in the Kuratowski definition). If so, (19b) can be derived by symmetrical Merge or set-Merge, with Merge applying only symmetrically. With this in mind, for expository convenience, I use set-Merge and pair-Merge for (19a) and (19b), respectively.
With this theoretical background in place, I propose that in clause-internal scrambling such as (1a) and (2a), clausal elements, C and T, are not set-merged as in (20), where T is set-merged with α, a set headed by \( v/v^* \) and then C is set-merged with \( \lambda \), a set headed by T:

(20)  

a.  \[ \lambda \ T \ [\alpha \ldots] \]  
b.  \[ \kappa \ C \ [\alpha \ldots] \]

Instead, in the relevant examples, Merge applies to the two heads, with T being externally pair-merged to C, and then the pair-merged SO (i.e., an amalgamated head) is set-merged with \( \alpha \). The derived structure is not (20b) but (21b):

(21)  

a.  \( <C, T> \)  
b.  \[ \delta <C, T> \ [\alpha \ldots] \]

Given (21b), the object scrambles to the Spec of \( <C, T> \), which produces (22):

(22)  

\[ \mu \ Obj \ [\alpha \ t [\text{Subj}\ [t\ V] \ v^*]] <C, T>] \]

It should be noted that in (22), the object does not move simultaneously to two Spec positions; it only moves to a single Spec and the movement creates only one occurrence in the Spec of \( <C, T> \). There is only one chain created in (22) and the derivation is free from the interpretive problems that annoy simultaneous, parallel movement of the object. Moreover, \( \lambda \) or a T-headed set is not formed in the derivation thanks to pair-merge of T to C and the labeling problem does not arise, either.

Object movement in (22) is scrambling both to Spec,TP and to the edge. SOs, when pair-merged to others, get de-activated and become syntactically invisible as adjoined SOs are asymmetrical to their hosts (Chomsky 2004, 2015). Syntactically, C with T pair-merged or adjoined to it is on par with C and bears the properties of C, including phasehood, with its Spec being the edge of a phase. In (22), the object thus moves to the edge. The movement to the Spec of \( <C, T> \) is also an instance of A-movement (or movement to “Spec,TP”), with clause-internal scrambling having A-movement properties as well as A′-movement properties. Following Chomsky (2007, 2008) and Obata and Epstein (2011), I argue that \( \phi \)-features play a key role in determining A-positions. To be more specific, I propose (23) as the definition of A/A′ positions:

(23) The \( nP \) is in an A-position if it is merged with an SO headed by a head bearing \( \phi \)-features; otherwise, it is in an A′-position.

In clause-internal scrambling, T is externally pair-merged to C and is not available in the derivation; consequently, feature-inheritance does not take place, with C or \( <C, T> \) keeping \( \phi \)-

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10 Notice that pair-Merge, like set-Merge, can be executed both externally and internally as Merge can apply in both ways. See also Epstein, Kitahara and Seely (2016) and Sugimoto (2016) for external pair-merge of heads. In this paper, unless otherwise mentioned, (pair-)Merge is external (pair-)Merge.

11 De-activation or invisibility of \( \beta \) for its pair-merge to \( \alpha \) or for \( \beta \) being asymmetrical to \( \alpha \) is attributable to self-embedding by \( \alpha \). Recall from footnote 9 that \( <\alpha, \beta> \) is mathematically on par with \( \{\alpha, \{\alpha, \beta>\} \). Since \( \beta \) is embedded in \( \alpha \), it cannot probe out of \( \{\alpha, \{\alpha, \beta>\} \}; nor can it be located by minimal search as \( \alpha \) is closer. Hence, computation by \( \beta \) and targeting \( \beta \) both fail (i.e., \( \beta \) is syntactically de-activated).
features. This argument is also endorsed by Epstein, Kitahara and Seely (2012), who argue that \( \phi \)-feature inheritance occurs for Case valuation by T. The object scrambles to merge with \( \sigma \), a set headed by \(<C, T>\) bearing the relevant features. Given the definition of \( A/A' \)-positions in (23), the object also scrambles to an A-position (or “Spec,TP”), being able to show A-movement properties.

Under the proposed analysis, the derivation does not violate anti-locality, either. For our purpose, following Pesetsky (2016), Spec-to-Spec anti-locality is redefined as (24), instead of (15):

\[
(24) \quad \text{Spec-to-Spec Anti-Locality (revised)}
\]

Movement to the edge must cross a phase boundary.

(24) subsumes (15), banning movement from Spec,TP to Spec,CP as it does not cross a phase boundary. Notice that (24) is more general and is in fact better than (15) in explaining anti-locality: in addition to explaining anti-locality in A'-movement such as (17a), it can also account for why A-movement (e.g., movement from Spec,\( \nu P \) to Spec,TP), unlike A'-movement, does not violate anti-locality. The SO makes too short a movement in both Spec,TP-to-Spec,CP and Spec,\( \nu P \)-to-Spec,TP movements but one is well-formed and the other is not, which can be explained by (24) without exempting A-movement from Spec-to-Spec anti-locality.

In (22), the object scrambles in one-fell swoop to the Spec of \(<C, T>\) from the edge of \( \nu^*P \). Given (24), the derivation of clause-internal scrambling does not violate anti-locality as it crosses a phase boundary in the movement process.

In sum, the proposed analysis of clause-internal scrambling can reconcile scrambling to Spec,TP with scrambling to the edge without causing the problems that arise under simultaneous movement of the object (= (10)) and under step-by-step movement to Spec,TP and onto Spec,CP (= (14)). Under the proposal in this paper, syntax creates only a single chain and does so without violating anti-locality. The simultaneity of clause-internal scrambling is not due to simultaneous movement of the object to two independent Spec positions by IM; instead it follows from amalgamation of C and T by external pair-Merge; the Spec of \(<C, T>\), as I have argued, bears properties of both C (the edge) and T (A-position).

4. Subject A'-Movement

In the discussion so far, I have argued that clause-internal scrambling is movement to the Spec of \(<C, T>\). The proposed analysis goes beyond clause-internal scrambling and applies to all instances of movement in which a single SO relates both to Spec,TP and to Spec,CP, one

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12 Notice that external pair-merge of T to C explains under-inheritance discussed in Legate (2011, 2014) and Ouali (2008). They argue that \( \phi \)-features are not inherited in subject \( wh \)-movement, which, as I argue in section 4, is due to the fact that T is pair-merged to C in the derivation.

13 Sugimoto (2016), developing Epstein, Kitahara and Seely (2016), argues, as the present paper does, that C and T are externally pair-merged. He argues that C is pair-merged to T, which yields \(<T, C>\); on the other hand, I claim in this paper that T is pair-merged to C. These two outcomes are straightforward consequences of Merge. Notice that the two proposals make distinct predictions as regards, in particular, phasehold and the availability of \( \phi \)-feature agreement. The discussion of these predictions will be left for future; I should note here, however, that external pair-merge of C to T or \(<T, C>\) cannot explain the empirical phenomena discussed in this paper since \(<T, C>\) is syntactically on par with T, not C. In this sense, external pair-merge of T to C proposed here constitutes a novel contribution to syntactic theory and analysis, with its own empirical consequences.
instance of which is clause-internal scrambling in Japanese and Korean. In this section, I discuss A’-movement of the subject in the single clause. Consider subject wh-movement in (25):

(25)  a.  Which professor will give a linguistics lecture?
     b.  I wonder [which professor will give a linguistics lecture].

The standard argument has been that the subject wh-phrase moves to Spec,TP as well as to Spec,CP. The evidence for not skipping Spec,TP in (25) comes from (26), which shows that unlike object wh-movement, subject wh-movement does show the properties of A-movement:

(26)  a.  Who seems to himself to be intelligent?
     b.  Who seems to his professor to be hard working?

(27)  a.  *Which students did each other’s professors criticize?
     b.  *Who does his mother love?

Unlike in (27), when the subject wh-phrase moves, it can bind the anaphor (=26a)) and it does not induce the weak crossover effect (=26b)).

Since the subject is an operator, it will also move to Spec,CP, which is an operator position, for its interpretation. Notice that subject A’-movement will raise the same problems as clause-internal scrambling if the subject moves simultaneously or parallelly to Spec,TP and to Spec,CP (as discussed in Chomsky 2008) or moves sequentially to Spec,TP and onto Spec,CP. On the other hand, the derivation of subject A’-movement will be free from these problems if just as in clause-internal scrambling, T is externally pair-merged to C and the subject moves to the Spec of the amalgamated head, creating only a single chain in the derivation. Consider (28):

(28)  [μ \text{subject} [δ <C, T> [α t … ]]]

The derivation (28) can explain the A-properties of subject A’-movement as well as its A’-properties: <C, T> has ϕ-features for under-inheritance and its Spec position, to which the subject moves, thus constitutes an A-position given (23); at the same time, <C, T> is syntactically on par with C and bears the properties of C, with its Spec being the edge of a phase. Under the proposed analysis, the A- and A’-properties of subject A’-movement follow without assuming that the subject moves to Spec,TP.

One piece of evidence for (28) is AF in Kaqchikel discussed in Erlewine (2016). Recall that AF appears when the subject wh-phrase skips Spec,TP, which he says is due to anti-locality; in other words, creation of Spec,TP cancels AF (see (18)):

(29)  Achike *x-ø-u-ṭēj  /  ’x-ø-u-tj-ō  ri wāy? (=(17a))
     who COM-B3.SG-A3.SG-eat / COM-B3.SG-eat-AF the tortilla
     ‘Who ate the tortilla?’

(2016:439-440)

The skipping, hence the emergence of AF, is straightforward under the proposed analysis: an independent set headed by T is not created and the subject cannot move to its Spec.

The proposed analysis predicts that set-merge of C and T or the derivation (20) will not be problematic for subject A’-movement if the problems noted with simultaneous, parallel
movement and Spec,TP-to-Spec,CP movement can be bypassed. This prediction is, in fact, borne out. Erlewine (2016) notes that AF will not appear in subject A’-movement when adverbs intervene. Consider (30) and compare it with (29):

(30) Achike kanqtzij \(x\text{-}\text{ø}	ext{-}u\text{-}tëj\) / \(*x\text{-}\text{ø}	ext{-}u\text{-}tj\text{-}ö\) ri wäy?
who actually COM-B3.SG\(-\text{A3.SG}\text{-}eat\) / COM-B3.SG\(-\text{eat}\text{-AF}\) the tortilla
‘Who actually ate the tortilla?’

Obviation of AF indicates that Spec,TP is yielded. Suppose that the adverb kanqtzij ‘actually’ is merged as Spec,TP, which cancels AF:

(31) \(\kappa \text{Subj}[\gamma \text{Adv}[\lambda \text{T} [\ast P \text{t} [\nu \ldots ]]]]] \Rightarrow \ast \text{AF}\)

Since the adverb is merged in Spec,TP and occupies the position, the subject will move in one fell-swoop to Spec,CP from Spec,\(v*P\), forming a single chain. This movement creates an occurrence of the subject only in Spec,CP, circumventing the problems raised by simultaneous, parallel movement to Spec,TP and to Spec,CP; moreover, it abides by Spec-to-Spec anti-locality as it crosses a phase boundary. Finally, T has overt or visible Spec thanks to the adverb, with the result that it strengthens as a label and a T-headed set can be labeled without any problems.

Subject \(wh\)-movement in Yiddish also bears out the prediction. Consider the following examples:

(32) a. Ikh veys nit [ ver [ es iz gekumen]].
I know not who Expl has come
‘I don’t know who came.’

b. Zi iz gekumen zen [ ver [ frier vet kontshen]].
she has come see who earlier would finish
‘She has come to see who would finish earlier.’

In Yiddish, subject \(wh\)-movement in the embedded clause requires merge of an SO between the \(wh\)-phrase and the verb. In (32), it can be assumed just as in (30) that the expletive and the adverb are merged as Spec,TP (see (31)), which allows the subject \(wh\)-phrase to move to Spec,CP without causing any problems when T and C are set-merged and (20b) is created. Empirical facts from Kaqchikel and Yiddish support the assumption that Merge applies freely to yield (20b) and (21b).

It is important to note, as regards Yiddish, that the language, unlike Kaqchikel, employs only (20b) to yield subject \(wh\)-movement in the embedded clause. To see this, consider the following examples:

(33) * Ikh veys nit [ ver iz gekumen].
I know not who has come

---

14 One more question is how XP-YP created by merge of the adverb as Spec,TP \({\{\text{kanqtzij}}, \{\text{TP}\}}\) can be labeled; it has been argued that XP-YP requires agreement between X and Y to be labeled (Chomsky 2013, 2015). With regard to this argument, Mizuguchi (2015) claims that XP-YP can be labeled without agreement. In this paper, following Mizuguchi (2015), I assume that the relevant XP-YP can be labeled “TP” by the labeling algorithm since T strengthens thanks to overt Spec,TP and is now labelable.
‘I don’t know who came.’

(Diesing 1990:68)

(34) a. Ver hot gesesn dos broyt?
  who has eaten the bread
  ‘Who ate the bread?’

b. * Ver hot es gesesn dos broyt?  

(Mizuguchi 2014:332)

If Merge applies freely, why does Yiddish solve problems raised by simultaneous movement and Spec,TP-to-Spec,CP movement with merge of an SO in Spec,TP, instead of with external pair-merge of T to C in the embedded clause? As evidenced by (34a), external pair-merge of T to C can in fact be employed in the root. I claim that this can be independently explained. Given that selection, in some form or other, is required to constrain head-complement relations, I argue that interrogative predicates in Yiddish select only C or the C-headed set as their complements; a selectional relation will be violated if <C, T> or a set headed by <C, T> is merged as their complement. The proposal in this paper, coupled with the notion of selection, which is required in some form or other, can explain the grammaticality of (32) and (33).\(^{15,16}\)

The proposed analysis provides a novel analysis of the Vacuous Movement Hypothesis (VMH), which says that the subject moves to a single Spec in its A′-movement: Chomsky (1986, 2013) argues that the operator subject moves only to Spec,TP under VMH (=(35a)); on the other hand, Legate (2011, 2014) and Ouali (2008) claim that it moves only to Spec,CP (=(35b)):

(35)  a. \([CP \ C [TP \ subject \ [T \ [vP \ \ldots \ t \ \ldots ]] ] ]]\)

b. \([CP \ subject \ [C \ [TP \ T \ [vP \ \ldots \ t \ \ldots ]] ] ]]\)

Under the proposed analysis, vacuous movement is due to T being pair-merged to C, which has the effect that the subject \(wh\)-phrase moves to a single Spec (i.e., the Spec of <C, T>) but not to two Specs.

Notice that under the proposed version of the VMH, the subject \(wh\)-phrase can be interpreted with a Q-bearing head under Spec-head or XP-YP (Epstein, Kitahara and Seely 2015) without Q-feature inheritance from C to T assumed in Chomsky (2013). Recall that <C, T> is syntactically on par with C. Since C has a Q-feature, <C, T> is a Q-bearing head, with the result that the \(wh\)-phrase, which internally merges with the set headed by <C, T>, can be properly interpreted at CI thanks to the creation of (28). The removal of Q-feature inheritance is desirable in that Q-feature inheritance requires feature copying, which Carstens, Hornstein and Seely (2016) argue, causes the derivation to crash; moreover, the inheritance in question is assumed to occur only in subject \(wh\)-movement, which is only warranted by stipulation.

The proposed version, in addition to eliminating Q-feature inheritance, can solve a label-

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\(^{15}\) In this paper, I leave for future the discussion of why in the root, where selection does not play a role, only <C, T> is produced in Yiddish and other languages like English to circumvent problems that will arise when the subject moves under the derivations (10) and (14).

\(^{16}\) This argument suggests that the XP-YP created by subject \(wh\)-movement is not labeled <Q, Q> but C; in other words, the XP-YP is labeled in the same way as when Spec,CP is not created. Otherwise, the XP-YP will uniformly be labeled <Q, Q> in Yiddish and in other languages like English, where (21b) can be produced in the embedded clause, with the result that the selectional relation cannot be explained. The labeling in question is indeed possible under Mizuguchi (2015). The argument here supports his analysis of labeling.
ing problem which arises under (35b) for the absence of overt/visible Spec. In (28), as I have discussed, since T is externally pair-merged to C, a T-headed set will not be created in the derivation and the labeling problem does not arise. The proposed analysis also explains why feature-inheritance does not take place in subject A'-movement or in (35b) (see footnote 12).

5. Subject Extraction out of the Embedded Clause

The analysis proposed in the present paper can deduce the generalization regarding subject extraction discussed in Pesetsky (2016). Pesetsky argues that subject extraction always entails a smaller-than-full clause, proposing the following generalization:

(36) Subject extraction always entails a smaller-than-full clause. (Pesetsky 2016:6)

According to (36), in (37a,b) and (38a), where the subject can be extracted without any problems, the embedded clause is less-than full:

(37) a. Which student do you believe [to be the most intelligent]?
    b. Which student do you believe [is the most intelligent]?
    c. * Which student do you believe [that is the most intelligent]?

(38) a. The student seems [to be in the library].
    b. * The student seems [that is in the library].

Pesetsky proposes the operation called Exfoliation, which deletes and removes a certain portion of the structure to explain the generalization. In the relevant examples, he argues that CP is removed by Exfoliation, which reduces the clause size and makes subject extraction out of the embedded clause possible:

(39) … [VP V [CP C [TP T [VP v [ ... ]]]]]

↑ Exfoliated

On the other hand, in (37c) and (38b), CP is not deleted, which blocks subject extraction.

Notice that clause reduction for subject extraction goes back to Chomsky (1981), where the rule of S'-deletion or more generally, the S'-to-S rule, is proposed to account for subject extraction in sentences such as (40):

(40) a. Who do you think [S saw Bill]?
    b. Bill was believed [S to have seen Tom]. (Chomsky 1981:298, 303)

More recently, Chomsky (2015) proposes that-deletion, which deletes C and removes a C-headed set or CP, to account for the contrast between (37b) and (38c); he argues that together with other assumptions, deletion of CP allows the embedded TP to be labeled even without overt Spec.¹⁷

¹⁷ See also Bošković (1997) and Ishii (2004), who argue that the that-less clause in (37b) is TP. Erlewine (2017) argues that the that-less clause in (37b) is headed by CT, which is a bundled head and that this explains a that-t violation as it solves anti-locality. Bundled CT is unlike <C, T> or <T, C> (footnote 13) in that one is not ad-
The generalization will receive a straightforward account under the proposal in this paper. In the derivation of subject extraction, the subject relates both to Spec,TP and to Spec,CP in the embedded clause: it moves to Spec,TP as it can engage in A-movement phenomena in the embedded clause, binding being one such example (= (41)):

(41) a. Which student do you believe [likes herself]?
    b. Mary seems to John [to appear to herself to be in the room].

It also moves to Spec,CP in order to evade phase impenetrability, which obtains through cyclic Transfer at the phase level. Suppose that C and T are set-merged, which yields a full structure (20b) in the embedded clause. Given (20b), two options are available for movement of the subject: it moves simultaneously to Spec,TP and to Spec,CP (= (10)) or moves sequentially to Spec,TP and onto Spec,CP (= (14)) as in clause-internal scrambling and subject A′-movement in the single clause. As discussed in the last two sections, under both these derivational options, interpretive and derivational problems will arise in the embedded clause. This explains why a full-fledged clause blocks subject extraction and hence, examples such as (37c) and (38b), where the embedded clause, according to (36), is not a smaller-than-full clause.

Now suppose that pair-Merge applies, with T externally pair-merged to C, and that (21b) is yielded in the embedded clause. Given (21b), the subject will be internally merged with δ, moving to the Spec of <C, T>; only a single chain, hence only one occurrence, will be produced by the movement, which abides by Spec-to-Spec anti-locality. TP is not created thanks to external pair-merge of T to C, which circumvents the labeling problem. (28), which is repeated below as (42), is derived in the embedded clause:

\[
\mu \text{subject} [\delta <C, T> [\alpha t \ldots ]]\]

The derivation, as discussed, solves the relevant problems. External pair-merge of T to C explains successful subject movement in the embedded clause. Notice that in (42), the embedded clause is reduced by the pair-merge and gets smaller than a full clause: CP-TP is not created.

The discussion so far has argued that when the clause is reduced by external pair-Merge, the derivation will not cause any problems in the embedded clause. Notice that under the proposed analysis, no problem will arise in the embedded clause not only when the subject moves in the embedded clause but also when it is extracted out of the embedded clause. Extraction of the subject will turn it into a copy, which is invisible to Label. Recall that a copy is part of a discontinuous element and only a discontinuous element as a whole is visible to syntactic operations like Label. The fact that the subject turns into a copy in the embedded clause will not cause labeling problems with μ and δ in (43). As discussed, <C, T> is syntactically on par with C. Considering that C is strong as a label and can label on its own, <C, T> is a labelable head and can serve as a label without overt Spec:

\[
\text{subject} \ldots [\ldots [\mu t [\delta <C, T> [\alpha t \ldots ]]]]]\]

joined and is asymmetrical to the other; instead, the two are fused into a single head, with both heads being syntactically active. For details, Erlewine and references cited therein.
In (43), μ and δ can be labeled when the subject moves out to be a copy. The proposed analysis answers why a smaller-than-full clause matters for subject extraction, explaining the generalization, hence well-formed examples such as (37a,b) and (38a).

Notice that given the definition of A/A′-positions proposed in (23), in (38a), which also undergoes the derivational steps in (42) and (43) to be extracted, movement to Spec,TP in the higher clause via the Spec of <C, T> in the embedded clause will not be improper movement (see (51)): the subject is merged with a set headed by <C, T>, which bears ϕ, and moves to an A-position in the embedded clause.

Given that Merge applies freely, the next question is why C and T are set-merged in the embedded clause of (37c) and (38b)? Why, unlike in (37a,b) and (38a), doesn’t pair-merge of T to C apply to make the derivation (42) possible? Only a stipulation can block pair-Merge in the relevant examples. I claim that externalization answers the question at hand. I submit that how C and T are merged leads to different realizations of complementizers, proposing that <C, T> and C are externalized as distinct complementizers. The proposal is summarized in (44):

(44) Syntax–Externalization Relationships

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Externalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;C, T&gt;−tensed</td>
<td>to</td>
</tr>
<tr>
<td>&lt;C, T&gt;−tensed</td>
<td>Ø</td>
</tr>
<tr>
<td>C</td>
<td>that</td>
</tr>
</tbody>
</table>

Given (44), complementizers indicate how C is merged: the English infinitival to is an externalization of <C, T> without tense and a null complementizer Ø is a spell-out of tensed <C, T>, while the overt complementizer that is an externalization of C. In (37c) and (38b), since that appears through externalization at the SM level, it indicates that the clause is not reduced by pair-Merge, with (20b) created in the embedded clause. On the other hand, in (37a,b) and (38a), to and Ø show that <C, T> is yielded in syntax and the clause is reduced to a smaller-than-full clause as in (42).

Notice that the resort to externalization is not a stipulation to block external pair-merge of T to C in examples such as (37c) and (38b). Externalization, which is peripheral to syntax or Universal Grammar (UG), is subject to variation within and across languages and it can be considered the locus of linguistic variation, inducing superficial complexity and variety of language, given the assumption, which is reasonable for scientific and biological reasons, that UG is quite simple at its core and uniform across languages, allowing no parameterization or variation (the Uniformity Principle) (Chomsky 2001, 2017 among others). Externalization explains why pair-Merge does not occur in (37c) and (38b), unlike in (37a,b) and (38a), under simple, uniform syntax.

The proposed analysis predicts that the subject can be extracted out of a full clause if, just as in subject A′-movement in the single clause, the interpretive and derivational problems that arise with simultaneous, parallel movement and Spec,TP-to-Spec,CP movement can be circumvented. This prediction is correct. Consider the following examples:

(45) a. ? Ver hot er moyre [az [es [vet t kumen]]]?                                     [Yiddish]
    who has he fear that Expl will come
    ‘Who does he fear will come?’

b. * Ver hot er moyre [az [vet t kumen]]?                                             (Diesing 1990)
(46) a. Quelles filles crois-tu [qui [vont t acheter ce livre-la]]? [French]
   ‘Which girls do you think will buy that book there?’
   b. * Quelles filles crois-tu [que [vont t acheter ce livre-la]]?
      (Taraldsen 2002)

(47) a. Vilken elev trodde ingen [att [han [skulle fuska]]]? [Swedish]
   ‘Which pupil didn’t anyone think would cheat?’
   b. * Vilken elev trodde ingen [att [skulle fuska]]? (Engdahl 1982)

In (45a)-(47a), nPs are merged in the embedded clause. An expletive is merged in (45a) and
(46a) while a resumptive pronoun is merged in (47a). As regards (46a), Taraldsen (2002) ar-

gues that French *qui is analyzed as que + i, which is an expletive-like element and is akin to
the standard French *il expletive. Since the nPs are expletives and resumptive pronouns, it can
reasonably be assumed that they are merged as Spec,TP. Then the clause out of which the
subject is extracted is a full-fledged clause, with both C and T set-merged, which creates κ
and λ as shown in (48):

(48) [κ Subj [C [γ nP [i, T [vP t [v … ]]]]]]]

Though (20b) is yielded in the embedded clause, (45a)-(47a) are well-formed unlike (45b)-(47b). The well-formedness is explained by the proposed analysis. In these examples, thanks
to merge of the nP in Spec,TP, the subject can make a one fell-swoop movement to Spec,CP,
producing a single chain. The movement circumvents the problems that will be caused in
simultaneous, parallel movement to Spec,TP and to Spec,CP since there is only one occur-
rence of the subject yielded in Spec,CP; it is also compliant to Spec-to-Spec anti-locality as a
phase boundary is crossed. Merge of the nP with λ yields overt or visible Spec,TP, thanks to
which T strengthens and can serve as a label; a labeling problem does not arise with a T-
headed set or λ. Extraction of the subject, which yields its copy in Spec,CP in the embedded
clause, does not cause a labeling problem with κ: as discussed with <C, T>, C is strong
enough to label and can label without overt Spec. The proposed analysis can correctly predict
that the generalization (36) does not always hold.18

Notice that the external merge cannot salvage subject extraction out of a full clause in A-
movement. This is shown by (49):

(49) *The student seems [that [it is in the library]].

The ill-formedness of (49) also follows from the proposed analysis. In the derivation, the sub-
ject moves to Spec,CP to raise out of the embedded clause; otherwise, the extraction will be
impossible since the embedded TP or γ, which is the complement of the phase head, is cycli-
cally transferred at the phase level. Notice that given (23), Spec,CP is an A′-position, with the
subject undergoing A′-movement to that position: C loses ϕ-features through feature-
hierarchy since T is available in the derivation, and κ, with which the subject is merged, is
not headed by a head bearing ϕ-features. From the embedded Spec,CP, it will move to the

18 Pesetsky (2016) points out that exfoliation or deletion of CP is not the only way to make subject extraction
possible, discussing as one example subject extraction in Zulu. For relevant discussion of Zulu under the analy-
sis proposed in this paper, see Mizuguchi (2018).
matrix Spec,TP, which is an A-position:

\[(50) \quad \text{[C [subject [... [}_σ \text{t} [\_}κ \text{C [}_γ \text{nP [}_λ \text{T}_φ \text{[}_α \text{t} ... ]]]]]]]\]

A-movement          A′-movement

The movement, however, will be ill-formed since the subject moves from an A′-position to an A-position. It has been argued in the literature that such a movement is considered improper and is banned:

\[(51) \quad \text{A′-movement of a constituent X cannot be followed by movement of X to an A-position.} \quad \text{(Safir 2017)}\]

The ban on improper movement can be attributed to the fact that it forms a non-uniform chain, causing interpretive ill-formedness at the CI interface (Chomsky and Lasnik 1993, Fukui 1993). In (49) as well as in (45a)-(47a), thanks to the merge of an XP to Spec,TP, the derivation can in fact bypass the problems that annoy simultaneous, parallel movement to Spec,TP and to Spec,CP and Spec-to-Spec movement; however, (49) will be ruled out independently for improper movement. Needless to add, the problem of improper movement does not arise in (45a)-(47a) as the subject moves from the embedded Spec,CP to the matrix Spec,CP, which is an A′-position.

As I have demonstrated, the proposed analysis can explain the subject-extraction generalization in (36). Notice that it does so without assuming literal deletion operations like Exfoliation and \textit{that}-deletion: a smaller-than-full clause will emerge when external pair-merge of T to C applies, which adjoins one head to the other and creates only one set above \(\nu/\nu^*\) (i.e., a set headed by <C, T>) in the clausal spine. External pair-Merge can reduce structure, with deletion operations like Exfoliation and \textit{that}-deletion wiped out in favor of Merge. This is a desirable outcome: deletion operations in syntax are extra mechanisms beyond irreducible Merge; furthermore, Exfoliation and \textit{that}-deletion violate the No-Tampering Condition (NTC), one of the conditions that follow from general principles of minimal computation:

\[(52) \quad \text{The No-Tampering Condition} \quad \text{Merge of X and Y leaves the two SOs unchanged.} \quad \text{(Chomsky 2008:138)}\]

Deletion operations remove a portion of the existing structure and change the structure created by Merge. Given NTC, the clause, once structured, cannot be restructured by deletion operations. External pair-merge of heads can remove a certain portion of the structure in accordance with (52) and can reduce the clause from birth. The analysis proposed in this paper can give a Merge-based, hence principled explanation to the relevant generalization.

Another advantage of the proposed analysis is that it can explain the labelability of “TP” (marked as \(\lambda\) in this paper). Recall that T is not a labelable head and requires overt or visible Spec,TP in order to work as a label; it is weak as a label. Notice that in (37a,b) and (38a), “TP” can stand without overt/visible Spec, suggesting that T alone is labelable. The labelability is straightforward under the proposed analysis. In the relevant examples, T is externally pair-merged to C and the amalgamated head <C, T> is created; T is not T but <C, T>. As I have argued, <C, T>, which is externalized as \(t_o\) when it lacks tense and as Ø when it has tense, is syntactically on par with C. Since C is labelable, <C, T> can label on its own without overt
Spec. The proposed analysis can dispense with the stipulation that infinitival T, unlike finite T, can label without overt Spec (Epstein, Kitahara and Seely 2014) and the mechanisms argued for in Chomsky (2015) in order to explain the labelability of “TP” in (37b).

6. Conclusion

In this paper, I have considered clause-internal scrambling in languages like Japanese and Korean, and proposed that it is movement to the Spec of <C, T>. I have claimed that Merge gives a solution to clause-internal scrambling: in the derivation, it applies asymmetrically to yield the amalgamated head. I have demonstrated that the proposed analysis can solve the interpretive and derivational problems caused by simultaneous and step-by-step movement analyses, reconciling scrambling to Spec,TP with scrambling to the edge. Subject A’-movement and subject extraction out of the embedded clause can also fall under the proposed analysis, which hence has implications for movement to and out of Spec,TP in general. The paper has demonstrated that Merge plays a key role in the derivation, endorsing its significance in the Faculty of Language. It is one illustration of SMT, the Strong Minimalist Thesis: movement to and out of Spec,TP is explained by Merge and interfaces.

References


On the Scope of Negation and the Position of the Subject in Japanese

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1. Introduction

As observed in (1a), the subject cannot be interpreted as partial negation (not > all) in Japanese, unlike English in (1b).

all-NOM test-ACC take-NEG-PAST
‘All did not take the test.’

b. Everyone didn’t attend the meeting. not > all, all > not

However, partial negation can be interpreted for the subject in (2), even in Japanese.

(2) a. Siken-o zen’in-ga uke-nakat-ta. (SJ) not > all, all > not
test-ACC all-NOM take-NEG-PAST
‘The test all did not take.’

b. Hora, zen’in-ga uta-te-i-na-i. (SJ) not > all, all > not
Look, all-NOM sing-ASP-NEG-PRES
‘Look, all are not singing.’

c. Zen’in-ga siken-o uke-na-i nara koma-ru. (SJ) not > all, all > not
all-NOM exam-ACC take-NEG-PRES if be embarrassed
‘If all don’t take the exam, I will be embarrassed.’

Focusing on the possibilities of the partial negation of the subject, I explicate the scope of negation in Japanese in comparison with English and argue that the difference between them can be derived in terms of feature-inheritance (Chomsky 2007, 2008, Miyagawa 2010) and CP cartography (Rizzi 1997, Haegeman 2000). While the position of the subject in a clause is well-established in English, that issue in Japanese is still controversial.¹ In order to determine the scope of negation based on the possibility of the partial negation of the subject, it is necessary to detect the position of the subject correctly. I demonstrate that one dialect of Japanese provides us with a strong tool for doing so.

The paper is organized as follows: first, in section 2 I introduce Miyagawa’s (2001, 2003) analysis based on EPP and show that its primary defect can be overcome if we adopt Miyagawa’s (2010) [topic/focus] inheritance analysis by using the Kumamoto Japanese dialect (KJ) spoken in Kyushu, south-western Japan. In section 3, extending the analysis of

¹ An earlier version was presented at the meeting of Fukuoka Linguistics Circle (FLC) in December 2017. I am grateful to the participants for their valuable comments. I also thank Edmundo Luna for stylistic improvement.

¹ See Koizumi (2017) for a recent discussion on it.
section 2, I clarify the scope of negation in main and subordinate clauses in Japanese. In section 4, I consider the scope of negation in English based on the arguments in Nishioka (2004, 2007), while in section 5, I attempt to derive the difference between Japanese and English with respect of partial negation from the differences of feature-inheritance between the two languages in light of CP cartography. Section 6 concludes the paper.

2. The Position of the Subject in Japanese


Assuming that the scope of negation is the c-command domain of T, Miyagawa (2001, 2003) develops his theory of scrambling based on [EPP], which is schematically represented in (3). If the subject moves to Spec-TP (in (3)) to check [EPP] on T as in (5a), it is not in the scope of negation, resulting in only the interpretation of total negation (all > not). This is the derivation of (4a). But if the object instead moves there to check [EPP] on T as in (5b), the subject can stay in Spec-vP, which is under the scope of negation, and the partial negation results in (4b). However, (4b) has another derivation in (5c), where both the subject and the object move to respectively, in (3). This results in the total negation of the subject. In other words, EPP is a key factor in explaining the interpretation of the subject in (4).

(3)

(4) a. Zen’in-ga siken-o uke-nakat-ta. (= (1a)) (SJ) *not > all, all > not
   all-NOM test-ACC take-NEG-PAST
   ‘All did not take the test.’

   b. Siken-o zen’in-ga uke-nakat-ta. (= (2a)) (SJ) not > all, all > not
   test-ACC all-NOM take-NEG-PAST
   ‘The test all did not take.’

(5) a. [TP Subj ... [NegP [vP t1 ... Obj ... tV-v] tV-v-Neg] V-v-Neg-T\textsubscript{EPP}] Subj > not

   b. [TP Obj ... [NegP [vP Subj ... t1 ... tV-v] tV-v-Neg] V-v-Neg-T\textsubscript{EPP}] not > Subj

   c. [TP Obj [TP Subj ... [NegP [vP t1 ... t2 ... tV-v] tV-v-Neg] V-v-Neg-T\textsubscript{EPP}]] Subj > not

However, Miyagawa’s EPP based analysis cannot capture the facts in (6) and (7).
(6) a. Hora, zen’in-ga uta-te-i-na-i. (SJ) (= (2b)) not > all, all > not
    ‘Look, all are not singing.’
b. Zen’in-ga mada ki-te-i-na-i. (SJ) not > all, all > not
    ‘All haven’t come yet.’

(7) a. Zen’in-ga siken-o uke-na-i nara koma-ru. (SJ) (= (2c)) not > all, all > not
    ‘If all don’t take the exam, I will be embarrassed.’ (if-clause)
    ‘Because all didn’t take that test, (we will) have another one next month.’

(6) involves intransitive verbs and (7) involves subordinate clauses, both of which allow the partial negation of the subject, unlike (4a). Miyagawa’s (2001, 2003) EPP analysis would predict that the subject moves to Spec-TP to check T’s EPP and thus making its partial negation impossible, contrary to fact.

I argue based on Nishioka (2018) that these empirical problems of Miyagawa’s (2001, 2003) are overcome by adopting and extending Miyagawa’s (2010) [topic/focus] driven movement in Japanese. I introduce the Kumamoto Japanese dialect (KJ) because it provides evidence that clearly identifies the interplay between the positions and the interpretations of the subject.

2.2. [topic/focus] Feature Inheritance: Miyagawa (2010) Miyagawa (2010) argues that discourse-configurational languages such as Japanese have an Agree system based on the [topic/focus] feature with the feature-inheritance mechanism from C to T, which parallels the proposal by Chomsky (2007, 2008) for languages with \( \beta \)-feature agreement such as English. In this system the occurrence of agreement on T triggers movement of the appropriate elements to Spec-TP. This is illustrated in (8). (8a) is the original proposal by Chomsky, while (8b) is the proposal for Japanese by Miyagawa (2010). P is added here, which optionally projects and whose head receives the [topic/focus] feature from C when multiple elements in TP have the [topic/focus] feature. The derivations for the sentences in (9) are illustrated in (10).

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In (9a), the subject has the [topic/focus] feature and has moved to Spec-TP to agree with T’s feature, which is inherited from C, as illustrated by (10a). In (9b), on the other hand, the object instead has the [topic/focus] feature and has moved to Spec-TP to agree with T’s feature, while the subject without the [topic/focus] feature stays in-situ at Spec-vP as in (10b). (9b) has another derivation in (10c), where both the subject and the object have the [topic/focus] feature and move to Spec-TP and Spec-P, respectively. It might seem that this is just the replacement of [EPP] in Miyagawa (2001, 2003) with [topic/focus]. However, the adequacy is confirmed by observing the behavior in Kumamoto Japanese (KJ).

2.3. -No Nominative in Kumamoto Japanese (KJ)

KJ uses -no as well as -ga as nominative markers, unlike standard Japanese (SJ), which only uses the -ga nominative, as observed in (11).

(11) a. Tenki-ga/*no              ii-ne.        (SJ)
    Weather-NOM fine-PRT
    ‘Look! Nice weather, isn’t it?’

b. Tenki-ga/no                yoka-ne.  (KJ)
    Weather-NOM fine-PRT
    ‘Look! Nice weather, isn’t it?’
As for the differences between -ga and -no in KJ, (12a, b) have been proposed, which can be demonstrated by (13) and (14), respectively.

(12) a. -no nominative subject in KJ is inside vP, while -ga subject is Spec-TP. (Kato 2007)
   b. -ga nominative subject in KJ has a topic/focus interpretation, while -no subject has neither. (Nishioka 2018)

(13) a. Ame-ga/*no uresikakotuni fur-iyoku-ru. (KJ)
   rain-NOM happily fall-PROG-PRES
   ‘Happily, it is raining.’
   b. Uresikakotuni ame-ga/no fur-iyoku-ru. (KJ)
   happily rain-NOM fall-PROG-PRES

(14) a. Taroo-ga/*no son syoo-setu-ba koota-bai. (KJ)
   Taroo-NOM the novel-ACC bought-PRT
   ‘Taroo bought the novel.’
   b. Taroo-ga/*-no intyo (desu) tai. (KJ)
   Taroo-NOM chair (be) PRT
   ‘Taroo is the chair.’
   c. Hora, basu-no ki-ta. (KJ)
   Look, bus-NOM come-PAST
   ‘Look, here comes a bus.’

(13) shows that a high adverb such as ‘happily’ cannot follow a -no marked subject, which is derived from (12a): -no marked subject stays in vP and cannot precede a high adverb which locates TP or higher. The subject ‘Taroo’ functions as the topic or focus of the sentence in (14a) and the focus in (14b), which is an exhaustive listing sentence (Kuno 1973). -no cannot be used in either case. On the other hand, a -no marked subject appears in (14c), in which the subject functions as neither topic nor focus in a thetic interpretation (Kuroda 1992).

In light of (12), let us consider the SJ data. The SJ data in (4a) and (4b) are rendered into KJ as (15a, b), respectively.

(4) a. Zen’in-ga siken-o uke-nakat-ta. (= (1a)) (SJ)
   all-NOM test-ACC take-NEG-PAST
   ‘All did not take the test.’
   b. Siken-o zen’in-ga uke-nakat-ta. (= (2a)) (SJ)
   test-ACC all-NOM take-NEG-PAST
   ‘The test all did not take.’

   all-NOM test-ACC take-NEG-PAST
   ‘All did not take the test.’
   b. Siken-ba zen’in-ga/no uke-n-datta. (KJ)
   test-ACC all-NOM take-NEG-PAST
   ‘The test all did not take.’

(16) a. [TP Subj; … [NegP [v f1 … Obj; … [V-v-Neg] V-v-Neg-T] C[topic/focus]] Subj > not
   b. [TP Obj; … [NegP [v Subj; … f1 … [V-v-Neg]] V-v-Neg-T] C[topic/focus]] not > Subj
   c. [TP Obj; [TP Subj; … [NegP [v f1 … f1 … [V-v-Neg]] V-v-Neg-T] C[topic/focus]] Subj > not
The data in (15) clearly support Miyagawa’s (2010) analysis, where the driving force of the subject movement to Spec-TP is the agreement of [topic/focus] and a crucial assumption is the obligatory inheritance of [topic/focus] from C to T. Thus in (4a), since the subject has to have [topic/focus] and move to Spec-TP, its partial negation interpretation is impossible, as represented in (16a). This is confirmed in (15a) in KJ, where a -no marked subject cannot occur, as predicted by (12). The -ga and -no subjects in (15b) correspond with the two interpretations of (4b), respectively. Here the -no marked subject stays in vP as in (16b) and receives a partial negation interpretation, while the -ga marked subject moves to Spec-TP in (16c), resulting in a total negation interpretation. Thus KJ reveals facts not visible in SJ, where the same nominative case markers are used irrespective of the positions and interpretations of the subject, and proves the adequacy of the [topic/focus] inheritance analysis of Miyagawa (2010).

Next let us consider how the data raised as problems to Miyagawa’s (2001, 2003) EPP analysis are dealt with. The SJ data in (6a, b) are rendered into KJ in (17a, b), respectively.

(6) a. Hora, zen’in-ga uta-te-i-na-i. (SJ) (= (2b)) not > all, all > not
    Look, all-NOM sing-ASP-NEG-PRES
    ‘Look, all are not singing.’

   b. Zen’in-ga mada ki-te-i-na-i. (SJ) not > all, all > not
    all-NOM yet come-ASP-NEG-PRES
    ‘All haven’t come yet.’

(17) a. Hora, zen’in-ga/no uto-to-ran (KJ) -ga: all > not, -no: not > all
    Look, all-NOM sing-ASP-NEG-PRES
    ‘Look, all are not singing.’

   b. Zen’in ga/no mada ki-to-ran (KJ) -ga: all > not, -no: not > all
    all-NOM yet come--ASP-NEG-PRES
    ‘All haven’t come yet.’

In (6) as well as (11), it is assumed that implicit topics, including a null stage topic (Erteschik-Shir 2007) which expresses the ‘here-and-now’ in the discourse, occupy Spec-TP for [topic] agreement. This is when a -no marked subject is used in (17) in KJ, where the -no marked subject stays in-situ in vP and is interpreted with partial negation. On the other hand, if a -ga marked subject is used, it gets the focus interpretation, and thus it occupies Spec-TP, according to (12), which is outside the scope of negation. The presentational characters of (6)/(17), which are linked with progressive/perfective aspects of intransitive verbs, contribute to the interpretations with the null stage topic.

Note that not all intransitive verbs (one-place predicates) allow the partial negation of the subject.

(18) a. Zen’in-ga kasikoku nai. (SJ) *not > all, all > not
    All-NOV wise NEG.PRES
    ‘All are not wise.’

   b. Zen’in-ga/*no kasikoku naka. (KJ) *not > all, all > not
    All-NOV wise NEG.PRES
    ‘All are not wise.’
Here the sentence involves an individual-level predicate (Kratzer 1989) and should be interpreted as exhaustive-listing after Kuno (1973), where the subject represents the focus of the sentence. This is why the subject should move to Spec-TP, which only produces the total negation interpretation, as evidenced by the ill-formed use of a \(-no\) marked subject.

3. Scope of Negation in Japanese

Another problematic case of Miyagawa’s (2001, 2003) EPP analysis is observed in (7).

(7) a. Zen’in-ga siken-o uke-na-i nara koma-ru. (SJ) (= (2c)) not > all, all > not all-NOM exam-ACC take-NEG-PRES if be embarrassed
   ‘If all don’t take the exam, I will be embarrassed.’ (if-clause)

   all-NOM that test-ACC take-NEG-PAST because next month again it-ACC do
   ‘Because all didn’t take that test, (we will) have another one next month.’
   (Because-clause) not > all, all > not

Here the relevant subject occurs in subordinate clauses. If (i) the subject moves to Spec-TP and (ii) the scope of negation is the c-command domain of T (see (3)), as argued for the main clauses, the partial negation of \(zen’in\) ‘all’ in (7) cannot be accounted for. We have to look at which of them or whether both of them does/do not hold here. Again KJ serves well to illustrate this. The SJ sentences in (7a, b) are rendered into KJ as in (19).

(19) a. Zen’in-ga/?no siken-ba uke-n nara koma-ru. (KJ) not > all, all > not all-NOM exam-ACC take-NEG.RES if be embarrassed
   ‘If all don’t take the exam, I will be embarrassed.’ (if-clause)

b. Zen’in-ga/?no sono tesuto-ba uke-ndat-ta ken raigetu
   all-NOM that test-ACC take-NEG-PAST because next month
   mata sore-ba suru bai. (KJ) (Because-clause) not > all, all > not again it-ACC do Prt
   ‘Because all didn’t take that test, (we will) have another one next month.’

Interestingly enough, even with the \(-ga\) marked subject, the partial negation of the subject is possible, and the \(-no\) marked subject in (19) is much better than in (15a), which is a main clause. Moreover, the \(-ga\) marked subjects need not have the topic/focus interpretations in (19). This suggests that there is a possibility that either situation (or perhaps both) in (12) does not hold for subordinate clauses in KJ. Following Miyagawa (2012), I assume that SSG in (20) also holds for Japanese.

(20) The subject-in-situ generalization (SSG):
   By Spell-Out, vP can contain only one argument with a structural Case feature.
   (Alexiadou and Anagnostopoulou 2007:32)

If it is true, the subject with either \(-ga\) or \(-no\) in (19), which involves a transitive verb, must be outside vP, possibly at Spec-TP. To capture the difference between main and subordinate clauses, I propose that the properties in (12) are derived from the more core properties in Japanese stated in (21).
(12) a. -\textit{no} nominative subject in KJ is inside vP, while -\textit{ga} subject is Spec-TP. (Kato 2007)
   b. -\textit{ga} nominative subject in KJ has a topic/focus interpretation, while -\textit{no} subject has neither. (Nishioka 2018)

(21) a. [topic/focus] inheritance from C to T is obligatory in main clauses, while [focus] inheritance is optional in subordinate clauses.
   b. -\textit{no} making is not compatible with [topic/focus] feature (anti- \textit{\textalpha} property).

It seems reasonable to assume (21a) if the topic of the sentence is defined as 'what the whole sentence is about' (Reinhart 1981, Lambrecht 1994).\(^3\) Then it should be relevant only with main clauses in principle, working as a main clause phenomenon, although the occurrence of [focus] is not limited to main clauses. The assumption of (21b) is supported by the impossibility of a -\textit{no} marked subject in sentences in which focus or topic interpretations are forced. Subjects with -\textit{no} marking are not compatible with the focus particles -\textit{dake} 'only' or -\textit{sae} 'even' as in (22b). Non-anaphoric weak personal pronoun subjects (though third person pronouns are rarely used in colloquial speech in Japanese) are always the topic of the sentence according to Erteschik-Shir (1997). Thus, the first or the second person pronoun in (23b) should be the topic unless it is focused, which makes the use of -\textit{no} unnatural.\(^4\)

(22) a. Kozutumi-ga/-\textit{no} todoita(-bai). (KJ)
   parcel-NOM arrived PRT
   ‘A parcel has arrived.’
   b. Kozutumi-dake/sae-ga/-\textit{no} todoita(-bai) (KJ)
   parcel-only/even-NOM arrived PRT
   ‘Only/Even a parcel has arrived.’

(23) a. An byooin-de Taro-ga/-\textit{no} umareta(-ttai). (KJ)
   that hospital-in Taro-NOM was born(-PRT)
   ‘In that hospital Taroo was born.’
   b. An byooin-de watasi/aata-ga/-\textit{no} umareta(-ttai). (KJ)
   that hospital-in I/you-NOM was born(-PRT)
   ‘In that hospital I/you was/were born.’

Note that the observations in (12) are based on main clauses. Therefore, according to (21), it follows that a -\textit{no} marked subject cannot occur at Spec-TP because of the obligatory inheritance of [topic/focus] from C to T ((21a)) and inherent property of -\textit{no} marked subjects ((21b)) in main clauses in KJ, while it is possible in subordinate clauses if the optional [focus] inheritance does not occur. Moreover, if -\textit{ga} marking is not sensitive to the

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\(^3\) Here is a departure on the kinds of topics which are inherited from C to T from Miyagawa (2017), who assumes that Aboutness topics cannot be inherited from C to T, unlike Contrastive topics and Familiar topics. See Miyagawa (2017: 46) for the definitions of these topics. However, I assume that inherited [topic] features include the aboutness kind. In (i) below, the subject can be interpreted as the aboutness topic of the sentence and it cannot be expressed by –\textit{no} marking in KJ.

(i) a. Taro-ga Murakami Haruki-no atarasii hon-o kat-ta. (SJ)
   Taro-NOM Murakami Haruki-GEN new book-ACC buy-PAST
   ‘Taroo bought a new book of Haruki Murakami.’
   b. Taro-ga/-\textit{no} Murakami Haruki-no atarasii hon-ba koo-ta. (KJ)
   Taro-NOM Murakami Haruki-GEN new book-ACC buy-PAST

\(^4\) Fukuda (2009) independently argues overtly for the focus property of genitive -\textit{ga} and implicitly for non-focus/topic property of -\textit{no} in DP of KJ.
topic/focus property as opposed to -no marking as stated in (21b), a -ga marked subject can occur at Spec-TP irrespective of the [focus] inheritance from C to T in subordinate clauses. Recall that the subject in transitive constructions such as (19) cannot stay in vP due to SSG in (20). From all of these KJ examples, which overtly reveal the positions of the subject, the partial negation of the universal subject at Spec-TP in (7)/(19) suggests that the scope of negation is different between main and subordinate clauses in Japanese, as stated in (24).

(24) Scope of Negation in Japanese
   a. Spec-TP is not in the scope of negation in main clauses.
   b. Spec-TP can be in the scope of negation in subordinate clauses.

4. Scope of Negation in English
   Nishioka (2004, 2007) argues that the scope of negation in English is higher than TP based on negative polarity items (NPIs) and partial negation of quantifiers. First we should consider the arguments based on NPIs. It is widely accepted that NPIs such as any in English must be c-commanded by a negative element, to which the contrast in (25) has been attributed.

(25) a.*Anyone did not attend the party.
    b. John did not eat anything.
   (26) As schematized in (26), the object is c-commanded by not, but the subject is not. However, this simplistic c-command analysis cannot account for the following examples.

(27) a. Pictures of anyone did not seem to be available. (Boeckx 2000:362)
    b. A good solution to any of these problems does not exist. (Hoeksema 2000:136)
(28) a. Even then the writers of none of the reports thought that any rain had fallen anywhere else. (Klima 1964:278)
    b. I gave pictures of no one to anyone. (Ota 1981:22)

In (27), although the NPIs embedded in the subject are not c-commanded by not, the sentences are still grammatical. If the reconstruction of A-movement is unavailable, as argued by Chomsky (1993, 1995), Lasnik (1999), among others, the grammaticality poses an enigma. Moreover, irrespective of the reconstruction of A-movement, the negative elements (none, no one) in (28) do not c-command NPIs without resulting in ungrammaticality. In order to account for these data and to unify a variety of sentential negation including (29), Nishioka (2004, 2007) proposes that Pol above TP establishes the scope of negation through Agree with negative elements in TP, as illustrated in (30).  

5 Holmberg (2016) recently proposes a similar idea in which PolP between CP and TP is assumed but the subject resides in Spec-PolP, rather than Spec-TP, which fails to explain (1b) as well as (27).
(29) a. John does *not* eat chocolates. (not)
   b. John *never/seldom* eats chocolates. (negative adverbs)
   c. John ate *nothing*. (negative quantifier)

(30) a. \[PolP \quad Pol[uNEG] \quad [TP (\ldots) \quad NE[+NEG][uneg] (\ldots)]\]
    b. \[PolP [+NEG] \quad Pol[uNEG] \quad [TP (\ldots) \quad NE[+NEG][uneg] (\ldots)]\]

Feature Transfer: FT

It is assumed here, following Chomsky’s (2000) suggestion for *wh* questions, that Pol has an uninterpretable feature [uNEG] and negative elements (NEs) such as *not*, negative adverbs and negative quantifiers have an interpretable feature [+NEG] with an uninterpretable feature [uneg] and Agree applies between Pol and NE, resulting in Pol obtaining [+NEG] through feature transfer from NE. If this is true, the scope of negation in English is the c-command domain of Pol, with (27) and (28) posing no problem because NPIs are in the scope of negation. However, the ungrammaticality of (25a) will then be a problem. Nishioka (2004, 2007) proposes that NPIs such as *any* . . . cause an intervention effect for Agree between Pol and NE. The contrast in (25) is attributed to the intervention effect as represented in (31).

(31) a. \[PolP \quad Pol[uNEG] \quad [TP \quad T \quad NE[+NEG][uneg] \ldots ]] \quad * \text{blocked by NPI}\]
    b. \[PolP [+NEG] \quad Pol[uNEG] \quad [TP (\ldots) \quad NE[+NEG][uneg] \ldots \text{NPI} \ldots ]\]

The subject NPI in (25a) causes an intervention effect for Agree between Pol and NE (*not*) as in (31a), while the object NPI in (25b) does not as in (31b). The NPIs in (27) do not cause intervention effects because they do not c-command NE by being embedded in the subject DP (i.e. not in the path of the application of Agree) in contrast with (25a). The difference can be schematized in (32).

(32) a. \[\alpha \quad \beta \quad \gamma \quad * \text{blocked by NPI}\]
    b. \[\alpha \quad \beta \quad \gamma \quad \text{OK}\]

corresponds with Pol, NPI (*any*), and NE (*not*).

Next we should consider examples involving quantifiers.

(33) a. John couldn’t solve *many* of the problems.
    b. John didn’t invite *every* student.

(34) a. *Many* of the children did not go to school yesterday.
    b. *Everyone* didn’t come to the party.

Partial negation is easily obtained for both existential and universal quantifiers in the object position as in (33). However, an interesting asymmetry is observed between existential and
universal quantifiers in the subject as in (34). Partial negation is impossible for the existential quantifier in (34a), in contrast with the universal quantifier in (34b). This is accounted for if we assume that existential quantifiers but not universal quantifiers cause intervention effects for the application of Agree (and FT) between Pol and NEs. Then the contrast between (33a) and (34a) is captured in parallel with (25)/(31), which can be schematized in (35) just by replacing NPIs with existential quantifiers (EQs).

(35) a. $\text{PolP}$ $\text{Pol} \left[ \text{TP} \quad \text{EQ} \quad \text{T} \quad \text{NE} \right] \quad \ldots \quad \ldots \quad ]$
    $\text{FT}$

   $\text{b. } [\text{PolP} \quad \text{Pol} \left[ \text{TP} \quad \ldots \quad \text{NE} \quad \text{NE} \right] \quad \ldots \quad \ldots \quad ]$

Recall that NPI *any* is a member of the category of existential quantifiers. A crucial difference between the NPI *any* and non-NPI existential quantifiers such as *many* is that the former must be interpreted within the scope of negation, otherwise the sentence involving it will be ungrammatical, while the latter quantifiers do not cause ungrammaticality even if it is not in the scope of negation. If EQs moves higher than Pol to avoid the intervention, they will be out of the scope of negation and only the total negation interpretation results. The intervention effects will be circumvented if EQs are embedded in the subject.

(36) Pictures of many linguists were not available. (= Pictures of not many/few linguists were available.)  

(Linebarger 1980: 50)

This involves the structure in (32b) and supports the Agree-based analysis with the intervention effects as well as the PolP analysis above TP in (30). The arguments above hold intact for embedded clauses.

(37) a. *When anyone did not attend the party…,*
    b. *When John did not eat anything,*

(38) a. *When/If many of the children did not go to school yesterday,*  
    b. *When/If everyone didn’t come to the party,*

Therefore, the scope of negation appears to be higher than TP in both main and subordinate clauses in English.

5. On the Difference of the Scope of Negation between Japanese and English

If the scopes of negation in Japanese and English is summarized below, the differences on the availability of partial negation in (40) are made apparent:

(24) Scope of Negation in Japanese

a. Spec-TP is not in the scope of negation in main clauses.

b. Spec-TP can be in the scope of negation in subordinate clauses.

---

6 A rising intonation without a break after the subject is necessary for the universally quantified subject to take a narrow scope with respect to negation (i.e. partial negation) (Jackendoff 1972, Lasnik 1972). However, existentially quantified subject cannot obtain it, even with the same intonation.

7 This will be grammatical in if or before clauses because they can license NPIs with no regard to negation.
(39) Scope of Negation in English
Spec-TP is in the scope of negation both in main and subordinate clauses.

(40) a. Zen’in-ga siken-o uke-nakat-ta. (SJ) (= (1a)) *not > all, all > not all-NOM test-ACC take-NEG-PAST 'All did not take the test.'
b. Zen’in-ga siken-o uke-na-i nara koma-ru. (SJ) (= (2c)) not > all, all > not all-NOM exam-ACC take-NEG-PRES if be embarrassed 'If all don’t take the exam, I will be embarrassed.'
c. Everyone didn’t attend the meeting. (= (1b)) not > all, all > not

The universally quantified subject is at Spec-TP in all sentences in (40) but Spec-TP is out of the scope of negation in Japanese main clauses, unlike Japanese subordinate clauses or English main/embedded clauses. This is why partial negation is impossible only in (40a), but still available in (40b, c). The remaining question is how the differences with respect to the scope of negation in (24) and (39) occur. I present a speculative analysis based on the cartography of CP.


(41) \[
\begin{array}{c}
\text{ForceP} \\
\text{Force} \\
\text{TopP} \\
\text{Top} \\
\text{FocP} \\
\text{Foc} \\
\text{PolP} \\
\text{Pol} \\
\text{FinP} \\
\text{Fin} \\
\text{TP} \\
\end{array}
\]

In this analysis, PolP is located between FocP and FinP. This would be compatible with the facts that Topicalized/Focalized elements, if they themselves do not incorporate negation, are out of the scope of negation in English.

(42) a. All the guests of the party, John didn’t talk to. *not > all, all > not
b. All, not some of the guest, John didn’t talk to. *not > all, all > not

If Pol acquires \ [+NEG\] as argued in (30) and the scope of negation in English is the c-command domain of Pol, the impossibility of partial negation in (42a, b), where universal quantified elements are located in Spec-TopP and Spec-FocP, respectively, is well-predicted. Recall that Pol obtains \ [+NEG\] as a result of the application of Agree with \(\text{not}\) in (30). For the application of Agree, it is assumed that Pol has \([u\text{NEG}]\) (uninterpretable NEG feature). Recall also the feature inheritance theory from C to T in section 2.2., which was depicted in (8). According to Chomsky (2007, 2008), \ -features are inherited from C to T in alignment languages such as English, while Miyagawa (2010) proposes that topic/focus features are inherited from C to T in Japanese. If we consider the proposals in light of (41), it can be assumed that the origin of \ -features is Fin and that of topic and focus features is Top and Foc. Then the inheritance of \ -features should occur from Fin to T, while that of topic/focus features should occur from Top/Foc to T. Furthermore, it is assumed that the feature inheritance occurs step by step observing the head movement constraint, even with downward movement (Radford 2016). Thus when \(\text{topic/focus}\) is inherited from Top/Foc to T, it drops in at Pol, picking up and carrying \([u\text{NEG}]\) to T, while in \ -feature inheritance from Fin to T, \([u\text{NEG}]\) is not involved, as illustrated in (43). This explains the differences in the scope of negation between (24) and (39).
(43a) and (43b) represent the case of focus and topic feature inheritance in Japanese, respectively, where \([u\text{NEG}]\) is involved in the inheritance and goes to T.\(^8\) The scope of negation is established as the c-command domain of T, where \([u\text{NEG}]\) gets \([\text{NEG}]\) through Agree with negative head -\(na\) in Neg. This is how (24a) is derived in Japanese main clauses. On the other hand, as stated in (21a), topic inheritance in (43b) does not occur and focus inheritance in (43a) is optional in Japanese subordinate clauses. Thus, when the inheritance does not occur, \([u\text{NEG}]\) remains at Pol and via Agree with the Neg head, Pol obtains \(+\text{NEG}\) and establishes the scope of negation as the c-command domain of Pol, producing (24b). In English \([u\text{NEG}]\) at Pol does not involve in the \([u\ ]\) inheritance from Fin to T in (43c). Therefore, the scope of negation is the c-command domain of Pol, which is established in terms of Agree, as depicted in (30) and (39) follows.

6. Concluding Remarks

I have addressed the problem of the different scopes of negation between Japanese and English in terms of the interpretation of the universally quantified subject. This is based on the idea that in order to obtain an interpretation of partial negation for such subjects, the subject must be in the scope of negation. It is then necessary to identify the positions of the subject in clause structures. While the position of the subject in English has been established at Spec-TP, that in Japanese has been controversial. By following Miyagawa’s (2010) topic/focus inheritance theory, I have argued that the subject must be at Spec-TP if it has a topic/focus interpretation, which is clearly substantiated by the data of Kumamoto Japanese (KJ). KJ reveals the positions and the interpretations of the subject by the different uses of the nominative case markers (-\(ga\) and -\(no\)). I have argued the anti-topic/focus property of -\(no\) as the main factor in the differences. Through a primary analysis of the KJ data, we realize that the scope of negation is different between main and subordinate clauses in Japanese: it is narrower in main clauses than in subordinate clauses. This difference can be attributed to the obligatory/optional difference of [topic/focus] feature inheritance from C to T. Moreover, if we assume the cartography of CP in (41) and different origin of the inherited features, the difference of the scope of negation between Japanese and English can be attributed to the difference of the inherited features: [topic/focus] in Japanese and -features in English. [Topic/focus] inheritance picks up [u\text{NEG}] and carries to T, whereas -feature inheritance does not involve [u\text{NEG}]. This is still in the speculative stage, but if it is on the right track, it will lead to an interesting unification of feature-inheritance theory and CP cartography.

\(^8\) It is assumed that either topic or focus feature inheritance occurs and when topic inheritance occurs, Foc does not project in the structure. When focus inheritance occurs, Top can project without topic inheritance.
References


Kuroda, Shige-Yuki (1992) “Judgment Forms and Sentence Forms,” Japanese Syntax and
1. Introduction

Words such as *nwukwu* ‘someone/who’ and *mwues* ‘something/what’ in Korean are ambiguously interpreted either as indefinite or *wh*-elements. Concentrating on their use as the counterpart of a *wh*-element in English, we investigate the peculiar distribution of multiple *wh*-elements vis-à-vis single *wh*-elements in *wh*-questions, showing that the former are subject to the more stringent syntactic licensing condition than the latter. In particular, the former undergo post-QR absorption at covert syntax, meeting the clause-mate condition between multiple *wh*-elements. There is, however, a way of circumventing the clause-mate condition by taking the so-called *pied-piping* strategy when one of the multiple *wh*-elements is embedded in the island structure headed by the nominal such as a relative clause head, but this strategy cannot come into play when one of the multiple *wh*-elements is embedded in the structure resistant to the percolation from/Agree with it, such as non-nominal propositional clause or coordinate structure.

2. Empirical challenges

It is generally acknowledged that a *wh*-element-in-situ in Korean is associated with a clause-final Q-morpheme –*ni/-ci* with a falling intonation, but it is somewhat less well established what syntactic operation is involved for such an association, particularly in multiple *wh*-constructions in this language. To investigate this issue, consider such constructions as follows. Since multiple *wh*-constructions occur in specific contexts (See Dayal (1996) the discussion), I provide a context where *wh*-constructions like (1)-(3) are expected to ensure:

**Context:** In a graduate seminar, two weeks ago Prof. Kim assigned one paper each to the (four) students in the course he is teaching. But he now forgets about the list of student-paper/its author pairs. In this situation he can ask the students in class the following questions:

(1) [nwu-ka] **[enu nonmwun-ul]** kangtokha-l yeyceng-i-ni?
   ‘Who is going to read which paper?’

(2) [nwu-ka] **[nwukwu-uy nonmwun-ul]** kangtokha-l yeyceng-i-ni?
   ‘Who is going to read/present whose paper?’

(3) [nwu-ka] **[nwu-ka ssu-n nonmwun-ul]** kangtokha-l yeyceng-i-ni?
   ‘Who is going to read/present a paper that who wrote?’
It seems that the multiple questions in (1)-(3) can be answered with the so-called multiple-pair answers.

To convince ourselves about the availability of such answers in (1)-(3), we rehearse another set of multiple questions that evolve in the context depicted below:

**Context**: We graduate students had a potluck party at the end of the semester. Each of us brought one dish to the party. During the party, we each had at least one dish on the table displaying the dishes. What I want to know is,

(1)* mweu-ka [enu umsik-ul] mew-ess-ni?
   who-Nom which food-Acc eat-Pst-Q
   ‘who had which food?’

(2)** mweu-ka [nwukwu-uy umsik-ul] mew-ess-ni?
   who-Nom who-Gen food-Acc eat-Pst-Q
   ‘Who had whose food?’

(3)** mweu-ka mweu-ka kacyeo-n umsik-ul mew-ess-ni?
   who-Nom who-Nom brought-Rel food-Acc eat-Pst-Q
   ‘Who had the food that who brought?’

To go on to investigate this issue further, we also provide the examples in (4)-(5). In (4a) the Q-morpheme on the matrix verbal complex can be associated with the single argumental wh-element in the embedded finite clause, but as (4b) is not followed by a multiple-pair answer, we argue that the Q-morpheme cannot be associated with the two wh-elements separated by the embedded finite clause boundary. However, the scrambling of the embedded object to the periphery of the complement clause as in (4c) helps induce a multiple-pair answer.

   Cheli-Nom Yengi-Nom what-Acc buy-Pst-Comp say-Pst-Q
   ‘What did Cheli say that Yenghi bought?’

b. **Context**: One of the two guys said that Yengi bought one of the two items sold online. What I want to know is,

   who-Nom Yengi-Nom what-Acc buy-Pst-Comp say-Pst-Q [multiple-pair; cf. √single-pair]
   ‘Who said that Yengi bought what?’

   (cf. Park and Bae 2014)

Likewise, in (5a) the Q-morpheme on the verbal complex can be associated with the single wh-element within the coordinate structure, but as (5b) does not allow a multiple-pair answer, it also means that the Q-morpheme cannot be associated with the two wh-elements, one as the second conjunct inside and the other outside the coordinate structure. However, deploying the wh-element as the first conjunct rather than as the second conjunct as in (5c) yields a multiple-pair answer.

(5) a. cheli-ka [chayk-kwa mweu-ul sa-ss-ni? single-wh (coordinate structure)
   Cheli-Nom book-and what-Acc buy-Pst-Q
   ‘Cheli bought a book and what?’


In (6a) the Q-morpheme on the matrix verbal complex can be associated with the single adjunct wh-element in the embedded finite clause. In (6b) (like (4b)), however, it cannot be associated with the two wh-elements separated by the embedded finite clause boundary, thus the multiple-pair answer not allowed. However, the scrambling of the wh-adjunct to the edge of the embedded finite clause improves on eliciting a multiple-pair answer to the resulting multiple wh-question.

Moreover, in (7a) the Q-morpheme on the matrix verbal complex can be associated with the single argumental wh-element in the relative clause. In (7b), however, the Q-morpheme on the matrix verbal complex cannot be associated with the two wh-elements, one being an argumental wh-element in the matrix clause and the other being an argumental wh-element in the relative clause. However, the scrambling of the wh-element to the edge of the relative clause as in (7c) helps evoke a multiple-pair answer to the resultant multiple wh-question.

The same pattern, that is, the effect of eliciting a multiple-pair answer after scrambling the second wh-element to the periphery of the containing node, obtains even when the second argumental wh-element occurs in the adjunct clause.

‘Which student was surprised because Prof. Kim criticized what in class?’
However, this pattern does not hold when the second *wh*-element is an adjunct in an island context, as follows:

(9) a. *nwu-ka [yengi-ka way imeyil-ul ponay-n salam-ul] manna-ss-ni?
   ‘Who met the man that Yengi send an e-mail to why?’
   b. *nwu-ka [way yengi-ka ku imeyil-ul ponay-n salam-ul] manna-ss-ni?

In this sentence, the scrambling of the reason adverbial *why* ‘why’ to the periphery of the relative clause does not help at all ensuring a multiple-pair answer to the resulting multiple *wh*-question.

3. Cross-linguistic aspects of multiple *wh*-questions

The edge effect (via base-generation or scrambling) in Korean that makes it possible to evoke a multiple-pair answer following the resulting multiple *wh*-question is consistent with the similar effect witnessed in other languages. First, as reported by Dayal (2002), in English it is difficult to allow a multiple-pair answer for the multiple *wh*-question where the two *wh*-phrases are separated by the clause boundary, as in (10):

▷ English:

(10) a. Which student doesn’t believe that Mary bought which book?
   b. Which student believes that Mary didn’t buy which book?
   c. Which student believes that Mary read which book?
   d. Which student said that John believes that Bill read which book? Dayal (2002: 518)
   [*multiple-pair; cf. √single-pair]

Dayal (2002) argues that the unavailability of multiple-pair answers to the multiple *wh*-questions in (10) can be predicted under the approach to single- versus multiple-pair answers if covert *wh*-movement of the *wh*-element-in-situ feeding into absorption (Higginbotham & May 1981) is taken to be strictly local, not just constrained by Subjacency. In contrast to those in (10), Dayal (1996) proposes to derive the long-distance multiple-pair answer to (11a) by quantifier raising the complement clause itself in order to meet the selectional requirement of the matrix verb. The resultant output [[∃x[teacher(x)]∧p=¬nice(x)]] allows a functional dependency between the propositions of the form ∃x[teacher(x)]∧p=¬nice(x)] and the kids who stand in the think/believe relation to these propositions.

(11) a. Which kid thinks/believes which teacher is nice? √multiple-pair; cf. √single-pair]
   b. Johnny thinks/believes that Miss Alice is nice, and Billy thinks/believes that Miss Susan is nice.

Not surprisingly, an intermediate (finite) clause between the complement clause and the matrix *wh* as in (12) leads to the inability to evoke a multiple-pair answer:

(12) Which kid thinks (that) Bill believes which teacher is nice?
By contrast, since the indirect question in (13a) can be interpreted in situ, there is no QR and consequently no multiple wh reading is allowed.

\[
(13) \begin{align*}
    \text{a. Which kid knows which teacher is nice?} & \quad [*\text{multiple-pair}; \text{cf. \sqrt{single-pair}}] \\
    \text{b. *Johnny knows that Miss Alice is nice, and Billy knows that Miss Susan is nice.} 
\end{align*}
\]

On the other hand, Ratiu (2005, 2007) (cited in Cheng and Demirdache 2010) notes that Romanian allows single partial wh-movement to the left periphery of a complement clause as in (14), and multiple partial wh-movement as in (15).

\[
\text{Romanian:} \\
(14) \begin{align*}
    \text{Cine a spis ca ce va offeri satului} & \quad [\sqrt{\text{multiple-pair}}; \text{cf. \sqrt{\text{single-pair}}}] \\
    \text{who said that what will offer the village} & \quad \text{‘Who said that he will offer the village what?’} 
\end{align*}
\]

\[
(15) \begin{align*}
    \text{Cine a spis ca ce cine va offeri satului} & \quad [\sqrt{\text{multiple-triple}}; \text{cf. \sqrt{\text{single-pair}}}] \\
    \text{who said that what when will offer the village} & \quad \text{‘Who said that he will offer the village what, when?’} 
\end{align*}
\]

It is noteworthy that (14) evokes either a single-pair or a list-of-pair answer, whereas (15), which does not involve an island, elicits a single-triple, a list-of-triple, or a trapped-pair-list answer.

Now turning to Hungarian, this language can have one wh-phrase in (the focus position of) the matrix clause and a second wh-phrase in the complement clause, as in (16). As Surányi (2006) notes, the second wh-element only optionally fronts within the embedded clause to the immediate left of the embedded verb.

\[
\text{Hungarian:} \\
(16) \begin{align*}
    \text{a. Melyik fiú állítja, hogy felhívta melyik lányt?} & \quad [*\text{multiple-pair}; \text{cf. \sqrt{\text{single-pair}}}] \\
    \text{which boy claims that up-called which girl-Acc} & \quad \text{‘Which boy claims that he phoned which girl?’} \\
    \text{b. Melyik fiú állítja, hogy melyik lányt hívta fel?} & \quad [*\text{multiple-pair}; \text{cf. \sqrt{\text{single-pair}}}] \\
    \text{which boy claims that which girl-Acc called up} & \quad \text{‘Which boy claims that he phoned which girl?’} 
\end{align*}
\]

(16a) must receive a single-pair (SP) answer. Likewise, for (16b), though the second wh-element moves to FocP of the lower clause, no structural adjacency obtain between the two wh-elements; thus, only an SP reading is generated. (16b) is incompatible with a multiple-pair answer.

The multiple wh-question in (17), which involves an island, should allow only an SP answer.

\[
(17) \begin{align*}
    \text{Melyik fiú lett ideges miután felhívta melyik lányt?} & \quad [*\text{multiple-pair}; \text{cf. \sqrt{\text{single-pair}}}] \\
    \text{which boy became angry after up-called which girl-Acc} & \quad \text{‘Which boy got angry after he phoned which girl?’} 
\end{align*}
\]

Surányi (2006) goes on to note that the matrix verb embeds an indirect question itself as in (18). This indirect question clause houses its own wh-operator hol ‘where’ in the embedded Spec,FocP. This allows the in-situ wh-phrase to be construed as [foc], which then can be syntactically associated with the wh-operator of the matrix clause (as is characteristic of ‘wh-triangle’ situations (as
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extensively discussed in Dayal 1996), via covert movement.”

(18) Annyi riportot játszottak be volt sportolókról meg régi versenyekről, hogy a végén már nem tudtam követni . . .
‘They broadcast reports about so many sportsmen and so many old sports events that in the end I was unable to follow . . .’

. . . melyik versenyőr dicsékedett, hogy [kol] végztett [melyik versenyőr]
which sportsman boasted that where finished which competition-on
‘. . . which sportsman boasted about where he finished in which competition.’

In this case, a multiple-pair reading is predicted to be induced by the matrix and the in-situ Wh-phrases. Indeed, this prediction is fulfilled: (18) can be followed by such a multiple-pair answer (of restricted kind).

Incidentally, in overt multiple wh-fronting languages, the wh-phrases that originate in different clauses can move to a single higher SpecCP in Romanian/Basque as in (19) and (20), although they cannot do so in Bulgarian:

(19) Cine ce ziceai [că __ ȋnchipuie [că ai descoperit __]]?
who what said-2s that to himself imagines that have-2s discovered
‘Who did you say imagines you discovered what?’ Romanian (Rudin, 1988, 452, (10))

(20) a. Nori nori iruditu zaio esan duela?
who.to who.ERG what seem AUX say AUX.COMP
‘To whom does it seem that who said what?’


In these languages, multiple fronting to the matrix Spec CP enforces the multiple-pair reading (single pair/single triple answers being no longer available), and this generalization is discussed by Ratiu (2007) for Romanian, Grebenyova (2004) for Bulgarian, and Bošcović (2003).

4. Wh-interpreting strategies

Various proposals on the way of associating the Q-morpheme with a wh-element have been broached in the literature on the construction containing such a wh-like element in East Asian languages such as Japanese, Korean and Chinese. First, assuming that a wh-element in Japanese (and Korean) is an ‘indeterminate pronoun,’ Nishigauchi (1990) argues that “the quantificational force of such a wh-element” is determined via unselective binding by a Q morpheme (Kuroda 1965; Tsai 1999; Takahashi 2002). Second, assuming that a wh-element in J/K is an operator without specific quantificational force, Saito (2017) argues that it must move covertly to a position that allows it to probe the associated Q morpheme and to have its quantificational force valued (Huang 1982; Lasnik and Saito 1984; Richards 2000). Third, mainly concentrating on the wh-island construction in Japanese, Watanabe (1992) argues that in Japanese (and Korean), the empty operator as originating in the Spec of the DP containing a wh-element is be raised to the Spec of CP in overt syntax. But the construction we are concerned with is not the one containing one wh-element but multiple wh-elements. Since the afore-mentioned previous proposals on the wh-element and Q-morpheme association generally take care of the single wh-construction, it is not so clear how to extend them to account for the peculiar distributional aspects of multiple-pair answer-allowing multiple wh-elements in sharp contrast to single wh-ones as noted in (4)-(9).
It is to be noted that in such languages as English, in the multiple \textit{wh}-construction one \textit{wh}-element undergoes \textit{wh}-fronting, but the other stays in situ. It has been argued that in-situ \textit{wh}-elements behave differently from overtly moved \textit{wh}-elements. Specifically, the former quantify over functions from individuals to individuals, and multiple-pair answers involve functional dependencies (see Engdahl 1986; Chierchia 1993; Dayal 1996, 2002; Comorovski 1996; Hornstein 1995, among others). For instance, on Dayal’s proposal, the in-situ \textit{wh}-element in (21) is interpreted via a skolem function.

(21) Which philosopher likes which linguist?

\textit{Which linguist} raises at LF, leaving a complex trace consisting of a skolem function variable and an argument variable, represented as the doubly indexed trace in (22). The subscripted index bound by the covertly moved \textit{wh}-phrase is the functional variable, and the superscripted index, an individual variable bound by the function’s argument (the c-commanding subject argument).

(22) \[ \text{which linguist}_2 \text{[ which philosopher}_1 [ t_1 \text{ likes } t_2^1 ]] ? \]

(22) thus gives rise to a functional dependency between the subject term setting the domain of the function (philosophers) and the object term setting its range (linguists).

Hagstrom (1998) in fact provides compelling evidence for distinguishing between the first c-commanding and the second c-commanded \textit{wh}-elements at the point of constructing multiple \textit{wh’s}. According to Hagstrom, the first \textit{wh}-phrase is construed as an individual variable, thus being not sensitive to a weak island when it moves across it. By contrast, the second \textit{wh}-phrase is construed as a functional variable/skolem function, being sensitive to a weak island when it moves across it. This can be found in the contrast between (a)- and (b)-examples of (23)-(27).

(23) a. \textbf{Which issue} should I \textbf{not discuss} _____ with \textbf{which diplomat}?
    b. ??\textbf{Which diplomat} should I \textbf{not discuss} \textbf{which issue} with _____?
(24) a. \textbf{Which book} did no one \textbf{give} _____ to \textbf{which student}?
    b. ??\textbf{Which student} did no one \textbf{give} \textbf{which book} to _____?
(25) a. \textbf{Which student} did he claim would \textbf{never} talk about \textbf{which topic}?
    b. ??\textbf{Which topic} did he \textbf{never} claim \textbf{which student} would talk about _____?
(26) a. \textbf{Which picture} did \textbf{very few children} want to show _____ to \textbf{which teacher}?
    b. ??\textbf{Which teacher} did \textbf{very few children} want to show \textbf{which picture} to _____?
(27) a. \textbf{Which girl} did \textbf{only Mary}introduce _____ to \textbf{which boy}?
    b. ??\textbf{Which boy} did \textbf{only Mary}introduce \textbf{which girl} to _____?

We further assume with Dayal (1996, 2002) that the second \textit{wh}-phrase-in-situ that is defined as a functional variable/skolem function is quantificational, thus being subject to the clause-mate or stringent locality condition (May 1977, 1985).

5. Providing an account

As suggested in the previous section, we have it that, though they are the same in form, multiple \textit{wh}-elements (particularly, the second \textit{wh}-elements) exhibit different syntactic and semantic behaviors from single \textit{wh}-elements, and that the former are syntactically/semantically licensed in a different way than the latter. In particular, unlike single \textit{wh}-elements (as well as, by assumption, the first \textit{wh}-elements in the multiple \textit{wh}-construction) that behave grammatically either as indeterminate
pronouns or operators without quantificational force (putting aside Watanabe’s (1992) hypothesis on them), in the multiple \textit{wh}-construction the second \textit{wh}-elements that inherently have quantificational force feed into post-QR absorption with the first ones (May and Higginbotham 1981), thus apparently meeting the so-called clause-mate/locality condition on QR. When embedded in an island, however, the second \textit{wh}-element undergoes scrambling to the left periphery of the dominating node (to the TP adjunction position when it occurs in a clause), thus employing the ‘percolation’ strategy (Ross 1967; Chomsky, 1973; Heck 2008; Cable 2007/10; Kotek and Erlewine 2016) to have its quantificational/Q-feature ‘percolated’ to the island-containing node that is to undergo the large-scale pied-piping QR/\textit{Wh}-movement, as in (28):

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{diagram.png}
\caption{(28) Q-feature percolation}
\end{figure}

We provide the following account for the unacceptability of a multiple-pair reading to the multiple \textit{wh}-construction in (4b), (5b), (6b), (7b), and (8a). (4b) with a multiple-pair answer is ruled out because the two \textit{wh}-elements do not meet the clause-mate condition on the QR that feeds into covert \textit{Wh}-movement; this is because the second \textit{wh}-element properly included in the embedded clause cannot interact/undergo absorption with the first \textit{wh}-element. (5b) with a multiple-pair answer is also ruled out on a par with (4b). The coordinate structure that dominates the \textit{wh}-element as the second conjunct is not amenable to the percolation of the Q-feature from the latter. In passing, the contrast both between (4a) and (4b), and between (5a) and (5b), clearly points to the differentiation of single and multiple \textit{wh}-constructions in terms of the licensing condition on \textit{wh}-elements because the same \textit{wh}-element in the same structural environment is ruled in or out depending on the type of \textit{wh}-construction, single or multiple. Likewise, unlike (6a) with the single adjunct \textit{wh}-element, (6b) with a multiple-pair answer is also ruled out because the embedded adjunct \textit{wh}-element cannot interact/undergo absorption with the matrix argumental \textit{wh}-element because the embedded finite clause boundary constitutes a barrier for the interaction.

There are ways of empowering the second \textit{wh}-element to scopally interact with the first \textit{wh}-element. One such way is to scramble/move the second \textit{wh}-element to meet the locality condition with the first \textit{wh}-element. This strategy is taken in (4c) and (6c), where scrambling the second \textit{wh}-element to the periphery of the embedded clause makes it accessible to and scopally interact with the first \textit{wh}-element in the matrix clause.\footnote{Suyoung Bae (perl. comm.) suggests that to capture the interaction of the first \textit{wh}-element with the second \textit{wh}-element now at the edge of an island-containing node, it is tempting to adopt Grano and Lasnik’s (2018) idea that the edge of a finite clause is accessible to the probe outside the immediately higher clause. However, the lack of the ‘edge’ effect with the adjunct adverbial as in (9b) argues for the Q-percolation approach taken in the text rather than the Grano and Lasnik-style approach.} This crucially enables the two \textit{wh}-elements to evoke a multiple-pair answer.
By contrast, another strategy represented in (28) is employed in (7c) and (8b) as well as in (5c) (in addition to (3) and (3')). In these cases, the second wh-element scrambled/moved to the periphery of the dominating node has its Q-feature percolated to the island-containing node, thereby indirectly meeting the clause-mate/locality condition with the first wh-element in the higher subject position, unlike the second wh-element in (7b) and (8a) as well as in (5b) that cannot do so. To repeat, it is to be emphasized that there is a remarkable difference between (4c) & (6c), on the one hand, and (5c), (7c), and (8b), on the other hand; the former meet locality via scrambling, but the latter do so via movement/scrambling followed by Q-percolation.

Incidentally, regardless of the single/multiple-pair reading, (9a) and (9b) are ruled out because unlike the argumental wh-element in (7c) and (8b), the adjunct wh-element in these sentences does not carry any (individual-type) Q-feature, thus the percolation of the Q-feature from the edge of the clause to the island-containing node being blocked. The absence of the multiple-pair answer in (9b) with the adjunct wh-element points to the fact that the edge effect in (7c) and (8b) with the argumental wh-element arises not randomly but systematically via Q-percolation that the latter undergoes after scrambling to the edge of the dominating node.

This line of analysis based on the Q-feature percolation from island-internal wh-elements in multiple wh-questions predicts that when the island-containing node that the Q-feature percolates to cannot meet the clause-mate condition with another wh-element as in (29), or when the island-internal wh-element cannot meet the clause-mate condition in terms of Q-feature percolation as in (30), the resulting sentences with a multiple-pair answer are unacceptable. These predictions are borne out.

who-Nom Cheli-Nom what-Acc Yengi-Nom yesterday give-Rel man-Acc meet-Pst-Comp say-Pst-Q
‘Who said that Cheli met [the man that Yengi gave what to yesterday]?’

who-Nom Cheli-Nom Yengi-Nom yesterday what-Acc give-Pst-Comp say-Rel man-Acc meet-Pst-Q
‘Who met the man that Cheli said that Yengi gave what to yesterday?’

5. Extension

Consider the following embedded multiple wh-question in (31a):

you-Top Cheli-Nom what-Acc why buy-Pst-Q know-Q?

We assume with Moro (2000) and Chomsky (2013) that two conjuncts in coordinate structure are base-generated as forming the small clause as follows: [ conjunction [small clause]], where the small clause is of the form [XP, YP]. One of the terms (i.e., conjuncts) of the small clause must raise to meet the labeling algorithm, constructing the resultant coordinate structure.

Suyoung Bae (perl. comm.) notes that scrambling of otherwise locality-violating constituents as in (i) and (ii), instead of the structural configurations in (29) and (30) in the text, makes it easier to induce a multiple-pair answer.

(i) *nwu-ka [ [mwues-ul yengi-ka ecey cwu-n salam-ul] cheli-ka manna-ss-tako] malha-yss-ni?
who-Nom what-Acc Yengi-Nom yesterday give-Rel man-Acc meet-Pst-Comp say-Pst-Q
‘Who said that Cheli met [the man that Yengi gave what to yesterday]?’

who-Nom what-Acc Yengi-Nom yesterday give-Pst-Comp Cheli-Nom say-Rel man-Acc meet-Pst-Q
‘Who met the man that Cheli said that Yengi gave what to yesterday?’
Locality and Edge Effects in Korean Multiple *Wh*-questions

‘(Lit.) Do you know why Cheli bought what?’

(i). *‘For what object x, you know why Cheli bought x?’
(ii). *‘For what reason x, you know what Lisi bought in reason x?’

b. ne-nun [mwues-ul piphana-n chayk-ul] cohaha-ni?
   you-Top what-Acc criticise-REL book-Acc like-Q
   ‘(Lit.) Do you like the book that criticise what?’

Huang (1982) notes that the Chinese counterpart of (31a) allows one of the two *wh*-elements to take an embedded scope, while the other one takes a matrix scope. But Huang's characterization of the interpretive possibilities of multiple *wh*-in-situ has been challenged on the basis of Japanese by Nishigauchi (1986, 1990) and Choe (1984). Nishigauchi in fact argues that although the Japanese counterpart of (31b) does have a direct question interpretation, the Japanese counterpart for (31a) can only be construed with both embedded *wh*-elements taking narrow scope. The same pattern as in Japanese is true of (31a) and (31b) in Korean.

Nishigauchi takes the Japanese counterpart to (31a) as evidence that the scope of *wh*-in-situ is regulated by Subjacency. This is accounted for in the unselective binding approach he adopts by requiring a *wh*-in-situ to be bound by the closest Q-operator. The apparent wide-scope interpretation of (31b), he suggests, follows from the postulated local movement of the *wh*-in-situ to a DP adjoined position. Binding of the *wh* by the Q operator becomes possible after large-scale Pied-Piping of the DP, as shown in (32).

(32) [ Q  who [ book that t_i wrote]] [you read t_j]

Watanabe (1992) and Dayal (1996) both note that conclusions about subjacency have to take into account the fact that introducing a *wh*-element in the matrix clause in the sentence configuration like (33) has a dramatic effect. Example (33), like its English counterpart, readily allows for an answer pairing individuals with books:

   who-Nom Cheli-Nom where-in book-Acc buy-Pst-Q know-be+ing-Q
   ‘For which man x and book y, does x know where Cheli bought y?’
      who-Nom Cheli-Nom where-in book-Acc buy-Pst-Comp know-be+ing-Q
      ‘For which man x and book y, does x know that Cheli bought y?’

It is, however, not clear whether this logic holds, since embedding the indirect question clause one step down as in (34) makes it hard to anticipate a multiple-pair answer:

(34) [nwu-ka [yengi-ka cheli-ka eti-eyses chayk-ul sa-ass-nunci] sayngkakha-ni?
   who-Nom Yengi-Nom Cheli-Nom where-in book-Acc buy-Pst-Comp think-Q
   ‘#For which man x and book y, does x think that Mary knows where Cheli bought y?’

The same pattern of behavior holds in English, as shown by the contrast between (35) and (36):
(35) Who knows whether Mary bought *what/what/which book?\footnote{4}
(taken from Dayal 1996, attributed to Hirschbuler 1978) [\textsf{\textbackslash multiple-pair}]

(36) Who thinks that Bill knows whether Mary bought *what/what/which book?
[*multiple-pair]

Dayal (1996: 128) argues that since the embedded question in (35) can only be given a second order interpretation, it cannot combine directly with the verb, ruling out an individual answer. In this situation, QR of the embedded question is enforced, inducing an obligatory multiple-pair reading. By contrast, since the more deeply embedded clause cannot meet the clause-mate condition with the matrix \textit{wh}-element, (36) does not allow a multiple-pair reading.

In passing, sentences in English like (37a), attributed by Mahajan 1990 to David Pesetsky, with an intervening clause do not allow multiple-pair answers, even though the intervening clause does not introduce an island, in the similar fashion as (37b).

(37) a. [Which student] believes (that) John knows [where Mary bought which book]?
   b. [Which student] knows that Mary bought [which book]?

The lack of a multiple-pair interpretation in (34) and (37a) discredits the validity of Watanabe’s (1992) hypothesis about the empty operator’s movement to the Spec of CP at overt syntax.

On top of this issue, another question to be raised is what happens if the first \textit{wh}-element does not c-command the second one. First, it is to be noted that when the conditional clause contains the (linearly) first \textit{wh}-element that does not c-command the second one, the sentence in (38) allows a multiple-pair interpretation.

(38) cheli-ka \textit{nwu-lu} khollokhiwum-ey chotayha-myen, \textit{nwu-ka} coha-\textit{lkka}?
   Cheli-Nom who-Acc colloquium-to invite-if who-Nom pleased-Q
   ‘If Cheli invites who to a colloquium, who will be pleased?’

As we saw in (33) with the embedded clause ending with an interrogative complementizer, we underscore the fact that the type of complementizer plays a decisive role in regard to the availability of Q-percolation/multiple-pair answer. In other words, we assume that in (38), the conditional clause-marking complementizer –\textit{myen} ‘if’ allows Q-percolation from the first \textit{wh}-element in situ in the conditional clause (See also Grebenyova (2004) for a similar proposal).

Another case where the first \textit{wh}-element does not c-command the second one is the one with the relative clause embedded in subject position, as in (38a):

(38) a. [cheli-ka \textit{enu nonmwun-ul} sanguyha-n kyoswu]-ka \textit{nwues-u} cicekha-yss-ni?
   Cheli-Nom which paper-Acc consult-Rel professor-Nom what point+out-Pst-Q
   ‘A professor that Cheli discussed which paper with pointed out what?’
   b. [\textit{etten nonmwunul} cheli-ka sanguyhan kyoswu]-ka \textit{nwues-u} cicekha-yss-ni?

4 Unlike (35), a single \textit{wh}-complement as in (i) does not trigger QR:

(i) Which woman knows which book Mary bought?

Dayal (1996, 101) argues that a multiple \textit{wh} complement is crucial for triggering QR and the multiple \textit{wh}-reading.
It seems that (38a) is hard to associate with a multiple-pair answer. However, the scrambling of the first wh-element to the dominating clause, followed by the subsequent Q-percolation, as in (38b), improves on eliciting a multiple-pair answer.

6. Conclusion

In sum, albeit of the same form, multiple wh-elements are different from single wh-elements in terms of the licensing conditions. Particularly, to produce a multiple-pair interpretation the second wh-elements in the multiple wh-construction scopally interact with the first ones. Being quantificational, the former are constrained by the clause-mate/locality condition before feeding into absorption with the first wh-elements. By contrast, single wh-elements (as well as the first wh-elements in the multiple wh-construction) are not quantificational, thus being licensed either as indeterminate pronouns or operators, not needing to meet the clause-mate/locality condition. But we have seen that multiple wh-elements can evade the clause-mate/locality condition when one of them, being argumental, first overtly scrambles to the edge of the dominating and ‘percolates’ its quantificational feature to the island-containing projection that is to undergo pied-piping QR/Wh-movement.

Selected references

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On the Identity of –eykey in Korean Morphological Passives

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Synopsis

This paper investigates the nature of –eykey in Korean morphological/lexical passives. We first argue that this type of passives derive from their causative counterparts. The former and the latter can have the same form of verb, but during passivization the zero passivizing morphology on the transitive complement verb of the matrix causative morpheme demotes the Dative -eykey-marked Causee from an argument to an adjunct, besides the transitive verb losing the ability to value Accusative Case. The so-called animacy restriction on the subject NP with –eykey passives is ascribed to the requirement that it assume the Causer role in –eykey passives. In contrast, –ey uyhay passives are derived from the zero passivizing morpheme attached to the causativized verb complex, thus the matrix subject being realized by the particle –ey uyhay.

Key Words: –eykey, morphological/lexical passives, –ey uyhay, causatives, animacy restriction

1. Introduction

In Korean exactly the same form of C/case particle/postposition –eykey ‘to/from/by’ can be used in multiple ways. It is generally used as a Dative Case/case marker in the ditransitive verb construction (1a), but it can also be used either as an ablative case marker (1b) or an Experiencer Case/case marker (1c).

(1) a. cheli-ka yengi-eykey chayk-ul cwue-ss-ta.
   Cheli-Nom Yengi-Dat book-Acc give-Pst-Dcl
   ‘Cheli gave a book to Yengi.’

b. cheli-ka yengi-eykey chayk-ul pat-ass-ta.
   Cheli-Nom Yengi-Dat book-Acc receive-Pst-Dcl
   ‘Cheli received a book from Yengi.’

c. cheli-eykey-nun ku chayk-i caymiiss-ess-ta.
   Cheli-Dat-Top the book-Nom interesting-Pst-Dcl
   ‘The book was interesting to Yengi.’

On top of these functions, another peculiar manifestation is its use in morphological/lexical passives (2) that has been analyzed on a par with the by-phrase in English passives.

(2) totwuk-i kyengchal-eykey/-ey uyhay cap-hy-ess-ta.
   thief-Nom police-by catch-CAU/PAS-Pst-Dcl
   ‘The thief was caught by a policeman / got himself caught by a policeman.’
Concentrating on its realization in passives, we argue that it is identified with its counterpart in causatives, but not with the by-phrase-like grammatical function.

2. An Issue

As in (2), in Korean the by-phrase-like element is marked either with –eykey or –ey uyhay, thus leading to the afore-mentioned hypothesis that the particle –eykey has the same role that the preposition by in English passives does. This hypothesis can be readily rejected by the fact that in morphological passives like (3) and (4), an inanimate subject NP can co-occur with the particle –ey uyhay, but not with –eykey (cf. Klaiman 1991; Park 1994; Yeon 2003; Choi 2018).

(3) ku namwu-ka cheli-*eykey/-ey uyhay cal-li-ess-ta.
   the tree-Nom Cheli-by cut-CAU/PAS-Pst-Dcl
   ‘The tree was cut by Cheli.’
(4) cip  aph  tamcang-i halapeci-*eykey/-ey uyhay hel-ly-ess-ta.
    home front fence-Nom grandfather-by pull-down-CAU/PAS-Pst-Dcl
    ‘The entrance fence was pulled down by my grandfather.’

This so-called animacy restriction with –eykey passives runs counter to the general property of passives: the Theme argument, either animate or inanimate, is ‘promoted’ to the subject position in this construction. It is apparently obvious that the inanimate subject NP in (3) and (4) is construed as having the thematic role of Theme. If (3) and (4) with –eykey were run-of-the-mill passives where Theme NPs undergo Raising to Subject, they would be acceptable, contrary to fact.

3. Towards an analysis

We depart from the previous analysis of –eykey passives in two respects. First, the animacy restriction with –eykey passives in Korean has not been defined correctly in the previous literature. Note that the morphological passives in (5) and (6) have inanimate subjects with –eykey phrases, but they are acceptable.

(5) chwusinswu-ka __ chin thakwu-ka wuikswu-eykey/-ey uyhay cap-hy-ess-ta.
    Shinsoo Choo-Nom battered hit-Nom left fielder-by catch-CAU/PAS-Pst-Dcl
    ‘Shinsoo Choo’s battered hit was caught by the left fielder.’
(6) sonheungmin-uy kongkyek-i sangtay swupiswu-eykey/-ey uyhay mak-hy-ess-ta.
    Shinsoo Choo-Gen attack-Nom opponent defensive play-by block-CAU/PAS-Pst-Dcl
    ‘Heungmin Son’s offensive attack was blocked by the opponent defensive player.’

The telling difference between (3)-(4) and (5)-(6) is that what matters in –eykey passives is not animacy but lexically-attributed mobility on the part of subject NPs. The subject NPs in (5)-(6) such as thakwu ‘battered ball’ and kongkyek ‘attack’ are obviously not animate but construed as evoking motion in action.

Second, there is good reason to analyze the particle –eykey in this type of passives as having a connection with the same form of particle in causatives. First of all, the particle –eykey is not allowed in syntactic/periphrastic passives with the auxiliary verb –e ci- ‘be/become’ as in (7), though the longer form of particle –ey uyhay is fine.
Rather, the particle –eykey is productively realized in causatives as in (8a) as well as so-called adversative passives as in (8b) on top of run-of-the-mill passives as in (8c).

(8) a. swuni-ka yengswu-eykey aki-lul an-ki-ess-ta.
   Swuni-Nom Yengswu-to child-Acc embrace-CAU-Pst-Dcl
   ‘Swuni made Yengswu embrace a child.’

b. swuni-ka yengswu-eykey caki mom-ul an-ki-ess-ta.
   Swuni-Nom Yengswu-to child-Acc embrace-CAU-Pst-Dcl
   ‘Swuni had Yengswu embrace her body / her body embraced by Yengswu.’

c. swuni-ka yengswu-eykey an-ki-ess-ta.
   Swuni-Nom Yengswu-to embrace-CAU-PAS-Pst-Dcl
   ‘Swuni was embraced by Yengswu.’

Note that in (8a-c) the same form of morphologically-complex verb an+ki- derives from a combination of the transitive verb an- ‘embrace’ and the causative/passive morpheme –ki-. Since this morphologically complex verb can be used either as a causative or a passive verb, it follows that the morpheme –ki- has been analyzed as having the ambiguous function either as a causativizer or passivizer (Yang 1979; Kim 1994; Park 1994; Oshima 2004). But the minimal departure from this analysis is that, in keeping with Haspelmath’s (1990) thesis that the causative is a common source of grammaticalization into the passive, the morpheme –ki- is essentially a causative, but it also derives the adversative passive in (8b) or the ordinary passive in (8c), in the same fashion as the English causative verb get or experiential verb have. This view of –ki- as a causativizer gains support because as in (9), the ki-attached verb together with –eykey but not with –ey uyhayse gets along with the subject-oriented adverb ilpwure ‘deliberately’ (in the way that, as pointed out above, the subject of –eykey passives denotes motion in action).

(9) swuni-ka yengswu-eykey/*-ey uyhay (caki mom-ul) ilpwule an-ki-ess-ta.
   Swuni-Nom Yengswu-to self body-Acc deliberately embrace-CAU-Pst-Dcl
   ‘Swuni deliberately got herself embraced by Yengswu / Yengswu embrace her body.’

In other words, the subject of –eykey passives is assigned not Theme, but what Jackendoff (1990) (and also Pesetsky 1987, 1995) terms Causer. Furthermore, it is to be noted that in causatives, the –eykey-marked Dative Causee is allowed with the animate Causer subject as in (10a), but it is not allowed with the inanimate one as in (10b). When the Causer subject is inanimate, the Causee is required to be Accusative Case marked, as in (10c).

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1 Yang (1979) lists 100 representative transitive verbs, of which 91 can be suffixed with -i/li/ki. According to Yang’s judgment, among the 91 verbs, 34 are fully acceptable either as passives or causatives; 26 are fully acceptable as passives and almost fully acceptable as causatives; 9 are fully acceptable as passives and marginally acceptable as causatives; 12 are acceptable only as passives; and 10 are acceptable only as causatives. It is beyond the scope of this paper to investigate what regulates the lexicalization, i.e. the causativization/passivization of (transitive) verbs in Korean.
(10) a. swuni-ka yengswu-eykey chayk-ul ilk-hi-ess-ta.
   Swui-Nom Yengwu-to book-Acc read-CAU-Pst-Dcl
   ‘Swuni made Yengswu read a book.’
      the tree-Nom Yengswu-to tree branch-Acc tear off-CAU-Pst-Dcl
      ‘The tree made Yengswu tear off the branches.’
   c. pyeng-i kul-ul/*-eykey koylop-hi-ess-ta.
      disease-Nom him-Acc/by painful-CAU-Pst-Dcl
      ‘The disease make him painful.’

Note, by contrast, that when inanimate subject NPs involves lexically-attributed mobility, the
causatives with –eykey improve significantly, as follows:

   Lee Seung-yuop-Nom hit-Rel foul ball-Nom umpire-to injure-Acc inflict-CAU-Pst-Dcl
   ‘The foul ball that Lee Seung-yuop hit inflicted a blow on the umpire.’
      Son Heung-Min-Genat tack-Nom JangHyun-Soo-to huge offensive burden-Acc
      put-CAU-Pst-Dcl
      ‘Son Heung-Min’s attack placed a huge offensive burden on Jang Hyun-Soo.’

To the extent that (11) are fine, it follows that there are two types of inanimate subjects that do or
do not allow for –eykey causatives.

The causative analysis of morphological passives has two impending issues to address. One is
the derivation of the Nominative Case-marked subject NP. Since it is assigned a theta-role (i.e.
Causer) by the causative morpheme like -ki, the Nominative Case-marked subject NP in this
construction is base-generated in the way that other external argument NPs are. The second issue is
how to derive morphological passives from their causative counterpart. Relating to this issue is the
fact that Dative –eykey arguments in causatives lose argument-hood, thus behaving as an adjunct
in passives. Topicalization in (12) renders clear evidence for the differentiation between causatives
and passives in regard to the grammatical status of Dative –eykey-marked NPs. In causatives as in
(12a), the Causee can be topicalized after dropping the Dative marker –eykey, but in adversative
and ordinary passives as in (12b-c), it cannot be.

(12) a. swuni(-eykey)-nun inho-ka aki-lul an-ki-ess-ta.
   Swuni-by-Top Inho-Nom baby-Acc embrace-CAU-Pst-Dcl
   ‘Inho made Swuni embrace the baby.’
   b. emma(-eykey)-nun kkoma ai-ka caki mom-ul an-ki-ess-ta.
      mother-by-Top little baby-Nom self body-Acc embrace-CAU-Pst-Dcl
      ‘The little boy’ body had his body embraced by his mother.’
   cf. kay-nun yengi-ka kapang-ul mwul-li-ess-ta. (√causative/*passive)
      dog-Top Yengi-Nom dog-Acc bite-CAU-Pst-Dcl
      ‘Yengi’s bag was bitten by the dog.’ (passive)
   c. swuni*(-eykey)-nun inho-ka an-ki-ess-ta.
      Swuni-Top Inho-Nom embrace-CAU-Pst-Dcl
      ‘Inho was embraced by Swuni.’
How does the change in grammatical function arise in passivization? On the analogy of Korean – eykey passives to English get/have passives, we suggest that the passive morphology (PM) (i.e., the zero morpheme) is attached to the main verb in the small clause complement of the causative morpheme. Thus for example, (2) is represented as in (13). The subject of the embedded verbal projection (small clause VoiceP) is ‘demoted’ to take on an adjunct role, and the object of the main verb in it cannot be assigned Accusative but Nominative Case.

(13) totwuk-i  kyengchal-eykey [ kyengchal ◯ cap-[PM]-hi-ess-ta.
  thief-Nom policeman-to  catch-PAS-CAU-Pst-Dcl
   ‘The thief was caught by a policeman/got himself caught by a policeman.’

We suggest that the demotion of the embedded external argument in argument-hood after passivization in the embedded clause has a consequence on the process of merging the theta-grids of the embedded verb and the matrix causative verb. For example, the embedded transitive verb cap- ‘catch’ has the theta grid: <Agent, Theme>; the matrix causative morpheme/verb has the theta grid: <Causer/Agent, Causative Event>. Generally, during the merging processing the external argument of the embedded verb takes over the CAUSEE role of the matrix causative verb, retaining the argument status and being realized with –eykey. In (13), however, when the embedded verb is passivized by adding the zero PM to it, the external argument of the embedded verb loses argument-hood (as evidenced by the contrast between (12a-b) and (12c)) but holds the CAUSEE role of the matrix causative verb. Meanwhile, the Theme complement of the embedded verb in (13) ends up being in a position where Acc Case cannot be assigned.

Not –eykey, but -ey uyhayse passives evade the subject restriction without any derivational connection with the complement of their causative counterpart. The latter type of passives are derived directly either from transitive or causative verbs. In these cases, the passive morphology is attached to the verbal complex after the transitivizing or causative morpheme is attached, as in (14).

(14) totwuk-i kyengchal-ey uyhay cap-hi-[PM]-ess-ta.
   ‘The thief was caught by a policeman.’

Based on the proposed idea of attaching the passivizing zero morpheme in structurally two different positions, we can make the following prediction on the use of –eykey or -ey uyhayse passives. Since the former are derived when the PM is attached to the embedded transitive verb, it is predicted that neither –eykey causatives nor –eykey passives are acceptable when the embedded verb is intransitive, as follows:

    Cheli-Nom mother-Acc/-Dat lay down-CAU-Pst-Dcl
     ‘Cheli laid down his mother.’
    Cheli-Nom duck-Acc/-Dat fly-CAU-Pst-Dcl
     ‘Cheli flew a duck.’

    mother-Nom Cheli-by/-to          lay down-PAS-Pst-Dcl
     ‘His mother was laid down by Cheli.’
duck-Nom Cheli-by/-to fly-CAU-Pst-Dcl
‘The duck was flown by Cheli.’

Such examples as these render conclusive evidence that when the –eykey-marked CAUSEE NP is available to causatives, it is carried over to their corresponding passives. Otherwise, there is no chance of realizing it in passives. However, when the embedded verb is intransitive, we first derive the resultant causative verb by attaching the causative morpheme to it, in turn deriving the corresponding passive verb by attaching the PM to the matrix causative verb. That is why, as in (15), only -ey uyhayse passives are fine, as predicted by our analysis.

Furthermore, the proposed idea of attaching the passivizing zero morpheme in structurally two different positions predicts that the sentence like (17) is acceptable where both –eykey and –ey uyhay phrases are realized. This prediction is borne out.

(17) hwanca-uy phal-i uysa-ey uyhay kanhosa-eykey cap-PM-hi-PM-ess-ta.
patient-Gen arm-Nom doctor-by nurse-by hold-PAS-CAU-PAS-Pst-Dcl
‘The doctor got the patient’s arms held by the nurse.’

As in (17), the two instances of the PM passivize the embedded and the matrix causative verb, respectively.

4. An excursion

Choi (2018) notes that there are some counter-examples with the animacy restriction with –eykey passives. The cases at point involve verbs such as poi- ‘be shown’ and tuli- ‘be delivered/be told’, as follows:

(18) yenghwa cangmyen-i cheli-eykey po-y-ess-ta.
movie scene-Nom Cheli-to see-CAU-Pst-Dcl
‘The movie scene was shown to Cheli.’
(19) khullaysik umak soli-ka cheli-eykey tul-y-ess-ta.
classic music tune-Nom Cheli-to hear-CAU-Pst-Dcl
‘The classic music (sound) was delivered to Cheli.’

Choi argues that these verbs are used as middle/inchoative verbs rather than as passive verbs. However, middle verbs tend to denote a generic situation, while the examples in (18) and (19) describe a non-generic, episodic situation. Thus, we take it that the two verbs in question can be used as an ordinary passive verb (in addition to being used as a middle verb, as argued by Choi).

How can we account for the acceptability of (18) and (19), which apparently violate the animacy restriction with –eykey passives? We argue that –eykey passives with poi- and tuli- are derived in a different way from the general type of –eykey passives. Specifically, the two verbs poi- and tuli- are first derived by ditransitiving the transitive verbs po- ‘see’ and tut- ‘hear’ with the addition of the causativizing/transitiving morpheme -i. After that, the passive morpheme is

2 The Standard Korean Language Dictionary lists tulita ‘deliver’ as a causative/ditransitive verb, with the following attestation in the corpus.
attached to the resultant ditransitive verb. These steps of derivation are supported by the following facts. First, unlike those in the general type of passives, the –eykey NPs with poi- and tuli- are not an adjunct but an argument as part of the argument structure of the resulting ditransitive verb. Thus, unlike that in (12c), the –eykey–dropping NPs with poi- and tuli- can be topicalized (cf. Choi 2018), as follows:

(20) Cheli(-eykey)-nun yenghwa cangmyen-i po-y-ess-ta.
    Cheli(-to)-Top movie scene-Nom see-CAU-Pst-Dcl
    ‘The movie scene was shown to Cheli.’
(21) Cheli-(eykey)-nun khullaysik umak soli-ka tul-y-ess-ta.
    Cheli(-to)-Top classic music tune-Nom hear-CAU-Pst-Dcl
    ‘The classic music (sound) was delivered to Cheli.’

Second, since these two verbs at issue do not involve passivization with the embedded verb but with the matrix ditransitiving morpheme, the –ey uyhay ‘by’ –marked NP can be added, without affecting the presence of the –eykey–marked NP, as follows:

(22) yenghwa cangmyen-i yengi-ey uyhay cheli-eykey po-y-ess-ta.
    movie scene-Nom Yengi-by Cheli-to see-CAU-Pst-Dcl
    ‘The movie scene was show n to Cheli by Yengi.’
(23) khullaysik umak soli-ka yengi-ey uyhay cheli-eykey tul-y-ess-ta.
    classic music tune-Nom Yengi-by Cheli-to hear-CAU-Pst-Dcl
    ‘The classic music (sound) was delivered to Cheli by Yengi.’

These aspects of the –eykey-marked NPs with the two verbs in question point to the fact that they behave as a Goal argument like those in the ditransitive verb construction.

5. A conclusion

In sum, morphological -eykey passives derive from their causative counterparts. The former and the latter are apparently of the same form, but the zero passivizing morpheme on the main verb in the small clause complement of the matrix causative morpheme converts the Dative -eykey-

(i) aitul-eykey caymiiss-nun iyaki-lul tull-y-ess-te-ni nemwu cohaha-nta.
    children-to interesting-Rel story-Acc hear-CAU-Pst-Retr-when a lot like-Dcl
    ‘The children like a lot the interesting story we have just delivered to them.’

3 In addition to the two verbs at issue in the text, Choi also includes mekhi- ‘be fed’ as in (i):

(i) kwail-i pelley-eykey mek-hy-ess-ney-yo.
    fruit-Nom worm-to eat-CAU-Pst-Mir-Informal
    ‘Fruits were fed to the worms.’

We keep up with the thesis that the passive form in (i) is derived from the ditransitive verb meki- ‘feed’. There is, however, one difference between mekhi- and poi- & tuli-: in that unlike those with the latter, the –eykey–dropping NP with the former is degraded when it undergoes topicalization, as follows:

(ii) pelley??(-eykey)-nun kwail-i mek-hy-ess-ney-yo.
    worm(-to)-Top fruit-Nom eat-CAU-Pst-Mir-Informal
    ‘Fruits were fed to the worms.’
marked Causee from an argument to an adjunct, besides stripping the main verb within it of the ability to check Accusative Case. The ‘mobility’ restriction on the subject NP with the –eykey phrase is attributed to the fact that the subject NP is required to take on the Causer role in this type of passives. By contrast, morphological –ey uyhay passives derive from the zero passivizing morpheme not on the causative complement verbal complex but outside the transitivizing or causative verb complex, thus the matrix subject being realized by the particle –ey uyhay in this type of passives.

Selected References:

1. Introduction

Previous researches note that Verb Doubling Constructions (VDCs) take place only when the verb is fronted for topicalization and/or focalization (Koopman 1984, 2000; Abels 2001; Landau 2006; Vicente 2007; Aboh & Dyakonova 2009; Trinh 2011). Another more widely accepted observation made for such occurrences, is the verb needing to do two different things – one is to interact with the information structure elements to get the required topicalization and/or focalization and another is to get itself attached with the verbal inflections. Apart from such description, not much theoretical proposals have been made to account the said double pronunciation of verbal copies. A recent work that presents a theoretical account of such VDCs phenomenon is Trinh (2011). Specifically, he analyses VDCs to occur when a verbal copy survives deletion for not being at the linear edge. He formalizes this account by proposing a condition termed as Edge Condition on Copy Deletion (ECCD). According to this condition, in languages which allow predicate clefts, VDCs will occur only in head-initial languages. However, I argue against ECCD and propose that VDC is a consequence of copy recoverability. Following my proposal, I argue that VDCs can also take place in SOV languages. I substantiate my argument using Meiteilon data, a Tibeto-Burman SOV language.

1. tombə sa ča-ba-di ča-re
   Tomba meat eat-Nzr-Top eat-Perf

   ‘Tomba has EATen meat’ (but…)

Doubling in general posits a problem for the sound-meaning correspondence of Compositionality Principle (Frege 1892). Compositionality Principle says that, “the meaning of a complex expression is determined by the meanings of its constituent expressions and the rules used to combine them” (Barbiers 2008). Moreover, Syntactic Doubling presumably violates the “least effort” condition of the Economy Principle (Chomsky 1991, 1993, 1995, 2000), which always seeks to eliminate any superfluous element in the representation and any superfluous step in the derivation. This violation of the Economy Principle comes under serious doubt when one deals with the verbal doubling construction (1). The example given above in (1) instead gives an impression that the double pronunciation of the verbal copies is actually an economical step in itself as it involves, according to Poletto (2006), pronouncing the trace position (of verb) as both the copies do two different things – the higher copy gets the Top/Foc element attached to it while the lower copy gets the verbal morpheme(s) attached.

*I would like to thank the two anonymous reviewers for their comments and suggestions on the abstract of this paper. Errors found in it are my own.*
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to it. Therefore, as already stated earlier, retaining the copy in the ‘trace position’ evidently leads to saving oneself from performing “deletion” of a useful element, which is also regarded by Chomsky (1991, 1995) as a “last resort” operation. However, this notion of the trace being undeleted will be given up in my proposal. Instead, I argue here in this study that, it is a case of a copy recovery mechanism responsible for the double pronunciation of the verb.

In order to understand the intricacies of verb-doubling constructions, understanding how syntactic doubling, in general, works in natural languages is important. Syntactic doubling is an occurrence where more than one copy of a ‘formative’ (a minimal syntactically functioning unit (Chomsky, 1965)) is present within a sentence with an interpretation of just one. Barbiers (2008, 2013) defines it as a phenomenon which occurs when ‘one or more morphosyntactic features of a constituent (i.e., a morpheme, a word or, a phrase) are expressed in two or, more times within a sentence, seemingly without contributing to the semantic interpretation of that sentence’ 1. In other words, it is an extra pronunciation of a copy <x> of an item, x where the pronunciation of <x> does not add up to the meaning already conveyed by x.

2. Je bent een raar kind (één) (South-eastern Dutch)
   ‘You are a very strange kid!’ (Barbiers 2008)

3. (əy-gi) puk-pʰə-bi i-ma (Meiteilon)
   1P-Gen stomach-good-Nzr (Fem.) 1P+Gen-mother
   ‘my benevolent mother’ (Rajkumar 2016)

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1 The ‘seemingly without semantic contribution’ part of the definition is very important as this part distinguishes the phenomenon from ‘reduplication’ as the latter stands for repetition of all or part of a lexical item carrying a semantic modification (Abbi 1990, 1992). The other difference being, in reduplication, the reduplicated items have to be local i.e., no other element(s) can intervene in between them; but, in syntactic doubling, the doubles can either be local or, distant.

<table>
<thead>
<tr>
<th>Doubling of the verb ‘eat’</th>
<th>Possible Position 1</th>
<th>Possible Position 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) əy čɑk čɑ-bɑ-bu-di (ŋəsay-na) čɑ-rɑk-ɛ (ŋəsay-na)</td>
<td>I rice eat-Nzr-Foc-Top earlier eat-Deic-Perf earlier</td>
<td></td>
</tr>
</tbody>
</table>
   ‘I have already EATen rice (earlier)’

| Reduplication of the verb ‘sit’ giving a ‘while sitting’ reading, pʰəm-na pʰəm-na |
|--------------------------|---------------------|

‘I will call you while (I am) sitting’

So, the possibility of an intervener occurring between the two copies of double in (i), and the ungrammatical result of (ii) in the presence of an intervener between the reduplicated structures show the crucial difference between the two phenomenon in addition to the difference in semantic modification. That is, in (i), the temporal adverb ŋəsay-na ‘earlier’ can occur either after or in between the two verbal doubles; whereas, in (ii), inserting the verb ‘call’ in between the reduplicated adverbial constructions makes the sentence ungrammatical. The asterix within the parenthesis marks the item’s ungrammatical presence in the construction but, the asterix just before the open bracket signifies for its obligatory presence (being the main verb of the sentence (ii)).
In (2), Barbiers (2008) notes that the features indefinite and singular are doubled as één ‘one’ which is the stressed counterpart of een ‘a’. And, in (3), Rajkumar (2016) considers it to be a case of (first) person feature doubling within the DP. Interestingly, both (2) and (3) are examples of optional doubling constructions as the items within the brackets (that is, één and ay-gi respectively) are optionally present and their absence will not affect the grammaticality of the sentence and phrase respectively.

Since, the main goal of this paper is to understand doubling construction of verbs, an elaborate discussion on other types of doubling (such as clitic, determiner, Wh-elements doubling etc.) constructions will not be presented. Attempting to present a brief discussion on the theoretical arguments of how verb doubling comes about, section (2) introduces how the notion of information structure plays an important role for such constructions. This is because the phenomena of topic and focus – elements of information structure – are argued to be the trigger for verb-doubling to occur. To elaborate, it is a noteworthy observation to make that, in the literature, verb-doubling constructions are observed to take place only when the verb is topicalized and/or focalized (Koopman 1984, 2000; Abels 2001; Landau 2006; Vicente 2007; Aboh & Dyakonova 2009; Trinh 2011).

2. Triggers for Verb Doubling Constructions (VDCs)
Considering the oft-acknowledged inter-relationship between Verb Doubling Constructions (VDCs) and topicalization and/or focalization of the verb (Koopman 1984, 2000; Abels 2001; Landau 2006; Vicente 2007; Aboh & Dyakonova 2009; Trinh 2011), it looks safe to consider the information structure operations of topicalization and focalization as the triggers of VDCs. However, before going into the intricacies of how these operations work one needs to understand the basic idea of the elements involved in information structure. So far, we know that any given human language has an ability to form an infinite number of sentences. And, we also know that each sentence carries with it packages of information blocks (Chafe 1976). So, when these information blocks are layered or structured differently according to the kind of information each block carries, we refer to it as the Information Structure (IS) of the sentence (Féry & Ishihara 2016 as cited in Grosz & Patel-Grosz 2017). Krifka (2008) approaches the study of Information Structure based on the notion of common ground (CG) (Stalnaker 1974, Karttunen 1974, Lewis 1979). He puts it forward as an adoption of Chafe’s (1976) idea of information packaging to approach information structure. Common ground here, basically, means the information which is mutually known or believed to be shared between the participants in a conversation; and it is based on the CG, that the participants know when new information is added during the course of the conversation (Féry & Ishihara 2016). Thus, according to Krifka (2008), it is the CG which enables us to distinguish between presuppositions and proffered content. The former stands for the already shared knowledge which is a requirement on the input of the CG; and the latter stands for newly added information which contains the proposed change in the CG’s output. Krifka (2008) considers the core notions of Information Structure namely, Focus, Topic, and Givenness to be deeply rooted in theories of ‘how communication works’. For him, focus is something which ‘indicates the presence of alternatives that are relevant for the interpretation of linguistic expressions’; topic stands for what a statement is about; and, givenness indicates that a denotation is already present (hence, ‘given’) in the common ground. Having acquainted ourselves with the basic information structure elements, the following sub-section showcases the Meiteilon VDC triggering operations namely, Topicalization and Focalization with the appropriate background.
2.1 Topicalization

Topicalization is a fronting operation which is taken throughout to be a syntactic one. So, by fronting, it involves a syntactic movement in operation either overtly or, covertly (therefore, as in the case of an in-situ-WH-movement there is a possibility of an in-situ-topicalization). For Grohman (2006), topicalization of an element is possible when the element has a ‘property of being able to serve as a topic’ and which is termed as ‘topicalizability’. Hence, to according to him, elements which cannot be topicalized possess a ‘non-topicalizability’ property which makes the element impossible of getting topicalized. Topicalization in this sense is a little different from the idea of topics in general, in that, the former is a purely syntactic operation where fronting is involved throughout unlike the latter, which simply needs the discourse or the sentence to be about it. Regardless of whether the topic is a subject or object of the sentence or/in discourse (as shown in example 4-7). As the interest of this paper lies in the verb doubling constructions involving verbal topicalization and focalization, I will present the former, first for its abundant existence in other languages also.

5. [[JOHN]Focus]Topic [will eat the apples]Comment [Contrastive Topic]
6. The apples, John will eat ___. [Object topicalization]
7. Eat the apples, John will do ___. [VP topicalization]

Before going deeper into the theoretical problems posed by verb doubling constructions in general, I will show here how it occurs in Meiteilon in the first place. A simple un-doubled sentence is therefore, given below in (8) to show how it develops further into an obligatorily verb doubled sentence (9-11).

8. tomba yu  tʰək-le
   Tomba liquor  drink-Perf
   ‘Tomba has drunk liquor’

As already stated earlier, verbal topicalization (and focalization) plays a major role in instances of verbal doubling. In order to find out whether topicalization always results to doubling, let us now start with topicalizing the arguments by attaching the topic marker -ti/-di which inevitably gives a contrastive reading.

Subject Topicalization (Opposite Proposition is required hence, the but-clause)

9. tomba-di  yu  tʰək-le
   Tomba-Top  liquor  drink-Perf
   ‘Tomba has drunk liquor (but I or You or S/he has/have not drunk liquor)’

The subject which is essentially the unmarked topic of a sentence can be topicalized when it needs to be more prominent in the structure. Here, the in-situ topicalization is introducing the possibility of other alternatives to the subject. And, unlike the verb topicalization construction, it does not lead to double pronunciation of the subject.

Object Topicalization (Opposite Proposition is required hence, the but-clause)

10. tomba  yu-di  tʰək-le
    Tomba liquor-Top  drink-Perf
    ‘Tomba has drunk liquor (but, Tomba has not drunk other drinks)’
Topicalizing the object in Meiteilon, does not show any change in the word order thus, showing the presence of in-situ topicalization in the language. Moreover, it does not produce an object doubling construction as a result of the topicalization. And, finally, when the verb undergoes topicalization we observe an obligatory verb doubling construction.

Verb/Clausal Topicalization (Opposite Proposition is required hence, the but-clause)

11. tombə yu ْtُثُک-پَا-دِی ْتُثُک-لِه (verbal doubling)
   Tomba liquor drink-Nzr-Top drink-Perf
   ‘Tomba has DRUNK liquor (but clause…)’

An important task, here at hand, is to investigate how (11) is constructed. In order to find out whether it is a case of just the verb getting fronted for topicalization, or it is fronted with its internal argument(s) (i.e., VP-topicalization), or is it a case of vP topicalization as in Hebrew (Landau 2006); the possible constructions are shown in 12, 13, and 14 respectively.

12. Just moving the V (V-topicalization)
   *[ْتُثُک]-پَا-دِی tombə yu ْتُثُک-لِه
   drink-Nzr-Top Tomba liquor drink-Perf
   It is an ungrammatical construction to just topicalize the verb alone.

13. V moving along with the Object (VP-topicalization)
   *[yu ْتُثُک]-پَا-دِی tombə ْتُثُک-لِه
   liquor drink-Nzr-Top Tomba drink-Perf
   Unlike the English VP-topicalization which was shown in (7), Meiteilon verbal topicalization construction can still not occur even when it is fronted with its object.

14. V moving along with the Object and the Subject (vP-topicalization)
   [tombə yu ْتُثُک]-پَا-دِی ْتُثُک-لِه
   Tomba liquor drink-Nzr-Top drink-Perf
   ‘Tomba has DRUNK liquor (but clause…)’

From the above examples (12-14), it is at least clear that it is neither just the verb nor the VP (verb and object) that is being topicalized in verbal doubling constructions but it is a case of fronting of the full vP i.e., the verb along with its internal and external arguments (Rajkumar 2016). However, such cases of vP fronting for verb-topicalization which result in double pronunciation of the verb is not a unique phenomenon as Landau (2006) has also proposed the same for Hebrew. I think the main difference Meiteilon has from Hebrew, which according to Landau (2006), is that the latter can front just the V; but, when it is fronted with the internal argument then, it is not a case of VP-topicalization. The whole vP is topicalized instead. An evidence for such vP-fronting is the possible insertion of an adverb *توُنُسُ ‘often’ in between the two verbal copies of (14).

15. tombə(-نَا) yu ْتُثُک-پَا-دِی ْتُثُک-لِه
   Tomba-Subj liquor drink-Nzr-Top often drink-Perf
   ‘Tomba has often DRUNK liquor (but clause…)’

Moreover, it is very important to note that such topicalization of the verb (either just the V or, the VP or, the vP) are observed to occur when the verb has been infinitivized or the clause
has been made non-finite. Similar instances of verb doubling have been found in other languages also which involves one verbal copy being infinitivized whereas the other gets the tense/aspectual inflections (Koopman 1984, 2000; Abels 2001; Landau 2006; Aboh & Dyakonova 2007; Trinh 2011). It deliberates one to predict that the FinP layer in Rizzi (1997) has been interacted with before the element to be topicalized or focalized reaches the IS layers – namely Spec, TopP and Spec, FocP – for topicalization and focalization.

However, there are other reasons considered for such doubling constructions which do not rely either on the lack of copy deletion or on its recoverability. For example, Abels (2001) treats the pronunciation of the non-fronted verb in Russian as a step to support the morphological requirement of the verbal inflections from being stranded. The reason given by Abels (2001) for such double pronunciation of the verb is attributed to the lack of do-support in the language. On a similar path, Landau (2006) also claims Hebrew’s lack of do-support to be a reason for the double pronunciation of the verb when it is fronted for topicalization (or, focalization). He attributes it to a condition called as the “stray affix filter” which simply stands for “the need to spell out tense and agreement features”. However, this lack of do-support as a reason for verb doubling constructions is nullified when it is observed that Meiteilon, which also shows an English-like do-support when the verb is fronted in the company of a negation, still undergoes verb doubling constructions in similar environments. Due to space constraints, this case of do-support with verbal/clausal topicalization will not be discussed further in the paper.

Another important point to note from examples (9-11) is that topicalization of an element – whether it is a subject, an object or, a verb – requires an opposite proposition as a follow up clause; depending on the element being topicalized. This is the reason behind each of the sentence examples being tailed by a subsequent but-clause which provides a clue for the presence of alternatives in the discourse. So, it is now certain to claim that verb doubling construction of the kind seen in (11/14) involves topicalization which shows ‘doubling with a discourse function’ (Barbiers 2008).

It will now be an interesting task to take up the verb doubling occurrences where the verb is fronted for focalization (which is also claimed to be the case in Gungbe (Aboh & Dyakonova 2009)). And, focus-related doubling in Meiteilon is also expected to be a case of doubling with a discourse function. So, we can now proceed towards the query of how the actual construction of such kind of verbal doubling constructions is formed, in a detailed manner in the following section.

2.2 Focalization

Focalization, according to Rizzi (1997), is the preposing of the focal element or, simply, fronting of the element to be focused. As focus is concerned with the presence of alternatives, the process of focalizing an element posits a scenario which is similar to the topological constructions seen in (9-11); that is, the presence of alternatives or, opposite proposition which is shown by the requirements of but-clauses in the said examples. This presence of alternatives even with the focalized constructions indicates that they are not stand alone focalization constructions
but rather looks like that of a contrastive topic configuration which is already seen in (5). The said configuration has an about-ness Topic of the Focused constituent. Thus, this shares a likeness of the Contrastive Topic with that of the similarities in the topicalized and focalized verbal constructions of VDCs. Due to space constraints, I will only show supporting data that verbal focalizations also trigger verb doubling constructions which is similar to the one shown in topicalization constructions.

2.2.1 Focalization with ‘only’

As it is the case in verbal/clausal topicalization in (11/14), focalizing the verb with the focus sensitive particle only also (and all other focalizations except with the focus sensitive particle also) shows a verb doubling construction in (16) which requires an opposite proposition or, a but-clause.

16. tomba yu tʰək-pə-dəŋ tʰək-le
   Tomba liquor drink-Nzr-only drink-Perf
   ‘Tomba has only DRUNK liquor (but clause…)

And, as expected, the vP focalization with the focus sensitive particle only works the same way as the vP topicalization construction. I will continue in the same mould to show that such topicalization/focalization of the whole vP is required for the other focus sensitive elements namely just, even, and also.

2.2.2 Focalization with ‘just’

17. tomba yu tʰək-pə-kʰək tʰək-le
   Tomba liquor drink-Nzr-just drink-Perf
   ‘Tomba has just DRUNK liquor (but clause…)

2.2.3 Focalization with ‘even’

18. tomba yu tʰək-pə-pʰaw tʰək-le
   Tomba liquor drink-Nzr-even drink-Perf
   ‘Tomba has even DRUNK liquor (but clause…)

2.2.4 Focalization with ‘also’

19. tomba yu tʰək-pə-su tʰək-le
   Tomba liquor drink-Nzr-also drink-Perf
   ‘Tomba has also DRUNK liquor (and Tomba has also done x-action)

It is now clear that the triggers for verb doubling constructions in Meiteilon namely, topicalization and focalization of the verb, actually takes place at the level of the whole clause i.e., a vP. Moreover, it is also seen that as in the case of topicalization, the focalization cases also require the verb to be infinitivized prior to the raising for focalization. As we have discussed the various issues of verb doubling in Meiteilon which share a lot with the VDCs of other languages with respect to its trigger(s), the following section (3) discusses on the theoretically possibility leading to such an exceptional sound-meaning mismatch problem.

3. ECCD versus ECCR: A Copy Recovery account to VDCs and more

It is noted earlier in the paper that not much theoretical advancements have been made on verb doubling constructions which is a widely studied phenomenon among the various syntactic doubling phenomena. Apart from the fact that VDCs take place only when the verb is fronted for topicalization and/or focalization (Koopman 1984, 2000; Abels 2001; Landau
2006; Vicente 2007; Aboh & Dyakonova 2009; Trinh 2011), another more widely accepted observation made for such occurrences, is the verb needing to do two different things – one is to interact with the information structure elements to get the required topicalization and/or focalization and another is to get itself attached with the verbal inflections. Trinh (2011) analyses VDCs to occur when a verbal copy survives deletion for not being at the linear edge. He formalizes this account by proposing a condition termed as Edge Condition on Copy Deletion (ECCD). According to this condition, in languages which allow predicate clefts, VDCs will occur only in head-initial languages. The paper argues against ECCD and proposes that VDC is a consequence of copy recoverability. Following this proposal, I argue that VDCs can also take place in SOV languages. I substantiate my argument using the Meiteilon data already seen in (14-19). However, mainly due to space constraints and also observing the similarities between the triggers for VDCs in Meiteilon (and other languages) i.e., topicalization and focalization of the verb, I use only the VDC involving topicalization (11) to account for the said proposal. Before we go further into the copy recovery angle for verb doubling, let us know why the problem arises with ECCD. Subsequently, as the current paper discusses only one subtype of doubling namely the widely studied subtype ‘Verb-Doubling’ Constructions or ‘Predicate Clefts (PC)’ (Koopman 1984) we will deal with the issues of ECCD based on it.

20. Doc the no nen *(doc) sach (Vietnamese, Trinh 2011)
   read TOP he should *(read) book
   ‘As for reading, he should read books’
21. Leer, Juan leyó un libro (Spanish, Vicente 2007)
   read.INF J read.PST.3SG a book
   ‘As for reading, Juan has read a book’

Trinh (2011) argues that the double pronunciation of the verb in (20) and (21) are possible because the verb does not occur at the linear edge, thus violating the ECCD condition (22). A schematic representation of such configuration is illustrated in (23).

22. **ECCD (Trinh 2011):** “For any chain (α, β) where α is the higher and β the lower copy, deletion of β requires that β ends an XP”
23. \[\text{[CP V\ldots \ldots [VP V, NP\text{OBJ}]}}\]

Trinh’s condition for Predicate Clefts with/without verb doubling predicts that VDCs will occur only in head-initial languages. This claim was further favored as all verb doubling constructions were reported in languages with VO word order such as Vata (Koopman 1984), Russian (Abels 2001), Yiddish (Cable 2004), Hebrew (Landau 2006), Spanish (Vicente 2007), Haitian (Harbour 2008), Nupe (Kandybowicz 2008), Gungbe (Aboh & Dyakonova 2009), Vietnamese (Trinh 2011), Mandarin (Cheng & Vicente 2013), Krachi (Kandybowicz 2015) are all languages with VO word order. However, contra the prediction of ECCD for OV languages not to illustrate verb-doubling, the phenomenon is attested in Meiteilon, an SOV language. In fact, we have already seen that Meiteilon has a variety of VDCs such as VDC with V-topicalization (11), and a host of V-focalizations which trigger VDCs (16-19). Such an observation makes the postulation of ECCD that VDCs occur only in VO languages, invalid. Following this, I now propose a condition on copy recovery which is solely based on
the observations made below. Repeating the VDC involving verbal/clausal topicalization in (11) as (24), the illustrated configuration leading to such a construction is shown in (25).

24. tomba(-nə) yu tʰɔk-pə-dí *(tʰɔk)-le (verbal doubling)
   Tomba-Subj liquor drink-Nzr-Top drink-Perf
   ‘Tomba has DRUNK liquor (but clause…)’

25. [tomba(-nə) yu tʰɔk]-pə]

For VDC involving verb-topicalization (24), we now know that the whole vP is taken as the unit of topicalization and not just the verb alone. As the movement numberings in (25) show, when there is no involvement of verb topicalization, only movements V-to-v (1) and V+v-to-Perf (2) take place. However, if the verb has to undergo topicalization, then the lower copy of movement (2) i.e., the V+v complex head can be recovered as whole vP is to be topicalized. But, not before infinitivizing the clause (vP), as a Topic has to be something which is less-verbal and more-nominal i.e., an entity. Furthermore, an obligatory double pronunciation of the verb surfaces in order to support the verbal inflection(s) (which in this case is the perfective aspect morpheme).

The successful recovery of the head in lower copy of head movement (2) allows the vP to have a pronunciable head after movement (4), which is the reason why both the copies have to be obligatorily pronounced. Here, it is observed that at least the lower copy of a phrase head can be recovered if the phrase has to undergo topicalization (through remnant movement). Thus, verb doubling in Meiteilon shows that the edge-head of a vP is recoverable

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3 Matushansky’s (2006) way of treating head-movement as a combination of two operations – a syntactic movement to the Specifier and a morphological-merger of the heads – should not affect the assumptions of recoverability of the lower head which is later remnant moved (see also Vicente 2007).
under remnant movement of the vP for topicalization. This case can be stated as a possible instance of the Edge Condition on Copy Recoverability (ECCR, (26)) at work.

26. ECCR: “For a chain (α, β) where α is the higher copy which c-commands the lower copy β; recoverability of β requires that β is at the edge of a phrase (i.e., a Specifier\(^4\) or a Head) when the phrase containing β undergoes (remnant) movement\(^5\).”

A diagrammatic representation of ECCR can be shown help of the two tree structures below.

---

\(^4\) Copy Recovery of the Spec-Edge is observed in the recovery of PRO in Meiteilon (Rajkumar 2017).

\(^5\) I am adopting the idea of the head and specifier of a phase as its edges (Svenonius 2004; Richards 2011; Chomsky 2013) to that of a phrase.
The structures given above in (26a and b) clearly show the technicalities involved in postulations made by ECCR. Structure in (26a) will result to a doubling construction because the recovered copy (β) in the higher copy of ZP after movement (2) cannot c-command over the other copy α; even though the lower copy of ZP itself is deleted after the said movement. However, a very interesting observation is found that not all recovered copies lead to double pronunciation (the element being recovered and its other copy). It all follows on how the recovered copy is placed with respect to its other copy. This is actually in line with the idea of the Copy Theory of Movement (CTM) which analyzes movement of a constituent X as a combination of two separate operations (Chomsky 1993, 1995; Corver and Nunes 2007; Trinh 2011) – Form Chain and Copy Deletion. The first operation is responsible for copying X into the derived position to form a chain (α, β) where α is the higher copy which c-commands the lower copy β. The second operation as the name suggests is responsible for deleting the lower copy thereby making it unable to get phonological realization. Thus, if the recovered copy is raised higher than its other copy and there is no c-command relationship between the two copies then, both the copies are to be spelled out leading to doubling (as shown in 18). Otherwise, if they result in a c-command domain then, the lower copy gets deleted and it is just the c-commanding copy which is spelled out; which is the case with (26b). This is because unlike, the copy-recovery mechanism undergone in (26a), where there is a double pronunciation of the higher head movement copy (i.e., after movement (1)) in addition to the recovered copy because of the absence of a c-command configuration between the two; (26b) undergoes obligatory deletion of the copy α (which is after movement (2)). This is because α has been c-commanded by the recovered copy β as the latter is at the Spec of ZP which is at the Spec of XP (following Kayne 1994).

4. Concluding Remarks
The current paper questions Trinh’s (2011) argument for Verb Doubling Constructions to not take place in OV languages based on copy deletion. Based on the empirical evidence of Meiteilon data, the paper makes a theoretical claim of VDC to be a consequence of copy recoverability. Further, the edge under consideration of the formalization of ECCR is a structural one as compared to the linear edge in ECCD. So, based on ECCR, if the Recovered Copy is a head, it cannot c-command over its other copy which will result to doubling surviving deletion whereas, if the Recovered Copy is at the Spec, it ends up c-commanding the other copy being at the Spec-of-a-Spec (Kayne 1994), resulting to its deletion.

References

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This outlook of movement should not be confused with the operation Move (Chomsky 1994, 1995) as the latter involves two more steps to undergo the derivation. It is because the CTM step of Form Chain has to include the first two operations of Copy and Merge, then only the said operation (third in Move) can happen.


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Korean plural marker *tul* can attach not only to a noun phrase (NP) (i.e. nominal *tul*) but also to non-nominal phrases such as postposition phrases (PPs), adverb phrases (AdvPs), adjective phrases (AdjPs), verb phrases (VPs), and wh-words (i.e. non-nominal *tul*). The use of non-nominal *tul* as a marker of event plurality has been described in previous literature (Choe 1988, Kim 1994, and Yim 2002), wherein it is observed that it is an anaphor requiring a plural antecedent. In this paper, it is argued that non-nominal *tul* can mark not only spatiotemporal event-plurality but also type-plurality. More specifically, type plurality can be licensed by the anti-quantifier *ssik* ‘each’. Unlike the event-plurality reading, a single event can license non-nominal *tul* under the type-plurality reading.

1. Introduction

Korean plural marker *tul* is ordinarily seen to be a postposition that can pluralize a nominal category (Lee 1992, Kang 1994, Im 2000, Baek 2002, Kwak 2003, Jun 2004, Kim 2005b). However, it can also appear on non-nominal elements that “agree” with the plural noun. Example (1) shows the plural marker both on an NP and an AdvP.

(1) ai-*tul*-i sulphukey-(tul) wun-ta
child-PL-NOM sadly-(PL) cry(PRS)-DECL
‘Children cry sadly.’

In (1), the plural marker *tul* following the subject *ai-tul* ‘children’ is a normal plural marker that pluralizes the nominal category it is attached to. That is, singular ‘child’ plural ‘children’ with the addition of *tul*. In addition, we see that *tul* can also appear optionally on the AdvP sulphhekey ‘sadly’. However, it is important to note that the AdvP is a non-nominal phrase which cannot be pluralized in the ordinary sense of the term. Previous literature (Choe 1988, Kim 1994, and Yim 2002) argues that non-nominal *tul* is a marker of event plurality, which is also an anaphor, requiring a plural antecedent. The focus of our inquiry then is to more precisely determine the identity and function of non-nominal *tul*, and to demonstrate that its distribution (as a maker of type-plurality) is broader than previously described.

2. Plural-dependent anaphoric expressions

This section examines and compares the conditions governing the distribution of English PDEs and non-nominal *tul*.
2.1 Plural-dependent expressions (PDEs) in Korean and English

Choe (1988) argues that non-nominal *tul* is an event plurality marker which must have an antecedent that meet the requirements in (2).

(2) The antecedent of non-nominal *tul* must be:
   (i) Plural
   (ii) A subject
   (iii) Local (in the same IP/TP)
   (iv) In a c-command relation with *tul*

Moon (1995) similarly argues that non-nominal *tul* is in fact a regular anaphor and is subject to Binding Principle A. Likewise, Chung (2004) proposes that non-nominal *tul* closely parallels English PDEs, which observe the plurality, locality, and c-command conditions stipulated in (2).

- **Plurality condition**
  Looking at the English PDEs *each other* (reciprocal anaphor) and *together* (adverb), we see that they are inherently plural and thus require a plural antecedent as shown in (3) and (4).

(3) a. The congressmen fight each other.
   b. *The president fought each other.*

(4) a. John's parents live together.
   b. *John lives together.*

In (3a) and (4a), the subject NPs are plural antecedents for *each other* and *together*. However, (3b) and (4b) do not have plural antecedents for their interpretation and are thus ungrammatical.

- **Locality condition**
  An English PDE must also have a local antecedent (i.e. an antecedent in the same TP or IP), as in (5) and (6). A locality violation is what causes the ungrammaticality of (5b) and (6b).

(5) a. The president doesn't want [IP the congressmen to fight each other]
   b. *The congressmen don't want [IP the president to fight each other]*

(6) a. John wants [IP his parents to live together]
   b. *John's parents want [IP him to live together]*

Examples (5) and (6) show the syntactic domain in which PDEs must find their antecedent. In (5b) and (6b), the possible (plural) antecedents for *each other* and *together*, respectively, are outside of the local domain in which the PDEs appear and cannot license them.

- **C-command condition**
  Finally, an antecedent must c-command a PDE. In (7a) and (8a) the subject DP *John and Mary* c-commands the PDEs, in (7b) and (8b) the PossP *John and Mary's* does not.

(7) a. [DP John and Mary] recommended each other.
   b. *[DP John and Mary's advisor] recommended each other.*
(8)  
a. [DP John and Mary] live together.

According to Chung (2004), the distribution of English PDEs and Korean non-nominal *ul are largely the same and subject to the same conditions.

2.2 Non-nominal *ul in Korean

According to Choe (1988) and Chung (2004), non-nominal *ul is a dummy plural marker (DPM) and it is licensed when c-commanded by a local plural subject. A plural subject will license the affixation of DPM *ul to non-nominal categories, but a singular subject cannot, as in (9) (Chung 2004: 794).

(9)  
\[
\begin{array}{llllll}
\text{wuli/*John-} & \text{nonmwun-} & \text{yelsimhi-(} & \text{tul} & \text{ilk-ess-ta.} \\
\text{we/*John-} & \text{article-} & \text{hard-} & \text{PL} & \text{read-PST-DECL} \\
\end{array}
\]

‘We/*John read articles hard.’

In (9), the plural subject wuli ‘we’ can antecede the DPM on the AdvP yelsimhi ‘hard’, while the singular subject John cannot. Thus, a plural antecedent is necessary to allow a DPM in non-nominal categories.

As suggested above, the plural antecedent of a DPM must be a subject, as illustrated here below in (10) (Chung 2004: 795).

(10)  
\[
\begin{array}{llllll}
\text{Tom-kwa Mary-} & \text{swukcey-lul} & \text{ilccik-(} & \text{tul} & \text{ceychuwulha-ess-ta.} \\
\text{Tom-and Mary-NOM} & \text{assignment-ACC} & \text{early-PL} & \text{submit-PST-DECL} \\
\end{array}
\]

‘Tom and Mary submitted their assignments early.’


‘Tom hit Mary and Sue hard.’

The plural subject Tom-kwa Mary ‘Tom and Mary’ in (10a) can trigger non-nominal *ul on the adverb ilccik ‘early’, but the plural Mary-wa Sue ‘Mary-and Sue’ cannot license non-nominal *ul on the adverb seykey ‘hard’ in (10b), because it is a direct object.

Finally, just like English PDEs, Korean DPMs must be c-commanded by their antecedents, as in (11) (Chung 2004: 796).

(11)  
\[
\begin{array}{llllll}
\text{ama} & \text{John-kwa Mary-} & \text{sinnakey-(} & \text{tul} & \text{nol-ass-ul} & \text{kes-i-ta.} \\
\text{maybe John-and Mary-NOM} & \text{joyfully-PL} & \text{play-PST-and thing-be-DECL} \\
\end{array}
\]

‘Maybe John and Mary played joyfully.’


‘Maybe John and Mary played joyfully.’

In (11a), the plural antecedent John-kwa Mary ‘John and Mary’ c-commands the AdvP sinnakey ‘joyfully’, which can take the DPM *ul. In contrast, in (11b) the plural subject John-kwa Mary does not c-command the AdvP ama ‘maybe’, meaning that a DPM on this adverb will be ungrammatical, having no c-commanding antecedent.
3. Counterexamples to the distribution conditions

This section examines apparent counterexamples to both the plural antecedent and the subject antecedent requirements. Such counterexamples are brought out in Kim 1994, Park & Sohn 1993, and Yim 2002, and require explanation. Recall, as noted above, non-nominal tul must meet the requirements proposed in Choe 1988, and spelled out in (2), above. Providing counterexamples to (2ii), Kim (1994) and Park & Sohn (1993) argue that a plural object can also trigger non-nominal tul. Also, countering (2i), Yim (2002) suggests that invisible event plurality can also license non-nominal tul. This section examines their claims closely.

3.1 Revisiting the subjecthood and the plural conditions

While Choe (1988) asserts that only a plural subject can license non-nominal tul, we can see in (12) and (13) each have constituents marked with non-nominal tul (kenkanghekey ‘healthy’ and han-calwu-ssik ‘one each’, respectively), and that non-nominal tul is anteceded in each case by a non-subject (i.e. a surface direct object in (12) and a surface indirect object in (13)).

(12) Kim-un ai-tul-ul kenkanghekey-(tul) khiwu-ess-ta
    Kim-TOP child-PL-ACC healthy-PL raise-PST-DECL
    ‘Kim raised his children to be healthy.’ (Kim 1994:315)

(13) John-i haksayng-tul-eykey yenphil-ul han-calwu ssik-(tul) cwu-ess-ni
    John-NOM student-PL-DAT pencil-ACC one-CL each-PL gave-INT-Q
    ‘Did John give one pencil each to the students?’ (Park & Sohn 1993:203)

In (12), from Kim 1994:315, the object of khiwu ‘raise’ serves as antecedent for a tul affix on the adjectival predicate kenkanghekey ‘healthy’. In (13), from Park & Sohn 1993:203, the dative goal NP haksayng-tul ‘students’ antecedes the plural anti-quantifier han-calwu-ssik ‘one each’. In each case, though, it can be (and has been) argued that the antecedent is actually an underlying subject (Kim 1994). In (12), ai-tul ‘children’ is the underlying subject of the resultative predicate kenkanghekey ‘healthy’ (i.e., Kim raised his children, and they wound up healthy). In (13), Park & Sohn (1993), appealing to Larson’s (1988) analysis of double object constructions, propose that the goal object NP haksayng-tul ‘students’ is an “inner subject” of a lower VP (one that has the theme NP yenphil han-calwu ssik ‘one pencil each’ as its direct object). Thus, one might revise Choe’s (1988) subject antecedence condition, saying that non-nominal tul requires its antecedent to be a subject at some level of representation.

Alongside these cases in which the subject antecedence requires further analysis and explanation, we also find instances wherein non-nominal tul appears to have no plural antecedent, as in (14).

(14) han sonyen-i phungsen han-kay ssik-ul sinnagey-(tul) thetturyetta
    one boy-NOM balloon one-CL each-ACC amusedly-PL broke
    ‘A boy broke each balloon in amusement (multiple times).’ (Yim 2002:191)

In (14), the adverb sinnagey ‘amusedly’ has a non-nominal tul (plural) affix, but no plural nominal antecedent. In Yim 2002 and Choe J-W 1987, it is suggested that non-nominal tul can be anteceded by the distributive anti-quantifier ssik ‘each’, and in such cases indicates a plurality of events. A plural event is defined by Yim as a situation in which multiple instantiations of an event are distributed temporally and/or spatially, while a single event
indicates a situation which takes place once at a specific location at a specific time. The distributive anti-quantifier ssik ‘each’ gives the sense of a sequence of events, and the events are distributed over space and/or time (Yim 2002:192). Therefore, (14) is true if and only if there is more than one event in which a boy broke a balloon.

3.2 Anti-quantifier ssik
According to Choe (1987:44), English quantified NPs with distributive each are distributed over other NPs in their scope. For example, in each boy bought a balloon the set of individuals in boys are distributed over a set of balloons, such that each individual buys one. In the case of the Korean affix ssik ‘each’, other NPs are interpreted distributively over it. In (14), han sonyen ‘one boy’ is distributed over the several events of balloon popping, such that he broke one in each of them. That’s why ssik is called as an anti-quantifier. Zimmermann (2002) says that in previous literature, this construction is known as various terms such as ‘shifted each’ (Postal 1975), ‘anti-quantifier’ (Choe 1987), and ‘binominal each’ (Safir & Stowell 1988).

The anti-quantifier ssik requires a distributive antecedent which its semantic plurality is dependent on, and thus is constrained by its antecedent (Choe 1987:53). That is, without proper plural antecedents, the anti-quantifier ssik can result in an infelicitous sentence. However, it is possible that without a proper antecedent, the anti-quantifier ssik can appear as in (15).

(15) na-nun [phwungsen-hana ssik-ul] sa-ess-ta
     I-TOP balloon-one-CL each-ACC bought
     ‘I bought more than one balloon.’ (Choe 1987:52)

In (15), we see that there is no apparent plural antecedent. As the subject na ‘I’ is singular, it cannot distribute over phwungsen-hana-ssik ‘a balloon each’, and one might ask how this sentence is acceptable? Choe (1987) suggests that the plurality is elicited contextually and thus antecedents need not be explicit. Thus, (15) means that I bought one balloon each time. In contrast, (16) entails only one (single) event.

(16) na-nun [phwungsen-hana-lul] sa-ess-ta
     I-TOP balloon-one-ACC bought
     ‘I bought a balloon.’ (Choe 1987:52)

A difference between (15) and (16) is the number of balloons: more than one in (15) and only one in (16). Following Choe 1987, and seeing that (14) has no plural antecedent for the anti-quantifier ssik ‘each’, we can say that it is contextually derived event plurality that triggers non-nominal tul. Accordingly, even though the sentence (14) does not have a visible plural antecedent, there is contextually derived event plurality.

4. Type-plurality and non-nominal tul
In (17) we find, in addition to temporal/spatial event plurality (e.g. one each time/one at each place), that there is yet another (previously unobserved) interpretation, involving plurality of types or kinds.
(17) ku ai-ka sakwa-lul han-kay ssik-(tul) sa-ss-ta.
    the child-NOM apple-ACC one-CL each-PL buy-PST-DECL
    ‘The child bought the apples, only one each time/at each place/of each kind.’

Under the type-plurality reading, the child may have, on one occasion in one place, bought one apple each of every kind on display. Notice here that the type-plurality reading is associated with a single event, and that the antecedent for this plural marker is the object of the verb sa ‘buy’.

In (18), we see that that the type-plurality reading is not coincidental, since the affixation of *tul* to the object noun *sakwa* ‘apple’ all but guarantees a type-plural reading.

(18) ku ai-ka sakwa-tul-ul han kay-ssik-(tul) sa-ss-ta.
    the child-NOM apple-PL-ACC one CL-each-PL buy-PST-DECL
    ‘The child bought the apples, only one of each kind.’

In (18), *sakwa-tul* ‘apples’ denotes a plurality over kinds of apples, rather than a plurality of individual apples. Thus, we can see that, in addition a plurality of events, non-nominal *tul* may denote a plurality of types. If *apple* is the property of being an apple, and *(APPLE)* is ‘apple-kind’ (cf. Chierchia 1998), then in (18) *sakwa-tul* is a set *(APPLES)* whose members are sub-kinds of apples, e.g. *(APPLES1, APPLE2, APPLES3…)*. It is over this set of sub-kinds that the anti-quantifier *ssik* ‘each’ distributes in (18), in the same manner as it distributes over events in (14).

4.1 Type-plural *tul* and the subject antecedent condition

We would note, in regard to type-plural *tul*, that it is associated (above) with plural direct objects, which arguably are not subjects at any level of representation. It is further the case that the Korean anti-quantifier *ssik* most naturally appears in an accusative marked NP and rarely in one that is nominative (Choe 1987:48). This naturally begs the question of why the subject antecedence condition for non-nominal *tul* is not observed in these cases. We will claim that this exception arises on account of *han-kay ssik-(tul)* in (18) not taking *sakwa-tul-ul* as an antecedent. Rather, they are a unit constituent underlyingly, and *han-kay ssik-(tul)* is extracted from its containing nominal, in the manner of Kim’s (2005a) analysis of noun classifier structures. Let us first examine Kim’s (2005a: 220) analysis of classifier structures as shown in (19).

(19) a. chayk 3 kwen-ul
    book three CL-ACC

    b. chayk-ul 3 kwen
    book-ACC three CL

\[\text{EVENT- AND TYPE-PLURALITY MARKER –TUL IN KOREAN}\]
In (19a), the sequence 3 chayk kwen ‘3 book volumes’ is generated inside the classifier phrase (CIP) headed by kwen. The noun chayk ‘book’ moves out to Spec,NumP where it can be checked by the accusative marker ul in the head of DP. In (19b), where 3 kwen appears to the right of the accusative marker, the CIP is moved rightward and adjoined to DP. Note that the numeral classifier sequence does not have a case marker, since it has moved out and adjoined to the DP.

Turning back to (18), notice that han-kwen ssik-tul ‘one of each book’ also lacks any accusative case marker, unlike han-kay ssik-ul ‘one of each’ in (14). We take this to be evidence that han-kwen ssik-tul ‘one of each book’ does not need a subject antecedent for the simple reason that it does not need any antecedent. Rather, in (17) and (18), the CIP han-kwen ssik-tul ‘one of each book’ is extraposed from the NumP in the object DP. Thus, this phrase is actually part of the object itself, and not governed by the subject antecedent condition.

4.2 Deriving event and type pluralities

In addition to contextually derived event plurality by the anti-quantifier ssik, we need to examine the preceding bare noun phungsen ‘balloon’ and sakwa ‘apple’ in (14) and (17) to understand how the multiple readings in these two sentences are generated. According to Kang (1994:5-6), a Korean bare noun can denote one individual object or more than one. That is, unlike the English counterparts, Korean singular count nouns can be used to denote plurals in some contexts, as shown in (20) and (21).

(20)  a.  sakwa hana / sakwa han kay / *sakwa-tul han kay
    apple one    apple one CL    apple-PL one CL
  b.  sakwa twul / sakwa twu kay / sakwa-tul twu kay
    apple two    apple two CL    apple-PL two CL

(21)  a.  han haksayng / *han haksayng-tul (‘one student’)
    one student    one student- PL
  b.  twu haksayng / twu haksayng-tul (‘two students’)
    two student    two student- PL

In (20) and (21), the non-pluralized nouns sakwa ‘apple’ and haksayng ‘student’ can be used in both singular and plural contexts. Thus, Kang (1994) suggests that, unlike the English counterpart, a Korean bare count noun should not be restricted to a set of singular individuals. Rather, the semantic domain of a bare noun must include both singular and plural individuals. In contrast, a Korean count noun pluralized with tul denotes only plural individuals, in the same fashion as its English counterpart. This is also seen in (20) and (21).

This, then, begs the question of how a pluralized noun sakwa-tul ‘apples’ is able to co-occur with the number expression han ‘one’ in (18). Here, the only available plurality is that of sub-kinds (or varieties) of apples, and the only available plural reading is that of type-plurality.

(18)  ku ai-ka  sakwa-tul-ul han kay-ssik-(tul) sa-ss-ta.
        the child-NOM apple-PL-ACC one CL-each-PL buy-PST-DECL
        ‘The child bought the apples, only one of each kind.’

Example (17), in contrast, displays the bare count noun sakwa-lul ‘apple’, which may stand in for a plural or singular individual. In the former case, where the purchasing event involves
more than one (kind of) apple, type-plurality is entailed. And in the latter case, wherein each purchasing event involves buying one apple, then event or spatial plurality is denoted.

4.3 Adverbial disambiguation of event and type plurality

We have further confirmation of the reality of the distinct event- and type-plural readings from the insertion of adverbs that disambiguate these readings. In (17), above, it was noted that a singular object (which can refer to singular or plural entities) permitted event-plural and type-plural readings for han-kay ssik-ul ‘one of each’. In contrast, the plural object in (18) forced a type-plural reading of han-kay ssik-ul ‘one of each’.

It can be seen here below that an adverb which supports a type-plural interpretation, kakkak ‘respectively’, can co-occur with either a singular or plural object, as in (22).

(22) ku ai-ka sakwa-(tul)-lul (kakkak) han kay-ssik-(tul) sa-ss-ta.
the child-NOM apple-PL-ACC respectively one CL-each-PL buy-PST-DECL
'The child bought an apple, only one of each kind.'

In (22), the distributive adverb kakkak ‘respectively’ is understood to refer to several kinds of apples, rather than several occasions or locations of purchasing. Since one of each kind of apple was purchased at a single time, it is entailed that there was more than one apple. And since sakwa and sakwa-tul can both refer to a plural set of apples, the plural suffix on sakwa ‘apple’ is optional.

However, if kakkak is replaced with an adverb that explicitly modifies occurrences, such as maypen ‘each time’, then a plural object is completely ruled out, as in (23).

(23) ku ai-ka sakwa-(*tul)-lul (maypen) han-kay ssik-(tul) sa-ss-ta.
the child-NOM apple-PL-ACC each time one-CL each-PL buy-PST-DECL
'The child bought an apple, only one each time.'

In (23), the distributive adverb maypen ‘each time’ is understood to refer to several events of purchasing apples, rather than a purchase of more than one apple. In fact, han-kay ssik-ul ‘one of each’ in (23) entails that only one apple was purchased each time. Accordingly, sakwa with a singular interpretation only is grammatical, and the plural sakwa-tul is not.

5. Analysis

Choe (1987) presents a cross-linguistic analysis of quantificational expressions such as each, which can be “shifted” away from a subject which they would otherwise combine with to form a constituent with the object of the sentence. An example of such a sentence is given in (24), where the sentence each boy bought three sausages has each shifted to the end of the sentence. In this example, each interacts quantificationally with the plural as a function that distributes entities denoted by the subject over entities denoted by the object.

(24) a. The boys bought \[3 \text{ sausages} \] each
b. \( \forall x [ \text{boy}'(x) \rightarrow \exists y [3 \text{ sausages}'(y) \& x \text{ bought } y]] \)

Thus, in (24), each takes every individual in the set denoted by the boys and distributes three sausages through an event of buying to every boy. The plural constituent that the operator each acts upon (the boys) is called the “sort key” (SrtKy) and the entity that is doled out to
each one (three sausages) is called the “distribution share” (DstrShr). Choe claims that quantifiers such as shifted each form a separate class from those previously described in the literature, and terms them “anti-quantifiers”.

In Zimmerman 2002, this view of the anti-quantifier (AQ) is revised. This proposal is made in part to account for the mismatch between the overt syntax and the semantic representation (i.e. the AQ “shifted” each is in the wrong syntactic position to be interpreted as a quantifier of the sentential subject). Zimmerman’s proposal is also intended to explain cross-linguistic differences in the behavior of AQs (e.g. English each cannot quantify over events, but Korean ssik can do so). An elaboration of his semantic analysis is beyond the scope of this paper, but his syntactic account bears spelling out, and is given in (25).

(25) \[ \text{DP1 } \text{the boys}_1\text{ bought } \text{DP } \text{D}^0 [\text{PredP } [\text{DP2 three sausages}][\text{Pred’ } [\text{QP each [NP e}_1 ]]]] \]

In (25), we see that the AQ each appears as a regular quantifier, taking a null NP as its complement. DP1 the boys is the SrtKy (Zimmerman calls it a “distribution key”) for this sentence, and DP2 three sausages is the DstrShr. Note that the DstrShr is the subject of a predicate phrase that takes the QP as a predicate. The linkage between the SrtKy and the AQ is affected through coindexation of the SrtKy with the null pronominal NP.

Our proposal adopts the essential elements of Zimmerman’s syntactic analysis based on Bowers (1993). Bowers argues that DP-structure can be a clause-like constituent (so-called complex predicate theory). According to Zimmermann (2002), the functional D^0-head selects a predication phrase as a DP-internal small clause. Thus, we would propose an analysis of (17), as provided here in (26).

(17) ku ai-ka sakwa-lul han-kay ssik-(tul) sa-ss-ta.
    the child-NOM apple-ACC one-CL each-PL buy-PST-DECL
    ‘The child bought the apples, only one each time/at each place/of each kind.’

(26) \[ \text{DP ku ai-ka} [\text{DP [PredP [DP sakwa-lul] [ClP han-kay]] [Pred’ [QP ssik-tul [e] ]]] D}^0 \text{ ] sa-ss-ta} \]

In (26), the AQ ssik-tul ‘each-plural’ combines with sakwa-lul han kay ‘one apple’ to form a PredP that serves as the object of the verb sassta ‘bought’. The DP sakwa-lul han kay serves as the DstrShr for this expression. Note that the empty category complement of ssik-tul, which is linked to the SrtKy, is not an NP and is not co-indexed with any other constituent. It cannot be coindexed with the sentential subject ku ai-ka ‘the child’, since it is singular. Thus, the SrtKy must be something else. Following Zimmerman, we propose allowing the SrtKy empty category to be linked plural events, situations, or types, as derived from context.

It is this ability to have the AQ linked to a non-nominal and non-overt SrtKy which allows for a sentence such as (27), in which there is only one nominal expression at all.

(27) sakwa-ka han-kay ssik-(tul) ssek-ess-ta.
    apple-NOM one-CL each-PL rotten-PST-DECL
    ‘One apple of each kind was rotten.’

(28) \[ \text{DP [PredP [DP sakwa-ka] [ClP han-kay]] [Pred’ [QP ssik-tul [e] ]]] D}^0 \text{ ] sek-ess-ta} \]
In (28), we see once again that a DstrShr expression *sakwa-ka han-kay* combines with *ssik-tul* to form a single PredP, only this time the PredP serves at the sentential subject. There being no other nominal available to act as SrtKy, the empty expression in QP must link to a non-constituent, in this case (due to the inchoative nature of the main verb) a plurality of kinds.

6. Conclusion

In Korean, non-nominal *tul* had previously been analyzed as a plurality marker agreeing in number with a plural subject or with plural events. Thus, non-nominal *tul* has been found to require either a plural subject or event-plurality. However, in this paper we have found that in addition a plurality of events, non-nominal *tul* can also denote a plurality of types in a sequence of the canonical quantification structure (i.e. nominal + numeral + classifier) and a plural phrase (i.e. anti-quantifier + plural marker). Under the type-plurality reading, there is only one event in one place but there is each of every kind of individuals, i.e. a plurality over kinds. Thus, this paper suggests that non-nominal *tul* can also be a type-plurality marker alongside the anti-quantifier *ssik*.

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Two Strategies of Sameness: Chinese tong and xiangtong

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1. Introduction
While ‘identity’ is a basic concept for humans, it is often striking how the relevant expressions in natural languages, for instance same, represent a big puzzle for semanticists:

(1) Darci saw a flower. Betty saw the same flower.

One popular view (Lasersohn 2000, Alrenga 2007a, Charnavel 2015, a.o.) is that same involves measuring similarity between two individual x and y in terms of contextually relevant properties and corresponds to maximal similarity (‘∀P∈C[P(x)↔P(y)]’). On this view, identity (‘x=y’) is a special case of maximal similarity, where the context takes into account every single property. This paper argues that the distinction between identity and maximal similarity cannot always be reduced to pragmatics and is visible formally, at least in some languages. In particular, in Mandarin Chinese the distinction is lexicalized into the determiner-like tong (preceding Num-CL, incompatible with demonstratives) and the adjective xiangtong (taking the modificational marker de), as in (2):

(2) Daiyu kandao-le yi duo hua… ‘Daiyu saw a flower…’
   a. Baochai kandao-le tong yi duo hua
      Baochai see-PERF tong one CL flower
      ‘Baochai saw the same flower.’
   b. Baochai kandao-le yi duo xiangtong-de hua
      Baochai see-PERF one CL xiangtong-MOD flower
      ‘Baochai saw a maximally similar flower.’

This claim differs from the previous account (Liao & Wang 2014), which argued that the distinction in (2) is token-identity vs. type-identity. In the next section, I show that their account faces some problems (Sec 2.1) and motivate the new generalization that the semantic difference between tong and xiangtong is identity vs. maximal similarity (Sec 2.2). Section 3 presents a compositional analysis. Section 4 discusses the difference between tong and xiangtong on the internal reading as a further support. Section 5 concludes.

Before going into more data, I’d like to clarify another pair of familiar terms in the literature: deictic reading vs. internal reading (Dowty 1985, Carlson 1987, Barker 2007). The readings

1 For a detailed overview of syntactic differences between tong and xiangtong, see Liao & Wang (2014).
2 Abbreviations in this paper: CL = classifier, PERF = perfective marker, MOD = modificational marker.
in (2) are called *deictic* because the interpretation of *tong/xiangtong* is relevant to a referent introduced in the previous discourse (by the indefinite phrase *yi duo hua* ‘a flower’). They also both have the *internal* reading, in which no apparent discourse anaphora is involved:

\[(3) \text{nvhai-men kandao-le } \{ \text{tong yi duo hua } / \text{xiangtong-de hua} \}. \]

‘The girls saw {the same flower/maximally similar flowers}.’

This paper mostly focuses on the data of deictic *tong/xiangtong* as in (2) and will briefly discuss sentences like (3) in section 4, as an extension of the analysis.

2. The revised generalizations on *tong* and *xiangtong*

2.1 The previous analysis

Liao & Wang (2014) correctly noted that there is a meaning difference between *tong* and *xiangtong*, cf. (4)(=2). When a native speaker is asked the question ‘Is there a (physical) flower that both Baiyu and Baochai saw?’ – for (4a) the answer would be ‘yes’; yet for (4b) the answer would be ‘no’.

\[(4) \text{Daiyu kandao-le yi duo hua…} \]

‘Daiyu saw a flower…’

a. Baochai kandao-le *tong yi duo hua*  
   Baochai see-PERF *tong* one CL flower  
   ‘Baochai saw the same flower.’

b. Baochai kandao-le yi *xiangtong-de hua*  
   Baochai see-PERF one CL *xiangtong*-MOD flower  
   ‘Baochai saw a flower of the same type/a maximally similar flower.’

They claimed this is a difference between token-identity vs. type identity, which at first sight is compatible with the judgments, as reflected in the translation. However, there are two pieces of evidence against their analysis (or descriptions).

First, *tong* clearly is not limited to token-identity as claimed. When *tong* is followed by a type-level classifier such as *zhong* ‘kind’ as in (5), the relevant reading involves identity of type-denoting expressions (‘type’ defined as a type entity in the nominal domain; Dayal 2004, Alrenga 2007b).

\[(5) \text{Baochai kandao-le *tong yi zhong hua*} \]

‘Baochai saw the same type of flower’

Though Liao & Wang mentioned (footnote 4 in their paper) that based on the definition of the type-token distinction in Vergnaud & Zubizarreta (1992), a certain level of recursion is allowed – so that (5) expresses identity of prototypical tokens. However the worry is that the original examples of ‘proto-typical token’ in Vergnaud & Zubizarreta all involve predicates that can only apply to kind-level objects (e.g. ‘extinct’ as in (6)), and it is not clear how the ‘proto-typical token’ can occur in the episodic contexts like (5) without admitting it is a
'type' in the first place under their definition (i.e. 'some mental entity that can be instantiated by tokens'), considering the common practice to derive the meaning of (5) is to apply Chierchia (1998: 364) 'Derived Kind Prediction'.

(6) The dodo is extinct. (The proto-typical dodo token is extinct)

Second, xiangtong does not always involve type-identity. Imagine a scenario in which John and Bill are eating mushrooms from a plate: there are three mushrooms in total and they are undistinguishable from each other in appearance. Now John and Bill each ate one mushroom and (7) can be said:

(7) Yuehan chi-le yi zhi mogu. Bier chi-le yi zhi (wanxuan)
    John eat-PERF one CL-token mushroom Bill eat-PERF one CL-token completely
    xiangtong-de mogu
    xiangtong-MOD mushroom
    ‘John ate a mushroom. Bill ate an completely identical mushroom.’

Crucially (7) can be followed by a comment like (8):

(8) danshi zhiyou Bier zhongdu-le, yinwei [tamen chi]-de bu shi tong yi zhong mogu.
    but only Bill get.posioned-PERF because they eat-MOD not be tong one CL-type mushroom
    ‘But only Bill got poisoned, because what they ate were not the same type of mushroom.’

In this case, no identity between types is involved since one mushroom is poisonous while another is not thus they must belong to different types. In fact the identity of types is negated in the comment.

In short, token-identity vs. type-identity cannot be the crucial difference between tong and xiangtong. The next subsection shows that the new generalization, namely the semantic distinction between tong and xiangtong is identity vs. maximal similarity, fits the data better.

2.2 The new generalization

This section recasts the data mentioned above and argues that the correct descriptive generalization on the meaning difference between tong and xiangtong should be identity vs. maximal similarity. Three further pieces of evidence are provided.

This paper argues that tong always involves identity of references between entity-denoting expressions, and whether it is identity of tokens or types depends crucially on whether the classifier is token-level or type-level, as in (9):

(9) Daiyu kandao-le yi duo hua. Baochai kandao-le tong yi duo/zhong hua
    Daiyu see-PERF one CL-token flower Baochai see-PERF tong one CL-token/CL-type flower
    ‘Daiyu saw a flower. Baochai saw the same {piece/type} of flower.’

In contrast, xiangtong always involves maximal similarity between entities (can be either tokens or types, if the classifier is not specified) and crucially it explains (10) (=7) is
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felicitous even if the two mushroom tokens are not of the same type: maximal similarity (defined as ‘sharing all the contextually-relevant properties’) is sensitive to context, and it is possible for two mushrooms to share every property in appearance but not to be the same type (in fact, it is a very common case for mushrooms – that is why people often get poisoned after eating them).³

(10) Yuehan chi-le yi zhi mogu. Bier chi-le yi zhi (wanxuan)
    John eat-PERF one CLtoken mushroom Bill eat-PERF one CLtoken completely
    xiangtong-de mogu
    ‘John ate a mushroom. Bill ate a mushroom that is maximally similar (in appearance).’

There are three further pieces of evidence indicating that the *identity vs. maximal similarity* distinction is on the right track.

2.2.1 Scalarity
Maximal similarity involves a universal quantification over all the (relevant) properties⁴, while identity is a strict, non-quantificational relation. One potential diagnostics is that since the former provides an identifiable standard value on a scale (scalarity), it can be modified by ‘almost’ (Lee & Horn 1994, Amaral 2006, Alrenga 2010), parallel to universal quantifier phrases and adjectives with at least partially closed end scale (11). In contrast, identity relation is not scalar in the first place so that it cannot be modified by ‘almost’.

(11) a. John likes almost {every girl/all the girls/*some girls}.
    b. The bottle is almost {full/empty/??heavy/??light}

The following contrast confirms it: in argument place, *jihu* ‘almost’ is bad with *tong* (regardless of the kinds of the classifiers) but good with *xiangtong*:

(12) Daiyu kandao-le yi duo hua. ‘Daiyu saw a flower…’
    a. Baochai kandao-le yi duo jihu xiangtong-de hua
       Baochai see-PERF one CLtoken almost xiangtong-MOD flower
       ‘Baochai saw an almost identical flower.’
    b. *Baochai kandao-le jihu tong yi duo/zhong hua
       Baochai see-PERF almost tong one CLtoken/CL-type flower
       ‘Baochai saw almost the same piece/kind of flower.’

2.2.2 Contextual restriction
While identity is a strict relation, maximal similarity usually comes with domain restriction, encoded as a context-dependent variable C in the semantics (‘∀P∈C[P(x)↔P(y)]’). It is confirmed by the contrast that *xiangtong* can have an adverbial phrase like ‘in terms of color/in color’ to specify the contextual restriction of comparison, while *tong* cannot:

³ I thank Itamar Francez for suggesting this scenario.
⁴ Although how exactly maximal similarity is modeled can vary (e.g. empty set on the dissimilarity scale in Alrenga 2007a), something consistent is that it involves scalarity.
2.2.3 Asymmetry between singular and plural entities

There is an interesting asymmetry between singular and plural entities when they are modified by xiangtong. I already show that coreference of token-denoting expressions (or identity) is only possible with tong, thus for the reading ‘there is one house that both John and Bill cleaned’ is intended, only tong but not xiangtong in (14) can be used:

(14) Yuehan dasao-le yi jian fangzi. Bier dasao-le {tong yi jian fangzi
John clean-PERF one CL-token house Bill clean-PERF tong one CL-token house
/#xiangtong-de fangzi}
xiang.tong-MOD house
‘John cleaned a house. Bill cleaned the same house/#an identical house.’
(Int: ‘There is one house that both John and Bill cleaned’)

But when both John and Bill cleaned a plurality of houses, for instance in (15), then when the reading ‘there are three houses that both John and Bill cleaned’ is intended, the sentence with xiangtong suddenly improves (for at least some speakers):

(15) Yuehan dasao-le san jian fangzi. Bier dasao-le {tong yi xie fangzi
John clean-PERF three CL-token house Bill clean-PERF tong one CL-pl house
/#xiangtong-de fangzi}
xiang.tong-MOD house
‘John cleaned three houses. Bill cleaned the same houses/identical houses.’
(Int: ‘There are three houses that both John and Bill cleaned’)

I consider that the asymmetry arises because for plural entities, there is one extra way (which is not available for atomic entities) of measuring similarity between them: by looking at to what extent the parts they contain overlap. When two plural entities have completely overlapping parts, the two can be considered as maximally similar to each other. In other words, ‘having x as the part’ can be considered as a special property of a plural entity, and in the case of (15), the plural entity that John cleaned is maximally similar to the plural entity that Bill cleaned in that the two entities share all the relevant properties, namely both have m, l, g as their parts (suppose the three houses they cleaned have names: Morewood, Lakeside, and Greenland).

Note the identity reading of (15) does not mean that xiangtong expresses identity in the way that tong does: if it were the case, it would be a mystery why such a reading is never possible for atomic entities as in (14).
To sum up, this section motivates the new descriptive generalization on the semantic difference between *tong* and *xiangtong* such that it is a distinction between identity vs. maximal similarity. In the next section I present a compositional analysis to capture both the syntactic and semantic differences.

3. Analysis

I propose that the determiner-like *tong* should be decomposed as a comparative structure, namely a DegP headed by an equative head (16a); while *xiangtong* is a relational adjective without the DegP structure (16b):

(16)

\[
\begin{align*}
\text{a.} & \quad \text{DegP} \\
& \lambda x. \exists p[(x = p) \land (g(i) = p)] \\
& \Downarrow i \\
& \text{DegP(xiangtong)} \\
& \lambda y \lambda x. \exists p[(x = p) \land (y = p)] \\
& \Downarrow \text{Deg}_{\text{extra}} \\
& \lambda D \lambda y \lambda x. \exists p[D(p)(x) \land D(p)(y)] \\
& \Downarrow \lambda y \lambda x. \exists p[C[P(x) \leftrightarrow P(g(i))] \\
\end{align*}
\]

Putting aside the complex structure of *tong* for now, both *tong* and *xiangtong* denote a two-place relation: either it is an identity relation, or a maximal similarity relation. In the deictic reading there is a referential index *i* introduced in the previous discourse, and it can saturate the relation as some kind of implicit argument. Ultimately (16a) denotes an indexical property ‘being *g(i)*’ while (16b) denotes an adjectival (or intersective) property ‘being maximally similar to *g(i)*’.

Now looking back at the decomposition of *tong*: the Deg is an equative in that it takes a relation *D* and fixes one of its arguments to some parameter *p* and returns a new relation that holds of two individuals just in case the property ‘being *D* to *p*’ holds of them.\(^5\)

It might strike you that the denotation of *tong* is truth-conditionally equivalent to the plain identity relation ‘\(\lambda y \lambda x. x = y\)’: when there is some *p* such that *x = p* and *y = p*, then of course it is the case that *x = y*. Besides the cross-linguistic evidence that ‘same’ in many languages involves comparative syntax (Heim 1985, Beck 2000, Charnavel 2015, Oxford 2010, Hanink 2017), I will show in Section 4 that the existence of DegP is crucial to account for the scope-taking behavior of *tong*, in contrast to the non-scope-taking adjective *xiangtong*.

The analysis of *tong* and *xiangtong* in (16) also explains the distributional fact that the former is determiner-like and the latter is a typical adjective: *tong* (after saturating its implicit argument), denoting an indexical property, takes up the specifier of *yi* ‘one’, which is not the ordinary numeral here but rather a strong (or anaphoric) definite article, in the sense of Schwarz (2009)\(^6\). The nominal phrase *tong yi duo hua* ‘the same piece of flower’, as in (17),

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5 I adopt the analysis of phrasal comparative heads as in Kennedy (1997), with minor adjustments since the AP here is not projected by a scalar adjective.

6 See independent discussions on indexical positions in Schwarz (2009), Elbourne (2005), especially the recent ones on Chinese in Jenks (2018). In those works, the indexical position is usually in the extended projection of
is derived in (18).

(17) Daiyu kandao-le yi duo hua. Baochai kandao-le tong yi duo/zhong hua
Daiyu see-PERF one CL_{token} flower Baochai see-PERF tong one CL_{token}/CL_{type} flower
‘Daiyu saw a flower. Baochai saw the same {piece/type} of flower.’

(18) The anaphoric definite yi, compared to the (weak) definite article, has an extra argument for the indexical property. There are reasons to believe yi ‘one’ has a special function here since it is the only numeral that can follow tong and can never be omitted. The nominal phrase in (18) thus picks out the unique flower token with the property of ‘being $g(i)$’. The information that the entity is a token or a type is encoded as follows: adopting Trinh (2011), Jenks (2018), classifiers constrain the predicate hua ‘flower’ (which ranges over a polysemous domain including both flower tokens and flower types, as in Dayal 2004) to one of the domains, as illustrated in (19). If the type-level classifier zhong is used, it picks out the unique flower type with the property of ‘being $g(i)$’ (and a salient flower type can be a discourse referent $i$ as well).

(19) a. $[[\text{NP(hua)}]] = \lambda x. \text{flower}(x)$
    b. $[[\text{CLP(duo hua)}]] = \lambda x. \text{flower}(x) \land \text{AT}_{token}(x)$
    c. $[[\text{CLP(zhong hua)}]] = \lambda x. \text{flower}(x) \land \text{AT}_{type}(x)$

In contrast, xiangtong in (16b) ultimately denotes an intersective property – since multiple entities can be maximally similar to a certain entity, no uniqueness is guaranteed and it behaves just like a typical adjective, compatible with both definite and indefinite interpretations. The nominal phrase yi duo xiangtong-de hua ‘a maximally similar flower’ in (20) is derived as in (21).

(20) Daiyu kandao-le yi duo hua. Baochai kandao-le yi duo xiangtong-de hua
D. see-PERF one CL_{token} flower B. see-PERF one CL_{token} xiangtong-MOD flower
‘Daiyu saw a flower, Baochai saw a maximally similar flower.’

(21) a. $[[\text{xiangtong-de hua}]] = \lambda z. \text{flower}(z) \land (\forall P \subseteq C[P(g(i)) \leftrightarrow P(z)])$
    b. $[[\text{yi duo xiangtong-de hua}]]$
        $= \lambda z. \text{flower}(z) \land |z|=1 \land \text{AT}_{token}(z) \land (\forall P \subseteq C[P(g(i)) \leftrightarrow P(z)])$

To sum up, this section proposes a compositional analysis of tong and xiangtong, which

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D. I’ll be vague about the exact position that the DegP headed by tong should be but the relevant point here is that it should at least precede Num-CL.
encodes the identity vs. max.similarity difference and the determiner-like vs. adjective distribution. In the next section I turn to examples of internal tong and xiangtong, and argue that the difference can be derived from the current analysis as well.

4. **Internal readings and scope-taking**

While Liao & Wang used many examples in which the internal reading of tong/xiangtong is relevant, they didn’t note that unlike tong in (22), xiangtong cannot achieve the internal reading in a singular form: when the numeral yi ‘one’ (and the classifier) is specified as in (23a), the only available reading is that the boys all cleaned a house that is maximally similar to a previously mentioned house – thus (23a) sounds odd when uttered out of blue and cannot give rise to the internal reading like (23b):

(22) nanhai-men dasao-le tong yi jian fangzi.
    boy-PL clean-PERF one CL token house
    ‘The boys cleaned the same house.’ (Internal reading **possible**)

(23) a. nanhai-men dasao-le yi jian xiangtong-de fangzi.
    boy-PL clean-PERF one CL token xiangtong-MOD house
    ‘The boys cleaned a maximally similar house’ (Internal reading **impossible**)

b. nanhai-men dasao-le xiangtong-de fangzi.
    boy-PL clean-PERF xiangtong-MOD house
    ‘The boys cleaned maximally similar houses.’ (Internal reading **possible**)

Note if tong and xiangtong are both relational terms, one being the identity relation while the other being the maximal similarity relation, it would be intriguing why (22) is possible while (23a) is not: the essence of internal reading is that without the discourse anaphora, the value of one argument of the relevant relation is settled within the sentence, as illustrated in (24):

(24) a. ‘Every one of the boys cleaned a house that is exactly the house that any other boy cleaned’

b. ‘Every one of the boys cleaned a house that is maximally similar to the house that any other boy cleaned’

The similar contrast is observed in English as well: same can license the internal reading in a singular form while it is not possible for most relational adjectives like similar, identical, hostile, etc. (Matushanksy & Ruys 2007, Barker 2007, Brasoveanu 2011, Charnavel 2015)

(25) a. The girls saw the same flower.

b. #The girls saw a similar flower/an identical flower/a hostile boy.
   (Internal reading **impossible**)

While this kind of reading of same has been analyzed differently in the literature (Barker 2007, Dotlacil 2010, Brasoveanu 2011, Charnavel 2015), I derive the internal reading of tong from the equative head of the DegP, which can take scope (ala Barker 2007). More specifically, the parasitic scope occurs such that both the Deg head and a plurality in the sentence (e.g. nanhai-men ‘the boys in (22)) are scoped out and the scope of the former is
parasitic on that of the latter: \(^7\)

\[(26)\]

The relation created by the QR, namely \([\text{TP}_3]\), is a relation between an individual \(x\) and the entity \(u\) such that the house \(x\) cleaned is exactly \(u\). This relation can saturate the equative head and yield a new relation (\([\text{TP}_4]\)) between individuals \(x\) and \(y\) such that the house \(x\) cleaned is exactly the house that \(y\) cleaned.

The potential type mismatch between \([\text{TP}_3]\)\(<e, et>\) and \([\text{DP}_2]\)\(e\) triggers the application of \(Hmg\) (homogeneity, based on Beck 2000, 2001; Schwarzschild 1996). This operation freely transfers any symmetric relation \(R\) into a property of a plural individual \(X\) such that \(R\) holds between all the atomic parts of \(X\): \(^8\)

\[(27)\] Operation \(Hmg\): For any symmetric relation \(R\), \([\text{R}^{Hmg}]\) = \(\lambda X. \forall x, y \leq X[\text{R}(x)(y)]\).

Since \([\text{TP}_3]\)\(<e, et>\) is such a symmetric relation, applying \(Hmg\) as in (28a) distributes this symmetric relation between all the atomic parts of plural subject ‘the boys’ (its denotation is represented as a plural individual \(B\) here), deriving the internal reading as in (28b).

\[(28)\] a. \([\text{TP}_3^{Hmg}]\)
   = \(\lambda X. \forall x, y \leq X[\exists p[\text{cleaned}(x, tz[\text{house}(z) \land (z=p))] \land \text{cleaned}(y, tz[\text{house}(z) \land (z=p)])]]\)

b. \([\text{TP}_4]\)
   = \(\forall x, y \leq B[\exists p[\text{cleaned}(x, tz[\text{house}(z) \land (z=p))] \land \text{cleaned}(y, tz[\text{house}(z) \land (z=p)])]]\)

In short, the internal reading of \(tong\) is possible due to the scope-taking Deg head and the \(Hmg\) operation.

\(^7\) To avoid making the tree oversized, I omit the contribution of classifiers in the formula since they are not relevant here.

\(^8\) It seems to be a very common operation in languages, for instance \textit{get married} is a symmetric predicate and it can switch between a 2-place predicate as in (ia) and a 1-place predicate taking a plural individual as in (ib).

(i) a. John got married with Mary.
   b. They got married.
Now why the internal reading of *xiangtong* cannot be licensed unless the host it modifies is plural, as in (29) (=23)?

(29) nanhai-men dasao-le (#yi jian) xiangtong-de fangzi.
    boy-PL clean-PERF one CLtoken xiang.tong-MOD house
    ‘The boys cleaned maximally similar houses’  (Internal reading)

It is expected under our account since *xiangtong* is an ordinary relational adjective thus cannot take scope like *tong*, namely to QR and yield a relation between an individual x and an entity u that such x saw a flower that is maximally similar to u. The reason that only when the host it modifies is in plural form it can license the reading is because *Hmg* can apply to *xiangtong* directly, as in (30), considering *xiangtong* itself is a symmetric relation:

(30) a. \[[[xiangtong-de^{Hmg}]] = \lambda X. \forall x,y \leq X[\forall P \subseteq C[P(x) \leftrightarrow P(y)]]\]
    b. \[[[xiangtong-de^{Hmg} fangzi]] = \lambda X. \text{house}^*(X) \land (\forall x,y \leq X[\forall P \subseteq C[P(x) \leftrightarrow P(y)]] )\]

In this case, (30a) is a property must be held of an entity that contains parts, namely a plural entity, which accounts for the obligatory absence of numeral *yi*. In other words, the internal reading of *xiangtong* in (29) is actually a special case of reciprocal reading of *xiangtong*\(^9\): the boys cumulatively cleaned the houses that are maximally similar to each other. As expected, when an obligatorily distributive operator *gezi* ‘each’ is inserted, the internal reading is not available for (31) (when uttered out of blue):

(31) nanhai-men gezi dasao-le xiangtong-de fangzi
    boy-PL each clean-PERF xiang.tong-MOD house
    ‘The boys each cleaned maximally similar houses.’  (Internal reading unavailable)

To conclude, the complex structure of *tong* exactly accounts for its exceptional scope-taking behavior, compared to the ordinary relational terms like *xiangtong*.

5. Conclusions

This paper, based on the data of Mandarin Chinese, advocates the empirical distinction between identity and maximal similarity, which the grammar seems to be sensitive to in various ways. However, after emphasizing this distinction throughout the paper, there is nevertheless obvious morphological overlapping between Chinese *tong* and *xiangtong*, suggesting the potential connection between identity and maximal similarity. I do not have a full story for it now but the initial hypothesis is that while identity is an equation between type e individuals, maximal similarity can be seen as an equation between the type-shifted (Partee 1986) individuals, namely the sorts of properties that individuals have (type \(<et,\tau>\)). In this way, the equation (identity) is the more basic meaning and maximal similarity is coerced from it.

Another interesting question is to ask is that whether such a distinction is systematically made in the grammar of other languages. Due to limited space, I cannot extensively discuss

\(^9\) This point is similar to what Beck (2000) argued for the plural NP dependent reading of German *verschieden* ‘different’ such that it is actually a special case of reciprocal reading.
the facts but a quick look to English shows that the familiar identity vs. maximal similarity distinction can be found as well, i.e. between NP-internal same (as in ‘the same flower’) and predicative same (as in ‘flower that is the same’):

**Obligatorily definite or not:**

(32) a. Darci saw a flower. Betty saw {the/*a} same flower.
   b. Darci saw a flower. Betty saw {the/a} flower that is the same.

**Can be (freely) modified by ‘almost’:**

(33) a. Darci saw a flower. ??Betty saw almost the same flower.
   b. Darci saw a flower. Betty saw a flower that is almost the same.

**Overt contextual restriction:**

(34) a. Darci saw a flower. *Betty saw the same flower in color.
   b. Darci saw a flower. Betty saw a flower that is the same in color.

**Internal reading in a singular form or not:**

(35) a. The boys cleaned the same house.
   b. The boys cleaned {#a house that is the same/houses that are the same}.

Note that the predicative same patterns with the typical adjectives such as identical and similar in terms of the above tests, suggesting they all belong to the similarity-based side. It is interesting to see that in both Chinese and English, those similarity-based terms are lexicalized into (typical) adjectives while identity terms such as tong and NP-internal same seem to be more functional.

**Acknowledgements**

I’d like to thank my QP advisors Chris Kennedy and Itamar Francez for their help, support and patience. I am grateful to Line Mikkelsen, Peter Alrenga, Anastasia Giannakidou, Daniel Hardt, Karlos Arregi, Jason Merchant, Heather Burnett, Peter Lasersohn, Manuel Križ, Richard Larson, Yimei Xiang for helpful comments. Thanks also go to my informants including Jackie Lai, Ming Xiang, Alan Yu, Yuting Wang, Chang Liu, Yingtong Liu, Yiming Gu, among numerous others.

**References**


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1. Introduction

In this paper, I argue that SE is a NP (in the sense of smaller-than-DP nominals) φ-feature matrix identical to the external argument, and it checks its unvalued φ-features by T using Chomsky’s Agree operation (2000, 2001, 2008) and Miyagawa’s Strong Uniformity account (2010, 2017). Whatever argument, valued by the φ-features at T, are targeted by EPP. Therefore, the identical arguments, namely SE and the external arguments move to [Spec,TP]. I argue that the reference effect (reflexive and reciprocal readings) is obtained by the fact that their φ-features are valued by the same T. As for the middle-voice construction, I argue that both arguments are within the same VP (in the sense of Larson 1988) without v, which obviates accusative-case-assignment problem. I propose a novel, morphophonological approach to the notable characteristics of the SE construction, namely, auxiliary selection (AS) and past participle agreement (PPA). AS and PPA are explained in morphophonological terms. Auxiliary selection of the SE construction is reminiscent of the phonological process of dissimilation. That is, it is motivated to be distinguished from the typical transitive constructions for the sake of preserving the morphological class of SE (to be elaborated in the paper). PPA is dependent on the fact that whether an overt DP appears in the verbal phrase. This is irrelevant from θ-criterion or accusative case, so I circumvent the problem of VP complement with regards to the SE construction. This approach solves the problem of the nature of SE, namely, DP or lexical operator or an argument-introducing functional head and intuitively accounts for the surface locus of SE (movement motivated by what and how).

2. Background

2.1. SE is not a direct object

In this paper, SE is assumed to be an independent class, especially in contrast to direct object pronouns. This assumption has at least two implications: i) SE does not have to bear pronominal features (e.g. appearing in D), and ii) SE should be distinct from direct-object class. The second implication is related to the problem of independent class in language. One can encounter the problem of independent class in English unaccusative verbs, whose disparity to unergative verbs is diminishing in spite of the uniform “unaccusative”-like meaning (e.g. arriving or moving) because of lack of class-defining morphophonological characteristics (Sung 2017). This comes as no surprise because children during acquisition cannot make the independent class without enough positive (explicit) evidence for it. On the other hand, Romance unaccusative-unergative distinction is robust thanks to more ample “evidence,” namely auxiliary selection.

2.2. A picture of the SE construction

In this paper, the SE construction refers to any clause that include SE. I intentionally refrain from referring to it as SE pronoun, or SE argument or SE operator in order to create any uncalled biases. If I use these words, it would be the case that I contrast with other pronouns or arguments, e.g. SE pronouns vs. non-SE pronouns.
### 2.2.1. Paradigm of Subject, Direct Object and SE

<table>
<thead>
<tr>
<th>Subject (NOM)</th>
<th>Direct Object (ACC)</th>
<th>Indirect Object (DAT)</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First person singular</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>je</td>
<td>me</td>
<td>me</td>
<td>me</td>
</tr>
<tr>
<td><strong>First person plural</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nous</td>
<td>nous</td>
<td>nous</td>
<td>nous</td>
</tr>
<tr>
<td><strong>Second person singular</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tu</td>
<td>te</td>
<td>te</td>
<td>te</td>
</tr>
<tr>
<td><strong>Second person plural</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vous</td>
<td>vous</td>
<td>vous</td>
<td>vous</td>
</tr>
<tr>
<td><strong>Third person singular</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>il (masc.) / elle (fém.)</td>
<td>le (masc.) / la (fém.)</td>
<td>lui</td>
<td>se/soi</td>
</tr>
<tr>
<td><strong>Third person plural</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ils (masc.) / elles (fém.)</td>
<td>les (masc. or fem.)</td>
<td>leur</td>
<td></td>
</tr>
</tbody>
</table>

At a single glance, it seems that direct object pronouns and SE pronouns are the same except for the third person. However, I argue that the whole SE class is distinct from direct object pronouns. SE pronouns are distinguished from direct object pronouns by i) auxiliary selection, ii) inability to be paraphrased as referents, and iii) apparent difference in form for the third person.

(1) **SE is different from direct object pronouns and cannot be substituted by referents**

a. Regarde ton pantalon! Je l’aime! / J’aime ton pantalon!

   ‘Look at your pants! I like them! / I like your pants’

b. Regarde-moi! Je m’aime! / J’aime *moi(-même)!

   ‘Look at me! I like myself!’

Given the essence of pronouns is usage like (1a), (1b), by definition, sets it apart from typical pronouns, which would be a ground of positing SE does not have the same NP structure.

As morphological forms of SE pronouns and direct object pronouns are identical except for SE, some research tries to rout third person SE out of the whole picture. However, I will argue that it would be an unjustified delimitation in Section 1.2.

#### 2.2.2. Functions

In this section, I will address the functions of SE because of its versatility, this section may not include all instances. See Labelle (2008) for a more comprehensive summary. In this study, I address the following functions.

- reflexive
- reciprocal
- passive
- middle voice
- applicative

If one assumes traditional subcategorization frames for verbs, a, b should have more θ-roles than c, d and fewer θ-roles than e. Therefore, it is not descriptively adequate to claim that SE deducts a theta-role from the subcategorization from.

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1 Clauses with direct objects appear with *avoir* ‘have’ auxiliary verb, while those with SE appear with *être* ‘be’. The *être* auxiliary is also selected by unaccusative verbs.
2.2.2.1. Reflexive

One of the readings obtained through the SE construction is a reflexive reading. The reflexivity can be confirmed by the contrast with the sentence where the direct object appears.

(2) Reflexive SE

a. Jean aime le sushi.
   'Jean likes sushi.'

b. Jean s’aime.
   ‘Jean likes himself.’

c. Il s’est fait un baisemain.
   ‘He kissed himself on his hand.’

As (2a) means ‘Jean likes X, and X is sushi,’ (2b) means ‘Jean likes X, and X is se, and se is Jean.’ In short, (2b) returns a reflexive reading. Like many other languages, prepositions assign their own Case, its realization is confirmed through empathic pronouns, namely soi form. This is true with reflexive SE, as shown in (3).

(3) After prepositions, pronouns take a soi form

a. Tu ir-ai-s chez moi.
   'You will go to my home.'

b. Ce pantalon est à nous.
   'These pants are ours.'

c. On ne peut compter que sur soi.
   'One can rely only on oneself.'

Binding Principle A and B hold true in French, too, as shown in (4).

(4) Binding Principle A and B apply to the SE construction

a. If John, doesn’t love him\_\_self, who would (love him)?

b. Si Jean ne l’aime pas (lui-même), qui pourrait l’aimer ?
   if Jean NE him/himself love PAS (himself), who could him love ?

c. If John’s father does not love him\_\_self, then no one does (love him).

d. Si le père de Jean ne l’aime pas, alors personne ne l’aime.
   if the father of Jean NE him/himself love PAS, then no one NE him love

In English, reflexive constructions require language learners to use self-pronoun instead of an accusative pronoun. In other words, the direct object oneself is still in the accusative case marking position (VP complement), whereby it gets its θ-role, and the only difference is the morphological self added after. Simply put, I am arguing that reflexive pronouns in English consists of pronominal part and self part and acquirement of self-pronouns are different from establishing a new class; it is interpreting the added part “self”. However, when it comes to French reflexive constructions, the simple adjustment to the direct object pronoun is not adequate. First, there is no positive evidence that accusative Case is assigned because the typical accusative Case marking position (VP complement) is empty in any circumstances. The other problem is θ-role assignment. Under UTAH (Baker 1988), the

\[2\] Labelle (2008) argues that emphatic SE, i.e. soi-même, could be the VP complement. However, the fact that direct object and emphatic counterpart do not show the same pattern undermines this approach (upper-case letter for emphatic effect).

(i) a. Il s’est tué lui-même.
   'He killed himself.'
VP complement position is the internal θ-role checking position. If SE verbs are not lexically manipulated in such a way that internal θ-roles are not necessarily filled in syntax, in the SE reflexive construction, the VP complement is in fact filled. Then, for some reason, the internal argument should be expelled from its base generated position.3

2.2.2.1.1. Grooming verbs
Like many other languages, French grooming verbs are peculiar in argument structure in that they always takes SE to express ‘the grammatical subject grooming him- or herself.’

<table>
<thead>
<tr>
<th>French</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>se baigner</td>
<td>to bathe (oneself)</td>
</tr>
<tr>
<td>se laver</td>
<td>to wash (oneself)</td>
</tr>
<tr>
<td>se peigner</td>
<td>to comb (oneself)</td>
</tr>
</tbody>
</table>

One of the interesting aspects of the grooming verbs in French is that they allow a direct object, what is being washed. In this case, both the direct object and SE should be preserved. Because of the existence of the direct object, the SE of this kind is often called as “dative SE,” namely <recipient> or <goal> of the verb.

(5) **Grooming verbs can take direct objects**
- a. Lavez-vous les mains!
  Wash-you.pl the hands
  ‘Wash your hands!’
- b. Elle s’est peign-é-e sa coiffure.
  She SE is comb-ed-FEM her hair
  ‘She combed her hair.’

Because dative SE cannot be captured by subcategorization frames,4 it is also a convincing piece of evidence in favor of the argument that SE is not a lexical operation. Note that this is not an alternative to some English-like clause *Jean a lavé ses mains* (lit.) I washed my hands; this is the only way.

b. *Il l’a tué lui/elle.
  he him/her has killed HIM/HIM
  ‘He killed HER/HIM.’
(ii) a. *lui-même, Il s’est tué.
  *himself, he SE is killed
  ‘He killed himself.’
b. Lui/Elle, Il l’a tué.
  HIM/HER, he him/her has killed
  ‘He killed HER/HIM.’

3 I admit that if UTAH or θ-criterion is dispensed with, this is less problematic. However, for some approaches to be dealt with in this paper, UTAH or θ-criterion is still crucial. Also, an ad-hoc solution suggested in the Grimshaw 1982 is that SE is base-generated in that position and just suppresses accusative Case of the verb.
4 Because *laver* ‘wash’ can be used as a canonical transitive verb, the fact that *se laver* can still take a direct object (while SE is obligatory) disables whatever operation SE is supposed to have with regards to the subcategorization frame of the verb. In order to capture SE is as an obligatory argument, *laver*, then, should be ditransitive, which is, apparently, an ad-hoc remedy. If one argues that *se laver* is subcategorized for (_ (NP)) (optional internal argument), like *eat* in English, this leads to another issue—whether subcategorization is a robust criterion on grammaticality. Moreover, in this account, SE is no longer a lexical operator which applies to transitive or ditransitive verbs to suppress an internal argument. Application of SE in the lexicon returns nothing (vacuous operation).
2.2.2.2. Reciprocal

Another dominant interpretation of the SE construction is the reciprocal reading. The reciprocal reading and reflexive reading can be pragmatically restricted. For instance, if one uses the verb *kiss* in the SE construction, ‘kiss each other’ is a more dominant reading over ‘kiss oneself.’

(6) **Reciprocal SE in French**

  - *my children, they love-*pl.
  - ‘My children love each other.’
  - ?‘My children love themselves (reflexive)’
- b. Jean et Mari, ils se sont embrassé.
  - *Jean and Mari, they SE are kissed*
  - ‘Jean and Mari kissed (each other).’
- c. Nous nous allons nous laver mutuellement les mains.
  - *we SE.1π.pl. have washed-pl. mutually the hands.*
  - ‘We washed each other’s hands.’

2.2.2.3. Passive

In French, there are two ways of realizing the passive voice (a transitive clause without the external argument). One is an Indo-European style passive, namely, *be*-verb (*être*) and past particle, and the other is using *SE*. I present below three pairs of passive sentences.

(7) **SE passive and Indo-European passive pairs in French**

- a. Jean s’effraie toujours de tout.
  - *Jean SE frightens always of everything*
  - ‘Jean always gets scared of everything.’
- b. Tout effraie Jean.
  - *everything frightens Jean*
  - ‘Everything scares Jean.’
- c. Le ministre se préoccupe de l’état des finances.
  - *the minister SE worries of the state of the finances*
  - ‘The minister is worried about the state of the finances.’
- d. L’état des finances est ce qui préoccupe le plus le ministre.
  - *the state of the finances is what worries the most the minister*
  - ‘The state of the finances is what worries the minister the most.’
- e. Je m’étonne toujours de savoir que tu travailles alors qu’il est très tard en Corée.
  - *I SE.1π surprise always to know that you work while it is very late in Korea*
  - ‘I’m always surprised to know you’re working while it's very late in Korea.’
- f. Je suis toujours étonné de savoir que tu travailles alors qu’il est très tard en Corée.
  - *I am always surprised to know that you work while it is very late in Korea*
  - ‘I’m always surprised to know you're working while it's very late in Korea.’

The fact that the SE construction can be used for passivization is interesting in that from the view of Burzio’s generalization, the grammatical subject should not be an external argument in passive. If an approach argues that the grammatical subject is an external argument and SE is an internal argument or what suppresses the internal argument role from realizing in syntax (subcategorization modification), then the passive SE acquires a bizarre character.

2.2.2.4. Middle Voice

The middle voice is characterized by i) complete lack of external argument and ii) an inchoative interpretation. These characteristics can be confused with those of the passive voice. In this paper, regardless of English meanings, the SE construction which lacks an external argument and cannot add it as a *par-(by-)phrase adjunct, is assumed to be a middle voice. This means that middle voice constructions do not exhibit asymmetry between arguments, e.g. external vs. internal argument.

(8) **Middle Voice in French** (no plausible external argument)

- a. Marie a brisé le vase.
  - *Marie has broken the vase*
a. ‘Marie broke the vase.’

b. Le vase s’est brisé (en tombant) (*par Marie).

   The vase SE is broken (on falling) (*by Marie).

   ‘The vase broke (on falling).’

c. Comment ce mot SE prononce (en coréen) (*par les coréens) ?

   How this word SE pronounce (in Korean) (*by the Koreans)

   ‘How is this word pronounced (in Korean)?’

d. Ce mécanisme s’emploie lorsque la place ne permet pas […]

   this mechanism SE employs when the place does not permit […]

   ‘this mechanism is used when the place does not permit […]’

2.2.2.5. Ethical /Applicative SE

The SE construction can be interpreted as an applicative. This can be an instance of dative SE in that the on sight the thematic role of SE, if it were an argument, is <recipient> or <goal>. However, unlike grooming-verb SE, applicative SE is optional unless the verb is in effect ditransitive. This optional status is crucially indicative of the fact that SE is better analyzed in syntax, not in the lexicon. In this paper, the SE that is not the grammatical subject and the direct object is called “applicative SE” when its presence is optional. The following data is from Labelle (2008).

(9) Applicative SE

   a. Alors, on se le mange, ce melon?

      Well, we SE it eat, this melon

      ‘Well, are we going to eat it, this melon?’

   b. Luc s’est bu un petit café.

      Luc SE is drunk a small coffee

      ‘Luc had himself a small cup of coffee.’

In (9a, b), se is so-called <beneficiary>, often referred to it as ethical se. It is self-evident that these SE elements are not added by lexical subcategorization. Following Pylkkänen (2008) and Kratzer’s (1996) Event Identification for high Active Voice, Labelle (2008) argues that the SE merges with Applicative Phrase, which is composed of Applicative functional head and VP.

2.2.2.6. Lexical SE

I call the SE verbs the meaning of which changes from the SE-less verb beyond the principle of compositionality “lexical SE”. It could be argued that these SE verbs have other functions than what is listed in 1.2.2. However, how SE is semantically conjoined to the verbal stem is nevertheless unique in that the lexical sense of the verb must not be preserved. In other words, the lexical SE verbs are idioms. Also, those verbs that lack SE-less counterparts are also lexical SE in this paper in that the merge of SE is explicit yet semantically evasive.

(10) Idiomatic SE

   passer ‘to pass’ ↔ se passer ‘to happen’
   trouver ‘to find’ ↔ se trouver ‘to be located’
   agir ‘to act’ ↔ s’agir (de) ‘to be a matter of, to be about’

(11) SE verbs without its SE-less equivalents

   s’absenter ‘to be absent’
   s’abstenir ‘to abstain’
   se démener ‘to thrash out’
   s’évaporer ‘to evaporate’
   s’évanouir ‘to faint/pass out’

---


6 I must acknowledge that one could find SE-less equivalents, but they are still extremely rare, archaic or literary.
Note that having idiomatic SE verbs in the lexicon does not undermine compositional SE verbs. For instance, *se trouver* can mean ‘find oneself’, the compositional meaning intact.

### 2.2.2.7. Interim Summary

The data above clearly indicate that SE has nothing to do with decreasing or increasing thematic roles (valency). Moreover, it is likely to misguide the scope of research if one assumes SE has a dedicated function like *oneself* in English. This aligns with Bouchard’s claim (1984) that reflexive class is functionally determined, not by its morphology.

### 2.2.3. Characteristics

#### 2.2.3.1. Auxiliary Selection

Burzio’s generalization (1985) is generally applicable to French except for SE. Burzio’s generalization states that the verbs that have an obligatory external argument should behave differently from those that have no external argument. This sets unaccusative verbs apart from unergative verbs in Romance languages. One of the crucial features of the distinction is auxiliary selection. In French, external-argument-bearing verbs select *avoir* ‘have’, while the others (unaccusative) select *être* ‘be’. What should be accounted for with utmost importance is the fact that the SE construction, regardless of its argument structure, selects *être over avoir*.

In order to explain this auxiliary selection, some argue that SE verbs are unaccusative verbs. However, SE verbs do not lose its accusativity as shown in (5). Moreover, it takes external arguments, which is what unaccusative verbs must not be able to do.

Alboiu et al. (2004) circumvent this issue by positing θ-movement (in the sense of Hornstein 2001). That is, both SE constructions and unaccusative constructions expel the DP in the internal argument position. Simply put, the fact that VP complement is a trace makes the transitive *être*. This appears descriptively adequate. However, how the trace is generated for the SE construction and the unaccusative construction differs; in the former, it is motivated by θ-movement, while in the latter by EPP, and only when the trace is generated by θ-movement, it is realized as *se*, while other typical traces (copies) are deleted at PF. Therefore, without θ-movement, this account does not hold. The theoretical problem with θ-movement in French is that it seems to appear only in the context of the SE construction. Namely, it could be an ad-hoc solution. Moreover, in case of grooming verbs with a direct objects, their approach should account for why no movement of SE (all the θ-roles are checked by nominals) still triggers *être*-selection; it should work like transitive verbs under their analysis.

#### 2.2.3.2. Past Participle Agreement (PPA)

I assume that Past Participle Agreement occurs in French. PPA in French is realization of [feminine] and [plural] feature at the end of the past participle, as shown in (12). An interesting facet about French PPA is the conditions.

(12) **Past Participle Agreement in French**

a. Elle-s sont arriv-é-e-s

She-pl are arrived-

‘They (female) arrived.’

b. Elle-s ont dormi hier.

She-pl have slept yesterday

‘They (female) slept yesterday.’

c. Il a écrit des lettres.

He has written some letters

‘He wrote a letter.’

d. il les a écrit-e-s

he it.FEM.pl has written-

‘He wrote them.’

e. Elle s’est tué-e

SE PPA

Note that having idiomatic SE verbs in the lexicon does not undermine compositional SE verbs. For instance, *se souvenir* is translated as ‘to remember’. The compositional meaning intact.

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‘He wrote a letter.’

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he it.FEM.pl has written-

‘He wrote them.’

e. Elle s’est tué-e

SE PPA
she SE is killed-FEM
‘She killed herself.’
f. Nous nous sommes lavé-s. SE PPA
we se.1π.pl are washed-pl
‘We washed (ourselves).’ (reflexive)
g. Nous nous sommes lavé les mains SE no PPA
we se.1π.pl are washed the hands
‘We washed our hands.’

On sight, the condition for PPA seems to be commensurate with argument structure. Especially, the contrast between the unaccusative verb (12a) and the unergative verb (12b) along with the no PPA of the transitive verb (12c), generates a simple condition that PPA takes places when there is no external argument. Because of the morphological difference in the auxiliary verb (avoir vs. être), the agreement must be formulated as either avoir blocks it or être lets it happen. This is a basically phase-head based approach (D’Alessandro & Roberts 2008). However, given (12d) and (12 e-f), whether the clause has an external argument cannot be in effect a valid condition. An alternative hypothesis would be that movement of the internal argument (e.g. (12a) and (12d)) triggers PPA. This accounts for (12a-f). The immediate potential problem is how to define internal argument movement. If the object pronoun in (14d) moved before Spell-Out, no syntactic motivation can be thought of (Case valuation or θ-feature agreement). Even if there were, it would not be an explanation but a staid description. If the object clitic at T were due to a PF movement, which is most likely, the se in (12c, f) is by definition an internal argument. Then how the SE construction displays systematic differences from the canonical transitive construction becomes obscure. Moreover, it cannot explain (12g)—if se were an internal argument and it moved, why (12g) fails PPA? My solution is presented in 3.5.

2.2.4. Distributions

2.2.4.1. mono-clausal

Given the examples above, it is apparent that SE appears on the right side of the T head (auxiliary verb). This is true of other pronominal clitics.

(13) SE appears before direct and indirect object pronouns
    a. Je me l-a suis donné-e.
       I se.1π. it-fem. is given(-fem).
       ‘I gave it to myself.’ (it referring to a feminine noun)
    b. *Je la me suis donné(e).
    c. Elles se sont offert-e-s à lui.
       They.3.2 FEM se are offered-FEM-pl to him
       ‘They offered themselves to him.’

(13) suggests that direct objects and SE do not compete each other. However, in grammar, it should be noted that SE share the clitic position with other pronouns and they come in a certain order. That is, the order of the clitics should be accounted for in some ways. If an analysis argues that both a direct object and a SE argument are spelled out at the same domain, then the order between them is determined purely phonologically. In this case, the only reason these clitics show the current order is a sheer reflection of the linguistic input.

2.2.4.2. bi-clausal (two verbs)

In causative constructions, SE is cliticized on T preceding the causative verb. However, if the <causer> subject is not the same as the internal argument of the SE verb, then the SE remains in situ. The data below is adapted from Labelle (2008).

(14) SE in causative constructions
    a. Je me fer-ai laver par Jean.
       I me make-will wash by Jean
       ‘I will make Jean wash me.’
    b. Je le fer-ai laver à Jean.
I make-will wash to Jean
‘I will make Jean, wash it/him/sj.’
c. Je fer-ai se laver Jean.
I make-will SE wash Jean
‘I will make Jean wash himself.’

(14) suggests that if one argues that SE and the direct objects are both cliticized at PF, then they should conjoin in a bizarre phase-domain distinction between (14d) and (14c). For a clearer explanation, I provide French causative structure in (15).

(15) French causative structure

In causative structure above, for (14b), the direct object (D.Obj in the structure) is cliticized outside of VP and VcauseP, but for (14c), it remains within VP. Moreover, usually only to direct objects, e.g. (14b), accusative case is assumed to be assigned/checked off in the base-generated position, there is no Case-related reasons for se in (14c), which lacks accusative Case, to stay in situ. Moreover, when the direct object is the same as the <causee>, then it leaves the base-generated position and is cliticized on T.

As for this distinction between object clitics and SE clitics, Labelle (2008) argues that the difference follows from the fact that only direct-object clitics leave a trace behind, while SE, a functional head according to her, lacking an internal argument, does not. Therefore, for her, (14c) is similar to an unergative construction, and the internal θ-role is assigned to the introduced external argument, i.e. <causee>. On the other hand, in (14b), the internal θ-role is assigned to the object position. While her distinction accounts for why causative SE constructions resemble those of the unergative, it does not explain why the head movement of SE is prevented in (14c), but not in (14a). Clearly, the contrast between (14a) and (14c) comes from whether SE is c-commanded by <causee> (given that the <causee> in (14a) is in a PP), and Labelle cannot explain this contrast.

SE is not cliticized across an intervening C head (e.g. que).

(16) SE in the embedded clause remains in the clause

a. Elle a dit qu’il elle se tuerait aujourd’hui.
   she has said that she SE kill-COND. today
   ‘She said that she would kill herself today.’

b. *Elle s’est dit que elle tuerait aujourd’hui.

(16) together with (15) delineates the problem clearly to us. What is relevant to the locus of SE is the φ-features and the finite T. In (16), it is clear that SE is sensitive to which T head to be attached to, and in (14a, c) whether it has the same φ-features as the grammatical subject affects its location.

2.3. Problems of the previous theories

In this section, I will demonstrate typical limitations or problems in the previous theories for the SE construction. I will use a deductive approach to reviewing the previous approaches. That is, I will list potential problems first, and then I provide some studies that fall onto each problem.

The delimitation of the scope of the study can be biased. While the SE construction per se is not limited to reflexive or third person, many analyses delimit the purview of exploration accordingly. Note that I acknowledge the significance of delimitation in research. The problem is one can delimit the subject only to create partiality in favor of him or her.

2.3.1. Descriptive Inadequacy

2.3.1.1. SE reflexive only

Interesting as the topic of reflexive is, many papers whose topic is reflexives delimit their discussions within SE to a reflexive pronoun (or an operator). This approach, however, creates a fake notion that SE, by definition, has direct bearing on reflexivity. As discussed above, as much as SE is a necessity condition for reflexivity, SE has many more functions, while the syntactic behaviors remain the same. This means that the meaning/function of SE is not necessarily intertwined with its syntactic characteristics. Along this line, the middle voice SE is often opted out of the scope of the discussion.
2.3.1.2. Third person SE only

Because of deficiency of φ-features in the third person SE pronoun, papers often limit their scope within the third person SE (Alboiu et al. 2004, Alboiu and Barrie 2009). If a theory can account for all the attributes and distribution of SE regardless of their φ-features, then the theory is more superior. Moreover, it is an invidious delimitation compared to SE reflexive delimitation. At least in SE reflexive is a licit research scope in that it is a necessity condition for expressing reflexivity in French, or other Romance languages. However, third person SE is only an excerpt of the pronoun paradigm in French (or in Romance languages). In other words, the fact that SE does not explicitly express number when it is in the third person is not an adequate reason to sever the third person SE from the first and second person SE because syntactically they behave in a similar fashion. Specifically, reflexive first person and second person SE is distinguished from direct object pronouns.

A more interesting question is the problem of independent class. If only in the case of the third person, the morphology of SE is different from that of the direct object, how can the SE class be acquired?

2.3.1.3. non-dative SE only

The dual presence of both SE and the direct object in grooming verb constructions is a pesky problem because if SE is a normal DP argument (Alboiu et al. 2004, Alboiu & Barrie 2009), then it should be accusative marked in its base generated position, then the direct object case-marked like English nominal adjuncts (e.g. I waited three hours), although it is not an adjunct. This problem is true for Labelle’s SE-as-a-functional-head approach because in her approach, the internal argument position should be reserved for the external argument. If there is a direct object, then the disparity between the typical transitive construction and the SE construction dies down. Moreover, as she argues that emphatic SE (soi-même) is the possible candidate for this VP complement position, the direct object is incompatible with her argument.

2.3.2. Explanatory Inadequacy

2.3.2.1. SE is purely a person feature?

Some studies have argued that SE is a person feature and that is it (e.g. Kayne 2001, Reuland 2001). Their evidence is that the third person SE lacks [number] and [gender] features. This is descriptively true, but I doubt its explanatory adequacy because the first and the third person still evince the [number] feature. As long as SE pronouns behave the same regardless of the [number] feature, how the deficiency of [number] in the third person can be a direct, decisive piece of evidence in favor of the analysis that SE is purely a [person] feature? The answer is no.

2.3.2.2. SE spelled out at T and cliticized?

Once SE is presumed to be a clitic, its locus is often attributed PF cliticization (Alboiu et al. 2004). As I pointed out above, this means that the grammar relevant to the cliticization is purely the input. Acquisition of SE before direct pronouns occurs in the same fashion as acquisition of the pronunciation of students is not dent-stu. This has no flaw in descriptive adequacy, but if one gives a tangible motivation other than the input for the locus of SE, then it is more explanatorily adequate. Once again, accounts relying on distinct phase domains cannot account for (14).

3. Proposal

3.1. The nature of SE

I argue that SE is an argument NP (or φP) which lacks D₀ following Déchaine and Witschko’s (2002) decomposition of pronouns. This is distinguished from all the approaches that equate SE as a DP or SE as a pure person feature. Having no D₀ not only differentiates SE pronouns from other pronouns but also enables them to be φ-feature valued by the local T like external arguments. Supporting argument for the lack of D₀ for SE is the difference in the manner of referencing between typical pronouns and SE pronouns, addressed in 2.2.1.

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7 This part is a reply
This analysis gives rise to a classification of the French verbs according to what kind of nominals are merged with the verb. I present the classification in the following table.

Table 1 | Verb Classification in French

<table>
<thead>
<tr>
<th></th>
<th>external argument</th>
<th>internal argument</th>
<th># of θ-roles</th>
<th>A.S.</th>
<th>PPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transative</td>
<td>DP</td>
<td>DP</td>
<td>2</td>
<td>avoir</td>
<td>suppressed</td>
</tr>
<tr>
<td>Unergative</td>
<td>DP</td>
<td>n.a.</td>
<td>1</td>
<td>avoir</td>
<td>suppressed</td>
</tr>
<tr>
<td>Unaccusative</td>
<td>n.a.</td>
<td>DP</td>
<td>1</td>
<td>être</td>
<td>overt</td>
</tr>
<tr>
<td>SE verbs</td>
<td>DP</td>
<td>NP (SE)</td>
<td>2</td>
<td>être</td>
<td>overt</td>
</tr>
<tr>
<td>VN compound</td>
<td>n.a.</td>
<td>NP</td>
<td>n.a</td>
<td>n.a</td>
<td>suppressed</td>
</tr>
</tbody>
</table>

This classification shows that it is not a tenable approach to incorporate SE verbs into other verbs. That is, so-called transitive approaches, unergative approaches or unaccusative approaches, all have their blindspots. For instance, the unaccusative approach is actually a statement that both unaccusative verbs and SE verbs select être as an auxiliary, not that SE verbs are in fact unaccusative verbs. The blindspots would be the fact that internal arguments for unaccusative verbs are always DPs, and they must have a single θ-role which is not an external argument. The unergative approach (Grimshaw 1982, Reinhart 1996, Reinhart & Siloni 2004), on the other hands, fails to account for the difference in auxiliary selection, past particle agreement or the fact that they completely lack internal arguments while SE verbs do not. This table is actually a set of criteria for descriptively adequate analyses for the SE construction.

### 3.2. The generation of SE

I argue that SE is generated a strategy in syntax. “John killed himself,” the numeration would be \{John, killed, himself\}. As for the corresponding French sentence, “Jean s’est tué,” the numeration would be \{Jean, est ‘is’, tué ‘killed’\}. The verb should merge with an argument at first, and the candidate is, obviously, the DP Jean. However, in this case, what syntax generates at the end is a simple passive sentence, i.e. “John was killed.” To obviate this derivation, syntax adopts a strategy, namely copying “syntactic matter” of the DP Jean. That is, DPs contain PF and LF features as well as syntactic features. However, what is needed at the moment of derivation is just uninterpretable features of the DP. Therefore, the φ-feature matrix is copied, which is NP in this paper, and that NP is merged instead of the possible argument DP. This does violate the condition of inclusiveness (Chomsky 1995).

Even if we suppose that Jean is merged with the verb tué successfully, I can show that se should be generated nonetheless. When the external argument position is created by a separate head (Voice or v) (Chomsky 1995, Kratzer 1996, Pyllkänen 2008), no nominal is available in the numeration as the only DP is used the an internal argument. The only alternative is to merge the same thing as Jean—this is the φ-feature matrix. Both of these nominals have their φ-features valued by T and by virtue of EPP they move to [Spec,TP].

### 3.3. The locus of SE

In this proposal, the locus of SE is naturally predicted, [Spec,TP]. SE movement is parasitic on the EPP movement of the external argument because they “look the same” in syntax. The derivation is schematized in (17). lower case se is the surface form se, while SE is the underlying form or simply the feature matrix.
Derivation of “Jean se lave”

a. Jean se lave

EPP movement

This derivation guarantees why SE precedes other pronouns because they are motivated is distinguished. That is, while other pronouns are “cliticized” onto T at PF (Kayne 1988), SE has moved the same way the grammatical subject has. Therefore, it should be closer to the subject. This is more explanatory adequate than pure PF cliticization account.

This straightforwardly shows why the landing site of se differs in causative constructions (14 a, c), repeated in (18).

SE in causative constructions

a. Je me fer-ai laver par Jean.
I SE.I make-will wash by Jean
‘I will Jean wash me.’

b. Je fer-ai se laver Jean.
I make-will SE wash Jean
‘I will make Jean wash himself.’

That is, only in (17a), the feature matrix of SE is valued by the local T like the grammatical subject. Hence, it is a target by [EPP]. One the other hand, in (17b), SE is not a target of [EPP]. Also this is why SE cannot cross a CP boundary because it has moved to the specifier position of the local T.

3.4. Auxiliary Selection

I argue that auxiliary selection is motivated phonologically. The supporting argument is that the only condition for être selection is the existence of SE and nothing else. This condition need not be explained in phonological terms, but if one just says that SE in syntax makes the auxiliary être, it is a statement of a fact; it lacks explanatory adequacy.

In phonological terms, I use one of the traditional phonological processes—dissimilation. That is, selecting être is a dissipilatory process for the sake of distinctiveness. Specifically, the SE construction wants to be distinguished from the canonical transitive construction. Unlike the unaccusative and unergative construction the number of the required DPs is different to begin with, at the surface level, both the transitive and SE constructions have two nominals. Especially, the fact that the accusative DP pronominal is cliticized at PF makes the surface word order more similar. Therefore, this contextual similarity at PF motivates a dissipilatory process, which is achieved by auxiliary selection.

Surface Level Similarity and Dissimilation

a. transitive construction (when DP is a pronoun)

T → avoir in DP NOMINATIVE # DP ACCUSATIVE # T # VP

b. SE verb construction

T → être in DP NOMINATIVE # NP SE # T # VP
This is not an ad-hoc description. This is in fact closely related to the problem of independent class. Without such a dissipilatory process, the independency of the SE class can be threatened given the paucity of morphological distinctiveness of SE from direct object pronouns in comparison to English *oneself*. Moreover, the loss of distinction in Auxiliary Selection in English has in effect led to a collapse of the independent class of unaccusative verbs (Sung 2017).

3.5. Past Particle Agreement
As discussed above, French does not allow PPA with the direct object when it is in situ, but it does (optionally) when it is cliticized at T. As for the SE construction, it generally allows PPA except when there is a direct object (e.g. grooming verbs). These two facts clearly show that the condition of PPA in French boils down to the fact that whether an explicit DP is following the V or not. Now I argue that PPA in French is a PF phenomenon, and the condition is that whether V is followed by a DP. The condition is formulated in (20).

(20)  *The context/condition for French PPA*

a. \#V+T+φ# → \#V+T# / \#DP  (no PPA; φ being the agreement element)
b. \#V+T+φ# → \#V+T+φ# / elsewhere  (PPA)

Thus, as the NP raises to [Spec,TP] in SE constructions, the surface structure falls into the elsewhere condition, hence PPA. However, in the dative SE construction, PPA is suppressed by virtue of (19a). This analysis is nonetheless compatible with the unergative construction, in which no internal DP and no inflection are shown. According to this approach, unergative constructions are not the case where PPA is suppressed, but they simply do not contain the DP with which the verb can agree (φ is empty). Having a following DP affects PF realization in French does not come as an extreme surprise because of French liaison. French liaison straightforwardly shows how flexible word boundaries can be in French. A simple, linear condition in (20) can account for French PPA, and that is it. This analysis predicts that when the context changes, even transitive verbs can show PPA. The prediction is borne out (12d). Moreover, this nicely explains why in relative clauses, the verbal inflection agrees with the antecedent DP, putatively a raised object, across a CP boundary and the grammatical subject. The example is given in (21) (adapted from Nguyen 2014).

(21)  in relative clauses, the past participle agrees with the antecedent

… les pommes-s  que j’ai mangé.-e-s.
… the apples(FEM)-pl that I have eaten-FEM-pl
‘… the apple that I ate.’

4. Elaboration
4.1. Deriving grooming verbs with a direct object
One of the characteristics of grooming verbs is that they can take a direct object. In (22), I present syntactic representations of the argument structure of a grooming verb, *laver* ‘wash’, with and and without a direct object.

(22)  *Argument structure for Jean s’est lavé les mains ‘Jean washed his hands’*

a. Argument structure without a direct object  b. Argument structure with a direct object
In the numeration of \{Jean, lavé, les mains\}, the two possible representations of the argument structure is either (22b) or that for a canonical transitive. The former gets the meaning of ‘Jean washed his hands,’ and the latter the meaning of ‘Jean washed the hands.’

One of the benefits of this structure is that it conveniently shows why a possessive + NP phrase (\(D_{poss}P\)) (e.g. ses mains ‘his hands’) is illicit as a VP complement. As argued above, the “effect” of reflexive or coreference between the subject and SE arises from the fact that they are both valued by the T. The other way of coreferencing should not be c-commanding because if that was true then possessive NP must not be ruled out. The putative third way for coreferencing is then the possessive pronoun is already self-evident as to its referent from Numeration. Suppose that this is by virtue of the fully specified φ-features of the possessive pronouns. In this case, the another VP complement SE has to have its φ-features valued by its local φ-features. Then the SE is no longer available for the coreference with the grammatical subject, and the derivation results in an undesirable sentence. On the other hand, non-possessive NP, e.g. les mains, is underspecified for the actual referent so it cannot be a goal in the Agree system. Another possible intervening goal is <causee>, which will be addressed in 4.3.

4.2. Deriving middle voice

Following Larson (1988), I argue that middle voice SE is derived from having two nominals merge with the V (in other words having V’). I present the derivation of “Le vase s’est brisé.” in (23).

(23) **Argument structure of a middle voice construction and its derivation**

Derivation

For those who might suspect whether the middle voice argument structure is ad-hoc, I expound the structure. The essence of middle voice verbs is that they lack an external argument. Therefore, it must lack an external argument introducer, namely \(\nu\) or Voice. However, there is no reason for the grammatical subject, *le vase* (23), not to be merged with the verb. By the SE generation depicted in 3.2, that argument structure is one instance that is licit along with another candidate which would be realized as a normal passive sentence.\(^8\)

This derivation is superior in descriptive adequacy in that it can actually capture the middle voice along with other readings of the SE construction. Hardly has any previous research given an up-to-snuff, unified answer to the phenomenon that the SE construction potentially varies in argument structure because argument structure per se utilized to derive the SE construction. Moreover, this one Labelle’s account on the middle voice is relatively explanatorily insufficient because she posits a separate functional head SE, which is not an (external) argument introducer SE, and that SE merges with VP and vacuously returns the same semantics of VP.

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\(^8\) The other argument structure candidate is the argument structure of the English unaccusative verb, i.e. \([\nu P V D]\). This argument structure is likely to become a simple passive sentence.
4.3. Causative constructions

The interesting aspect of the causative construction is the locus of SE in comparison to that of a typical pronominal.

(24) Only \textless causee\textgreater{} pronominal is criticized on T

a. Je fer-ai \textit{se} laver \textit{mes enfants}.
   
   I make-will SE wash my child-ren
   
   ‘I will make my children wash.’

b. Je les \textit{fer-ai} \textit{se} laver.
   
   I them make-will SE wash
   
   ‘I will make them wash.’ (\textit{les = mes enfants})

c. Je \textit{me} \textit{fer-ai} \textit{laver} par Jean.
   
   I se.1π make-will.1π wash by Jean
   
   ‘I will make John wash me.’

d. Il \textit{se} \textit{fer-a} laver aux prochaines élections.
   
   He se make-will.3π wash at.the next elections
   
   ‘He will be washed in the next elections.’

If SE is a DP argument which is spelled out at PF the data (24) become interesting. In (24a), although there is no reason that \textless causee\textgreater{}, \textit{mes enfants}, is significantly closer to the T head than \textit{se}, only the pronominal in (24b) is cliticized on T. Moreover, if SE is a lower copy of the θ-moved DP, obviously the first θ-role is the internal argument of the verb, \textit{laver}, and then the “last” θ-role position is that of the \textit{in-situ} DP, \textless causee\textgreater{}.

This θ-role, however, is in the domain of the causative verb. In this case, the argument DP checks i) the internal θ-role of the verb, ii) the external θ-role of the verb, and iii) \textless causee\textgreater{}. Now this DP is targeted by two accusative Case, that of \textit{wash} and that of \textit{make} in (24a, b).

Not only have θ-Criterion and the Case Filter been ignored (Chomsky 1981), but it undermines syntactic constraints on the distribution at all by freely moving NP/DP for both φ-feature and [\textit{u}Case].

The causative + SE constructions in (24c, d) prove that SE is available to cliticization in the causative construction. Thus, there should an independent reason to raise \textit{se} in (24d) but not in (24a, b). In my approach, this is naturally predicted. As SE moves to [Spec,TP] along with the subject, the fact that the grammatical subject is not the same as SE in (23a, b) but the same in (24c) uphold the distinction.

In 4.1, I argue that the reason why only \textit{les mains}, not \textit{mes mains} ‘my hands’ is because \textit{my hands} can be a DP with full φ-features that can be a goal of SE. This is true in causative constructions.

(25) The causative construction and the hands

a. Je ferai laver \textit{mes mains} par Jean.
   
   ‘I will make my hands wash by Jean.’

b. *Je, me, ferai laver les, mains à Jean.
   
   As there is no SE, in (25a) \textit{mes mains} ‘my hands’ is licit. Interestingly, there is no reason why (25b) should be ungrammatical. However, my account explains why. It is because the \textless causee\textgreater{}, à Jean, can be a potential goal of \textit{se} in (25b). Thus, the sentence derivation fails.

5. Conclusion

In this study, I have proposed a new, more comprehensive view on the SE construction and SE per se from a syntactic and morphophonological perspective. In order to do so, I examined the functions and distributions of SE in a comprehensive manner, clearly indicating the limitations in research scope of the previous, subject to descriptive inadequacy. I argued that SE is an NP, contrasted by the previous treatments that SE is either DP or simple φ-feature. I also depicted how SE is generated in syntax in order not to rely on the lexicon. Moreover, I provided a new perspective on the long-lasting problems of auxiliary selection and past participle agreement with the French SE construction. Auxiliary

\footnote{http://plus.lapresse.ca/screens/5e6790fd-2c63-4e36-a50a-caeb5a998200_7C_0.html}
selection resembles a dissimilatory process in order to secure the independent morphological class of
SE, which can easily be subsumed under the direct object pronouns. As for PPA, the fact that the verb
having a following DP is the context for suppressing the morphophonological realization of the
agreeing element. The bottom line is that any purely syntactic account cannot adequately describe or
explain the phenomenon.

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On –(e)ci Inchoatives in Korean

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University of Delaware

1. Introduction

There are two types of deadjectival inchoatives in Korean. First, some predicates do not require any additional morpheme. The stative predicate form is maintained when there is a change of state. They do not undergo morphological change. For example, pi- ‘empty’ can indicate both the state of emptiness and “become empty”. The examples are shown in (1) and I call this kind of predicates as bare inchoatives.

The other type of deadjectival inchoative is marked by the morpheme -(e)ci after the root forms as (2). For example, nelp- ‘wide’ must combine with -(e)ci to indicate ‘widen’. The predicates that belong to -(e)ci inchoatives must have the -(e)ci inchoative marker to contain the change of state meaning. The lists of deadjectival inchoatives are based on Petersen (2015)’s list of English deadjectival verbs.

(1) Bare inchoative

(2) -(e)ci inchoatives

The goal of this paper is to present an analysis of Korean -(e)ci inchoatives by comparing its semantic property with bare inchoatives and propose syntactic structure of Korean -(e)ci inchoatives.

2. Semantic property of –(e)ci inchoatives

2.1. Previous scaler analysis of deadjectival predicates

The deadjectival inchoatives contain the scalar change that an object undergoes over time as the change-of-state verbs. For example, a total verb, dry, changes from the non-maximal state

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1 I excluded the total verb straighten because it only allows periphrastic inchoative ‘-key (adverbial modifier) doeta (become+DEC)’.
On -(e)ci Inchoatives in Korean

of dryness to the maximal state of dryness. A partial verb, wet, on the other hand, changes from the minimal (zero) state of wetness to non-minimal (non-zero) state of wetness. The degree of the relative verbs simply becomes greater than the previous state because they do not have any required standard changes. For example, widen expresses the increased width compared to the previous width. The examples of corresponding deadjectival verbs are shown below.

(3) Absolute verbs
   a. Total verbs
      e.g. dry, close, clean, straighten, flatten, empty, fill, hide…
   b. Partial verbs
      e.g. blur, open, wet, expose, curve, bend, dirty…

(4) Relative verbs
   e.g. widen, narrow, shorten, broaden, strengthen, cool, rise, fall…

The traditional classification of predicates, however, does not capture the distribution of bare and -(e)ci inchoatives. One remarkable fact is that all relative verbs must combine with –(e)ci. I claim that the total and partial verbs in (6), thus, should be reanalyzed to have the same semantic properties with relative predicates.

(5) Bare inchoatives

(6) –(e)ci inchoatives

2.2. The distribution of -(e)ci inchoatives

In section 2.1, it has been observed that scalar analysis of gradable adjectives cannot capture the distribution of –(e)ci inchoatives in Korean. One of the main difference between bare and -(e)ci inchoatives that will be discussed in this section is the availability of the increase in degree. Bare inchoatives do not allow the increase of degree, while -(e)ci inchoatives allow it.

2.2.1 The availability of the increase in degree.

The first evidence is the insertion of te ‘more’ in the sentences. Both inchoatives are acceptable to use te ‘more’ but produce different meanings. –(e)ci inchoatives increase the degree of the property of predicates when adding te ‘more’, but bare inchoatives do not. Instead, bare inchoatives increase the surface or space to which the property of predicates applies. For example, (7) presents total and partial bare forms of malu- ‘dry’ and cec- ‘wet’. In this case, the surface of the towel that dried or got wet became increased when the state changed. The degrees of dryness and wetness are no longer able to increase. –(e)ci
inchoatives of *dry* and *wet* in (8), on the other hand, increase the degrees of dryness and wetness from the previous degrees of dryness and wetness when adding *te* ‘more’.

(7) Bare inchoatives *dry/wet*

```
ku  swuken-i  te  malu/cec-ess-ta
```

‘The towel-NOM more dry/wet-PST-DEC

‘The towel dried/got wet more.’

(8) *(e)ci* inchoatives *dry/wet*

```
ku  pang-uy  kongki-ka  te  kencohay/suphay-eci-ess-ta
```

‘The room-GEN atmosphere-NOM more dry/wet-eci-PST-DEC

‘The atmosphere of the room dried/got wet more.’

The second evidence is the insertion of adverbs *completely/slightly*. The similar test was conducted in Kennedy (2007) to test the scales of gradable adjectives.

(9) Bare inchoatives *dry/wet*

```
ku  swuken-I  wancenhi/yakkan  malu/cec-ess-ta
```

‘The towel-NOM completely/slightly dry/wet-PST-DEC

‘The towel completely/slightly dried/got wet.’

(10) a. *(e)ci* total verb *clean*

```
kup pang-I  wancenhi/yakkan  kkaykkusha-eci-ess-ta
```

‘The room-NOM completely/slightly clean -eci- PST-DEC

‘The room completely/slightly cleaned’

b. *(e)ci* partial verb *wet*

```
kup pang-uy  kongki-ka  ?wancenhi/yakkan  suphay/suphay-eci-ess-ta
```

‘The room-GEN atmosphere-NOM completely/slightly wet-eci-PST-DEC

‘The atmosphere of the room ?completely/slightly got wet.’

Total and partial verbs of bare form are acceptable with *wancenhi/yakkan* ‘completely/slightly’ as shown in (9). When it comes to the interpretations, *completely* means that the whole surface of the towel dried, whereas *slightly* means only some part of the towel dried. The dried part is already dry and does not need more dryness, but the rest part of the towel is not dry at all in this case.

Total and partial verbs combining with *(e)ci*, however, show different patterns from each other as the examples in (10). The *(e)ci* total verb, *kkaykkusha* ‘clean’ is natural with both adverbs *wancenhi/yakkan* ‘completely/slightly’. In this case, the adverbs can indicate

---

2 Kennedy (2007) used *perfectly* and *slightly* to test the acceptability of degree modifiers that show maximal or minimal degrees on the scales of the adjectives they modify. *wampyekhakey* ‘perfectly’ is normally unnatural with gradable verbs in Korean. Instead, I use *wancenhi* ‘completely’, which is more natural degree modifier that presents maximal degree of adjectives they modify.
that all or some spaces of a room are clean as bare forms. The adverbs, however, can also be used even when they refer the degree of the property of cleanliness. Assuming a very small and limited space, the degree of cleanliness can be diverse within the space. The space is likely to have the maximum degree of cleanliness without any stain, using the adverb completely. In addition, the degree of cleanliness of the space might not be perfect with some stains, using the adverb slightly. In this situation, it is irrelevant to space; instead, it is rather relevant to the degree of cleanliness. In brief, -(e)ci inchoatives can increase their degrees without involving the increase in surface/space when they achieve the standard degree.

The last test is about the adverb half. Kennedy & McNally (2005) used half to examine the difference between absolute and relative adjectives in terms of entailments, along with negative and comparative constructions. In this paper, half is used to test the unavailability of the increase in degree with bare inchoatives. Half is acceptable with bare inchoatives as shown in (11), but it is not acceptable with -(e)ci inchoatives as examples in (12).

(11) Bare form dry/wet

\[\text{ku swuken-I pan malu/cec-ess-ta} \]
\[\text{The towel-NOM \hspace{1cm} half \hspace{1cm} dry/wet-PST-DEC} \]
\[\text{‘The towel half dried/got wet.’} \]

(12) -(e)ci verb dry/wet

\[\text{ku pang-uy kongki-ka *pan kencohay/suphay-eci-ess-ta} \]
\[\text{The room-GEN atmosphere-NOM \hspace{1cm} half \hspace{1cm} dry/wet-eci-PST-DEC} \]
\[\text{‘The atmosphere of the room *half dried/got wet.’} \]

Half is acceptable to use when the object is bounded and the measurement is visible. All total and partial verbs of bare form have to do with the surface or space, and the predicates are used when the space or surface is bounded. Thus, half in the contexts means half of the surface or space to which the property of the predicates applies. For example, half dried in (11) indicates that half of the surface of towel dried but the other half of surface is still wet. Likewise, half got wet in (12) indicates that half of the surface of towel got wet but the other half of surface is not wet. The result state is same in the end. -(e)ci inchoatives, however, are not compatible with half in that the degree is unbounded, and the measurement is vague and invisible: degrees do not have end point and cannot measure the half amount of the degree.

2.2.2 The availability of relative meanings

It has been discussed that the degree of bare inchoatives is achieved once the property of adjective reaches to either non-minimal or maximal scale in the previous section. Bare inchoatives such as close and open achieve the degrees of closeness and openness once it closed and opened, no matter how much it closed and opened. -(e)ci inchoatives, on the other hand, have no absolute or clear standard scales, compared to the scale of bare inchoatives. Considering the scales of the predicates, it is not easy to decide from which extent of the degrees of -(e)ci partial verbs, such as telewu-eci- ‘dirty’, suphay-eci- ‘wet’, hulisha-eci- ‘blur’, would be standardized. Even for -(e)ci total verbs, such as kkaykkushay-eci- ‘clean’, the degrees of cleanliness can vary from individual to individual in that kkaykkushay-eci-
‘clean’ is acceptable even when the degree of cleanness does not reach to maximum degree.\(^3\) In this context, \(-eci\) inchoatives can increase the degree of its property and have more relative meanings than bare forms.

The gradable predicates to maintain their bare forms once their standardized degrees are achieved. If there is no standardized degree to achieve and the degree of a predicate is context-dependent, then it combines with \(-eci\). \(-eci\) inchoatives have more relative meanings, while bare inchoatives have absolute meaning. The main evidence is that only \(-eci\) inchoatives allow shifting a standard. Shifting a standard is available when the predicates do not have degree standards but have relative meanings.

(13) **Bare inchoatives** dry/wet
    
    The towel-NOM dry/wet-PST-DEC *But still dry/wet not –PST-DEC
    ‘The towel dried/got wet, but it is still not dry/wet.’

(14) **\(-eci\) inchoative** clean
    
    ku pang-i kkaykkusha-eci-ess-ta. kulena yecenhi kkaykkushaci anh-ta.
    The room-NOM clean -eci- PST –DEC. But still clean not-DEC
    ‘The room cleaned, but it is still not clean’

The degree of bare inchoatives like (13) should reach the standardized degree. Once it reaches the required degree, it is no longer able to shift the standard. For example, bare form malu-/cec- ‘dry/wet’ have the degree of maximum or non-minimal standard. Once they achieve the degree, then it is impossible to shift the standards. In contrast, \(-eci\) inchoative clean in (14) shows that it can shift the standard of cleanness because it has more relative meaning than bare inchoatives. Even though kkaykkusha ‘clean’ has been classified into a total predicate with bare form, malu- ‘dry’, kkaykkusha ‘clean’ is more flexible than malu-‘dry’, allowing the relative meaning. It is seemingly the absolute predicate, but in fact, it has a relative meaning as the traditional relative adjectives. It provides an evidence that the actual criteria to divide absolute predicates and relative predicates needs to be revised.

The next difference is about the acceptability of the verb ka- ‘go’. ‘go’ is a typical motion directed verb with o- ‘come’ and combines with a verb to cause movement along an abstract path. According to Zubizarreta & Oh (2007), ka- ‘go’ presents the movement towards absolute end point as (20). Furthermore, it can’t co-occur with comparative phrases as (16).

(15) Yenkuk-I ttuthna ka-ass-ta.
    Performance-NOM end go-PST-DEC
    ‘The performance approached the end.’ (p. 78)

    river-NOM one hour before than deep-L go-PST-DEC
    ‘the river was getting deeper than an hour ago.’ (p. 113)

\(^3\) Another \(-eci\) total verb phyengphyenghay-eci- ‘flatten’ seems to have more absolute meaning than kkaykkushay-eci- ‘clean’. But its property is more similar to other \(-eci\) inchoatives than bare inchoatives in terms of the availability of the increase in its degree.
The verb *ka-* ‘go’ can combine with the scalar predicates, but only with bare form types of verbs as examples in (17) and (18) present. It provides another evidence that there is a difference in meanings between bare form and *(e)ci* inchoatives. Bare form *malu-* ‘dry’ is compatible with *ka-* ‘go’ because it has an absolute end point of the dryness. However, *(e)ci* inchoative *telewe-* ‘(be) dirty’ is incompatible with *ka-* ‘go’ since the predicate has no absolute end point. *ka-* ‘go’ is normally used with adverb *ta* or *keuy* ‘completely’ or ‘almost’.

(17) Bare inchoative *dry*

```
ku swuken-i    (ta/keuy)          malue-ka-ass-ta
the towel-NOM (completely/almost) dry-go-PST-DEC
```

‘The towel is (completely/almost) getting dry’

(18) *(e)ci* inchoative *(be) dirty*

```
*ku pang-i     (ta/keuy)            telewe-ka-ass-ta
the room-NOM  (completely/almost) dirty-go-PST-DEC
```

‘*The room is (completely/almost) getting dirty’

*(e)ci* inchoatives are compatible with *ka-* ‘go’ when the *(e)ci* construction is embedded in the *ka*-construction. For example, *telewe-* ‘(be) dirty’ combing with *(e)ci* is acceptable with *ka-* ‘go’ as *telewe-(e)ci-ka*. This meaning would be ‘the degree of dirtiness moves toward a dirtier point in the scale.’

### 3. The Structure of *(e)ci* inchoatives

In section 2, I showed that *(e)ci* is combined with a gradable predicate only when it has a relative degree scale. Accordingly, I propose that *(e)ci* inchoatives require DegP in syntactic structures. This proposal is in line with the structure of *(e)ci* predicates that Lim (2016) and Lim & Zubizarreta (2012) proposed: *(e)ci* predicates requires DegP. I, however, adopt other kinds of Degree heads in this paper: *pos* and *pos_v* that Svenonius & Kennedy (2006) introduced. Kennedy (1999) proposes that adjectives are functions from individuals to degrees. For example, the semantic denotation of *wide* is (19):

(19) \[ [\text{wide}]_c = \lambda x . c . \text{the degree to which } x \text{ is wide} \]

The adjectives should first combine with a functional head called Deg, which takes an adjective of type \(<e,d>\) as its argument and returns a predicate of type \(<e,t>\). The degree head *pos* is an unmarked positive form of degree and defined as below:

(20) \[ [\text{Deg } \text{pos}]_c = \lambda g . \lambda x . g(x) > d_{s(g)(c)} \] (Svenonius & Kennedy, 2006)

\(ds(g)(c)\) represents the ‘standard of comparison’ for a context of utterance \(c\): the degree that is required to count as having the property measured by \(g\) in \(c\).

Svenonius & Kennedy (2006) gives *pos* denotation for relative adjectives. It indicates that the degree exceeds the standard of comparison in a context.

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4 Zubizarreta & Oh (2007) interprets this construction as the *(e)ci* constructions function as the path complement of *ka*.
The next function I introduce is \( m_\Delta \). The measure of change function \( m_\Delta \) and its corresponding degree head \( pos_v \) is based on measure function \( m \) that has a lower closed scale.

\[(21) \text{Measure of change} \]
For any measure function \( m \), \( m_\Delta \lambda x.\lambda e. m\uparrow m(x)(\text{init}(e))(x)(\text{fin}(e)) \) (Kennedy & Levin, 2008: 18)

In prose, a measure of change function \( m_\Delta \) returns the degree that represents the amount that \( x \) changes in the property measured by \( m \) as a result of participating in \( e \) (Kennedy & Levin, 2008). Like the previous measure function, a measure of change function combines with a degree morpheme — \( pos_v \) — a verbal positive form morpheme introduced by Pinon (2005).

\%(22) a. pos_v = \lambda g \in D_{m_\Delta}.\lambda x.\lambda e.g(x)(e) > \text{std}(g) \\
(\text{std represents standard of comparison}) \\
b. pos_v(m_\Delta) = \lambda x\lambda e.m_\Delta(x)(e) > \text{std}(m_\Delta) \) (Kennedy & Levin, 2008: 19)

Combining \( pos_v \) with \( m_\Delta \) the degree achievement is true iff an object \( x \) and an event \( e \) in the degree to which \( x \) changes in the event exceeds the standard of comparison for \( m_\Delta \).

The proposed structure of \(-\text{(e)ci inchoative in this paper is decompositional as Ramchand (2008)’s event structure. There are initial projection, } init\text{DegP}, \text{and process projection, } proc\text{DegP. In brief, the first } init\text{DegP is composed of the degree head } pos \text{ and measure function } m, \text{while the next process } proc\text{DegP is composed of the degree head } pos_v, \text{and measure of change function } m_\Delta. \text{The degree head } pos, \text{however, is sensitive to the scale of predicates (Petersen, 2014). In this paper, the } init\text{DegP is proposed to have } pos \text{ whose semantic representation corresponds with the one that selects lower closed scale adjectives.}

\[(23) [\text{Deg } pos] = \lambda g.\lambda x.g(x)>\text{min}_g(g) \\
\text{min}_g \text{ is function from measure function to the contextually minimal element in the range.} \]

In addition, the measure function \( m \) in this structure is a function from objects and time intervals to degrees \(<e, <i,d>>\) since there are initial and final time intervals in this structure. Intervals are defined as a base set of ordered points, either temporal moments or points in space of path (Gawron, 2005). An interval is a dense, gapless subset of such points (Peterson, 2015; p. 381). \( i_1<i_2 \) iff every point in \( i_1 \) precedes every point in \( i_2 \). \( wide \) is shown in (24) as an example of the semantic property of the measure function.

\[(24) [\text{wide}] = \lambda x.\lambda i_1 \in D_{<i}. width_{\text{max}}(x)(i_1) \\
[\text{pos}] = \lambda g \in D_{<e, <i,d>>}. \lambda x.\lambda i_1 \in D_{<i>. g(x)(i_1), g(x)(i_1) > \text{min}_g(g)} \]

The semantic property of the measure function \([\text{wide}]\), which is the maximal degree to which \( x \) is wide at \( i_1 \), is denoted as ‘\( width_{\text{max}}(x)(i_1) \)’. The semantic property of \( init\text{Deg} \) is the degree of \( x \) at interval \( i_1 \) and its presupposition is that the degree has to be contextually non-minimal degree. The measure of change function introduced in (21) has been also revised by using intervals instead of event. It presupposes the measure function at interval \( i_1 \) that precedes the current interval \( i_2 \).
(25) Measure of Change
\[ m_\Delta = \lambda x. \exists i_2. m_{\text{max}}(x)(i_2): \text{there was } m_{\text{max}}(x) \text{ at } i_1 \text{ that precedes } i_2 \]

(26) is the proposed structure of -(e)ci inchoatives:

(26) \textit{ku kang-i nelp-eci-ess-ta}

\begin{itemize}
  \item \text{the river-NOM wide-eci-PST-DEC}
  \item \text{‘The river widened’}
\end{itemize}

The functional head \( m_\Delta \) in this structure undergoes head-to-head raising. It moves to a higher \( \text{procDeg} \) head, \( \text{pos}_v \). I also propose that -(e)ci is the realization of the degree head \( \text{pos}_v \). As a \( \text{procDeg} \) head, \( \text{DegP} \) is required only in -(e)ci inchoative structure.

(27) The semantic denotation of (26)
\[
\begin{align*}
\langle \text{initDeg} \rangle &= \lambda g \in \text{D}_{<e, <i,d>\ldots}. \lambda x. \lambda i_1 \in \text{D}_{<i>}. \ g(x)(i_1): g(x)(i_1) > \min_d(g) \\
\langle \text{AP} \rangle &= \lambda x. \lambda i_1 \in \text{D}_{<i>}. \ \text{width}_{\text{max}}(x)(i_1) \\
\langle \text{initDegP} \rangle &= \lambda x. \lambda i_1. \text{width}_{\text{max}}(x)(i_1): \text{width}_{\text{max}}(x)(i_1) > \min_d(\text{width}_{\text{max}}) \\
\langle \text{FP} \rangle &= \lambda x. \lambda i_1. \text{width}_{\text{max}}(x)(i_1): \text{width}_{\text{max}}(x)(i_1) > \min_d(\text{width}_{\text{max}}) \\
\langle \text{procDeg} \rangle &= \lambda f \in \text{D}_{m\Delta}. \lambda h \in \text{D}_{<e, <i,d>\ldots}. \lambda x. \lambda i_1. \ \exists i_2: i_1 < i_2 \ f(x)(i_2) > h(x)(i_1) \\
\langle \text{F} \rangle &= \lambda x. \ \exists i_2. m_{\text{max}}(x)(i_2): \text{there was } m_{\text{max}}(x) \text{ at } i_1 \text{ that precedes } i_2 \\
\langle \text{procDeg}_2 \rangle &= \lambda h \in \text{D}_{<e, <i,d>\ldots}. \lambda x. \lambda i_1. \ \exists i_2: i_1 < i_2. \text{width}_{\text{max}}(x)(i_2) > h(x)(i_1) \\
\langle \text{procDeg}_1 \rangle &= \lambda x. \lambda i_1. \ \exists i_2: i_1 < i_2. \text{width}_{\text{max}}(x)(i_2) > \text{width}_{\text{max}}(x)(i_1) \\
\langle \text{procDegP} \rangle &= \lambda i_1. \ \exists i_2: i_1 < i_2. \text{width}_{\text{max}}(\text{the river})(i_2) > \text{width}_{\text{max}}(\text{the river})(i_1)
\end{align*}
\]

In the initial state, the width of river is contextually salient to be called river. The whole structure is true iff the degree of object at later interval is greater than the degree at the initial interval. This structure can account for \( \textit{again} \) ambiguities of -(e)ci inchoatives by attaching \( \textit{again} \) to different positions; \( \textit{again} \) attaching to \( \text{procDegP} \) leads to a repetitive reading, and the structure has a restitutive reading when \( \textit{again} \) attaches to \( \text{initDegP} \). In order to account for \( \textit{again} \) ambiguity readings structurally, I adopted intervals. If there is only measure of change function \( m_\Delta \) that is previously defined in -(e)ci structure, it can’t explain a restitutive reading syntactically.
4. Conclusion

I have argued that the degrees of bare inchoatives have standards; once it satisfies the standard, then the degree is no longer changed. Instead, the applied surface or space increases when the states are changed. Only -(e)ci inchoatives can increase the degree of the property of the predicates. It has been examined with te ‘more’, adverbs wancenhi/yakkan ‘completely/slightly’, and pan ‘half’. Considering this fact, it has been concluded that -(e)ci inchoatives have relative meanings, while bare forms have absolute meaning; shifting a standard and the acceptability of -ka ‘go’ tests were conducted to prove it. The generalization implies that gradable predicates which are previously classified into the same scale category, either total or partial predicates, may not have exactly the same semantic property.

The proposed structure of -(e)ci inchoatives can describe all the situation where the initial degree is decreased and then increased more than the initial degree because there is procDeg projection. The structure has a limitation, however, in that it can’t explain the situation where the initial degree is decreased and then increased to the previous degree. I leave this problem for the future research. It is worth pointing out, however, that this paper proposed morphosyntax of degree achievements and their structure that Kennedy and Levin (2008) left as a future research. The proposal that -(e)ci is an overt pos, marker would be another crosslinguistic evidence of Kennedy (1999)’s claim, in line with hen as an overt pos marker in Mandarin Chinese (Zhang, 2015).

References

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1. Reduced conditionals

Conditional marking in Korean is usually realized as an inflection on the verb. In the regular copula clausal conditional in (1a), for instance, the morpheme *myen* that marks the conditional appears after the embedded verb. However, the same conditional marker can be attached to NPs as in (1b). Note that we use the term reduced conditionals for this construction since, we argue, these apparently nominal conditionals are reduced from copula clausal conditionals. Another variant of reduced conditional is pronominal conditionals in (1c).

(1) a. **Copula clausal conditional**
   Minsik-i sakwa-lul mek-un-kes-i-*la-myen* … [Korean]
   M-NOM apple-ACC eat-PAST-COMP-COP-LA-COND
   ‘If Minsik ate an apple …’

   b. **Reduced conditional**
   Minsik-,*la-myen* hakkyo-ey iss-ulke-ya.
   M-COP-LA-COND school-at be-must-COP
   ‘If (you are talking about) Minsik, he must be at school.’

   c. **Pronominal conditional**
   Minsik-i mwuenka-lul mek-koissnun tushan-tye,
   M-NOM something-ACC eat-PROG seem-but
   manyak kukes-i sakwa(-i)-*la-myen* masiss-ulke-ya.
   manyak it-NOM apple-COP-LA-COND tasty-must-COP
   ‘It seems that Minsik is eating something, but if it is an apple, it must be tasty.’

In the present study, we focus on copula clausal conditionals in (1a), reduced conditionals, the NP-*ilaymen* form in (1b), and pronominal conditionals in (1c). We show how reduced conditionals offer clues towards understanding the internal syntax of copula conditional clauses.

We aim to show that the two constructions, reduced conditionals and copula clausal conditionals, have the same base structure. If reduced conditionals are derived from copula clausal conditionals as we argue, it implies that reduced conditionals are associated with a full-fledged clausal structure. We make three points: First, we show what conditionals can tell us about the right-periphery in Korean, based on Saito (2010) and Rizzi’s (1997) Split CP hypothesis; we show that the conditional maker *myen* should be outside of the Report head (and nominalizer) (Saito 2010), forming a double-headed structure with two Forces, the (reported) declarative and the conditional. Second, pronominal and non-pronominal...
conditionals show exactly the same properties. Finally, the clausal pronoun in the pronominal conditional is a residue of clausal ellipsis, specifically, the ellipsis of FinP, in the sense of Rizzi (1997), applied to a copula clausal conditional, as a result of pronominalization in the sense of Baltin & Craenenbroeck (2008). Furthermore, as a consequence of this, we argue that the pronominal is not necessarily deep anaphora.

2. Parellism between focus constructions and conditionals
2.1. Pronominal sluicing and pronominal conditionals in Korean

It has been shown that Korean sluicing is derived from the cleft-structure.

(2) Minsik-i nwukwunka-lul pinanha-yss nuntey,
M-NOM someone-ACC blame-PAST but
na-nun nwukwu i-nci morunta.
I-TOP who COP-Q know.not
‘Minsik blamed someone, but I don’t know who.’

Interestingly, Korean reduced conditionals also involve elements like an NP or PP followed by the copula. This similarity leads us to the following possibility: like sluicing, reduced conditionals are derived from copula clauses via movement and ellipsis. We pursue this possibility and show that, Korean pronominal sluicing (KPS) and Korean pronominal reduced conditionals (KPC) show very strong parallelism. We specifically show the following properties:

(3) a. KPS and KPC show connectivity effects.
b. KPS and KPC induce honorification agreement with kukes ‘it’ but not with the focused element.
c. KPS and KPC do not allow the inversion of presuppositional clause and focused element.
d. KPS and KPC preserve idiomatic meaning.
e. KPS and KPC must contain a copula.

Let us first examine KPS and move on to KPC. First, the wh-remnant in KPS shows a variety of connectivity effects. The following examples illustrate KPS with binding and Case connectivity effects and KPS with postposition connectivity effects (cf. Cho et al. 2008).

(4) a. Minsik-i nwukwunka-lul pinanha-yss nuntey,
M-NOM someone-ACC blame-PAST but
na-nun kukes-i cakicasinul i-ncianinci morunta.
I-TOP it-NOM self-ACC COP-whether know.not
‘Minsik blamed someone, but I don’t know whether it was himself.’
b. Minsik-o etinka-lpwuthe cim-ul ponay-ntushan tey,
M-NOM somewhere-from baggage-ACC sent-seem but
na-nun kukes-i Seoul-lpwuthe i-ncianinci morunta.
I-TOP it-NOM Seoul-from COP-whether know.not
‘It seems that Minsik sent his baggage to us from somewhere, but I don’t know whether it was from Seoul or not.’
There are two important points in example (5a). For one thing, accusative case in Korean can be analyzed as a structural case (Nam 1991, Ko 2000, Mok 2003, Yoon 2004; cf. Saito 1982, Takezawa 1987, a.o. for Japanese), and we assume that it is assigned to an NP that is the sister of the verb (the direct object). Therefore, it is reasonable to assume that the accusative case on the remnant phrase, cakicasin ‘self’ in (5a) is assigned by the verb in the sister relation, not by any other means. Furthermore, since the verb moru ‘not.know’ is not an ECM type verb (Yoon 1989; cf. Kuno 1976, Sakai 1998, Saito 1985, Hoji 1991, Ura 1994, a.o. for Japanese), it is not likely that al ‘know’ or its negative form moru assigns an accusative case to the remnant NP. These two points strongly suggest that the remnant NP is assigned accusative case by the elided verb, i.e., pinanha ‘blame.’ The example in (5b), the connectivity effect involving postpositions, points to exactly the same conclusion. The postpositional phrase in (5b) is selected by a particular class of verb such as ponay ‘send’, and it is not compatible with a verb like moru ‘not.know’ in Korean. As in the case of case connectivity, the remnant postpositional phrase should thus be selected by the verb that is in the elided structure.

Turning to the binding connectivity, the local anaphor cakicasin ‘self’ is bound by the subject in the first conjunct. Cakicasin, however, requires a local c-commanding antecedent (ref) as the example (6) indicates.

(5)  Minsik₁-un nwukwunka-lul pinanhay-ss nuntey,
     Minsik-TOP someone-ACC blame-PAST but
     na-nun kukes-i cakicasin₁-ul i-nclnincni morunta.
     I-TOP it-NOM self-ACC COP-whether know-not
     ‘Minsik₁ blamed someone, but I don’t know whether it was himself₁.’

Thus, it is implausible to think that the subject in the first conjunct—which does not c-command the local anaphor—directly binds it. Rather, this example reveals that the anaphor is bound by an antecedent in the elided structure. The combination of the two connectivity effects, Case and local anaphor licensing, suggests that there is hidden clausal structure in KPS. (We will discuss the precise structure in section 3.4.)

Furthermore, KPS exhibits connectivity effects in terms of anti-coreference effect, or Binding Condition C (Chomsky 1981) effect, i.e., the name in the focus position cannot be coreferential with the subject NP in the antecedent clause.

(6)  ku/kusalam₁-un nwukwunka₂-lul pinanhay-ss nuntey,
     he/that.person-TOP someone-ACC blame-PAST but
     na-nun kukes-i Minsik₂-ul i-nclnincni morunta.
     I-TOP it-NOM M-ACC COP-whether know-not
     ‘He₁ blamed someone₂, but I don’t know whether it was Minsik₂/₂.’

Given that the two connectivity effects, case and local anaphor licensing, hold true in Korean (Morgan 1989, Sohn 2000, Park 2005, among others), it is reasonable to posit hidden clausal structure in KPS.

Although this analysis challenges the view that Korean or Japanese is a language without agreement (Fukui 1995, Kuroda 1988), the reason that, we assume, honorification is treated as an agreement phenomenon is mainly because it is sensitive to grammatical functions, and induces a certain type of locality effect.

Regarding honorification agreement in KPS, the crucial example for us is the one where the copula in the second conjunct shows subject honorification.

(7) Minsik-ì etten pwun-ul mannapoy-n tushantey, M-NOM certain.person.HON-ACC meet.OBJ.HON-PAST seem but
na-nun *(kukes-i) nwukwu isi-essnun ci morunta. I-TOP it-NOM who be.SBJ.HON-PAST Q know.not

‘It seems that Minsik met a certain person, but I don’t know who it was.’

In (7), the wh-word nwukwu ‘who’ is in the object position and lacks the honorific form. If the wh-word is used for a socially superior person, it has the form of etten pwun ‘which person.hon’ but not nwukwu. Thus, it is clear that the honorification on the copula isi is triggered by the content of kukes, but not by the neutral wh-remnant. The fact that this example is unacceptable if kukes is not present shows that there is agreement between kukes and the copula. This agreement pattern can be captured if we assume there is hidden clausal structure in the guise of the pronoun kukes.

Without assuming that the presuppositional clause is underlying kukes ‘it’, it is difficult to understand why subject honorification can take place in KPS. Putting its use as a clausal pronoun aside, the most basic use of kukes is to refer to an inanimate object. Thus kukes itself does not have a feature that can induce honorification agreement. If we assume that kukes is a simple pronoun without any clausal structure, and that it can be coreferential to its antecedent or interpreted in the way that deep anaphora is interpreted (Hoji 1995), then we have to assume that somehow the honorificational feature as well as an animacy feature is assigned to the pronoun via a coreference relation or a deep anaphoric relation because, as we have seen, honorification is an agreement phenomenon. However, such feature assignment does not seem to be observed in the other environments.

The third property of KPS is the ban on inversion of the pre- and post-copula elements. Korean specificalional constructions do not allow inversion of the presuppositional clause and the focused phrase.

(8) a. [Minsik-i san kes]-un chayk-ul sey-kwen ita.
M-NOM bought COMP-TOP book-ACC three-CL COP
‘What Minsik bought was three books.’
book-ACC three-CL-TOP M-NOM bought-COMP COP
‘What Minsik bought is three books.’

In the same way, KPS do not allow the inversion of the pronoun kukes and the focused phrase. (9a) is an example of KPS with the regular order of the presuppositional clause and the focused phrase. In (9b), on the other hand, they are inverted, which is unacceptable.

(9) Minsik-i mwuenka-lul san-tushantey,
M-NOM something-ACC bought-seem but
The ban on inversion also indicates a strong similarity between the specifical construction and KPS.

The fourth property observed in KPS is the *preservation of idiomatic meaning*. In the following example, the expression *twumali.thokki-lul cap* ‘lit. catching two rabbits’ conveys the idiomatic meaning ‘killing two birds with one stone’, which is maintained in KPS.

(10) Chelswu-nun mikwuk-eyse mwuenka-lul cap-ass-ta nuntey,
    C-TOP USA-LOC something-ACC catch-PAST-HEARSAY but
    ‘I heard that Chelswu had caught something in the US, but…’
na-nun kukes-i *twumali.thokki(-lul)* in-cianinci morunta.
I-TOP it-NOM two.rabbits-ACC COP-whether know.not
Lit. ‘I don’t know whether it was “two rabbits”.’
‘I don’t know whether he killed two birds with one stone.’ (idiomatic meaning)

Finally, and most importantly, the hidden clausal status of KPS is manifested by the *obligatory presence of copula i* in Korean (unlike the optional copula *da* in Japanese). As in the following example, the copular can be inflected in past tense, which accordingly reflects the past event in the clausal content of the KPS *kukes*, meaning ‘why he was scolded.’

(11) Minsik-un [casin-i way honnass-nun ci] moruci man,
    M-TOP self-NOM why got.scolded Q not.know though
Swuni-nun [kukes-i way *(i-ess.nun) nci] anta.
    S-TOP it-NOM why COP-PAST Q know
‘Minsik doesn’t know why he was scolded, but Swuni knows why.’

Thus far we have shown various reasons to believe that some clausal structure, i.e. the presuppositional clause of the pseudocleft construction, underlies *kukes* in KPS. The connectivity effects indicate that there is a clausal structure in *kukes*, and the parallelisms between KPS and pseudocleft constructions suggest that the two are intrinsically related, and thus support the claim that *kukes* corresponds to the presuppositional clause. The most crucial evidence for the hidden clause, however, comes from the obligatory presence of copula in Korean. This is an important point to make since the debate on the status of JPS in the previous literature was due to the fact that the copula was only optional in Japanese.

Based on these facts, we argue that the pronominal *kukes* ‘it’ in reduced conditionals is exactly the same species as the one found in KPS. To this end, we show that all the properties of KPS and *kukes* in KPS that we have reviewed hold true for Korean pronominal reduced conditionals (KPC) with *kukes* in Korean.

We show that all of the properties of *kukes* in KPS are seen also in the *kukes* in pronominal reduced conditionals. Let us examine these properties one by one. First, the examples in (12) show that *kukes* ‘it’ in reduced conditionals exhibits connectivity effects of Case, local anaphor licensing, and postpositions. Exactly like the examples of KPS, *kukes* in

### a. na-nun kukes-i mwues-ul in ci morunta.
I-TOP it-NOM what-ACC COP Q know.not

‘It seems that Minsik bought something, but I don’t know what it is.’

### b. *na-nun mwues-i kukes in ci morunta.
I-TOP what-NOM it COP Q know.not
reduced conditionals shows connectivity effects of local anaphor licensing and Case in (12a) where the anaphor *cakicasin* (*self*) is bound by the subject in the first conjunct, and accusative case is assigned to the remnant, and the connectivity effect of the postposition *lopwuthe* (*from*) in (12b).

(12) a.  
\[
\begin{array}{l}
\text{Minsik}_1-\text{i nwukwunka-lul pinanha-koissnun tushantey,} \\
\text{M-NOM someone-ACC blame-PROG seem but} \\
\text{manyak *(kukes-i) cakicasin}_{1-\text{lul}} i-la-myen, kumantwue-yahanta.} \\
\text{manyak it-NOM self-ACC COP-LA-COND stop-had.better} \\
\end{array}
\]

‘It seems that Minsik is blaming someone but if it is himself, he had better stop doing that.’

b.  
\[
\begin{array}{l}
\text{Minsik-i etinka-lopwuthe cim-ul ponay-ntushantey,} \\
\text{M-NOM somewhere-from baggage-ACC sent-seem but} \\
\text{manyak *(kukes-i) Seoul-lopwuthe i-la-myen, kottochakha-likesita.} \\
\text{manyak it-NOM Seoul-from COP-LA-COND soon arrive will} \\
\end{array}
\]

‘It seems that Minsik sent the baggage from somewhere, but if it is from Seoul, the baggage will arrive soon.’

Like case connectivity effects, anaphor connectivity effects also suggest that there is clausal structure in these constructions that supports anaphor binding, as long as these complex reflexivity requires a local c-commanding antecedent.

Furthermore, the anti-coreference connectivity effects are also observed.

(13)  
\[
\begin{array}{l}
\text{he/that.person-TOP someon-ACC blamed-likely-but} \\
\text{manyak *(kukes-i) Chelswu}_{1-\text{lul}} i-la-myen, kumantwueyahanta.} \\
\text{manyak it-NOM C-ACC COP-LA-COND stop-had.better} \\
\end{array}
\]

‘He\textsubscript{1} blamed someone\textsubscript{2}, but if it is Chelswu\textsubscript{1}/\textsubscript{2}, he had better stop doing it.’

These examples further show that the name in the focus position is c-commanded by the pronoun in the antecedent clause. Thus, as in the examples of reflexive connectivity, this pattern suggests the existence of hidden clausal structure.

Additionally, sluicing/stripping and reduced conditional constructions show further parallelism with respect to NPI licensing. As Hiraiwa & Ishihara (2002) and Mihara & Hiraiwa (2006) point out, NPIs cannot be the pivot of *sluicing* (see Cho et al. 2008 for Korean). In the same way, NPIs cannot be the NP in reduced conditionals.

(14)  
\[
\begin{array}{l}
\text{Chelswu-nun chotayha-yaha-yssten nwukwunka-eykey} \\
\text{C-TOP invite-supposed.to-COP.PAST someone-to} \\
\text{chotaycang-ul ponay-cianhassta-ko malha nuntey,} \\
\text{invitation-ACC sent-not-COMP says but} \\
\text{‘Chelswu says that he didn’t send an invitation letter to one of the guests who was supposed to be invited, but…’} \\
\end{array}
\]

a.  
\[
\begin{array}{l}
\text{* (na-nun) sasilun amwueykeyto-i-lako sayngkakhanta.} \\
\text{I-TOP actually to.no.one-COP-COMP think} \\
\end{array}
\]

Lit. ‘I think, actually, to no one.’
b. *(kukes-i) manyak amwuekeyto-i-la-myen mwuncey-ita.
   it-NOM manyak to.no.one-COP-LA-COND problem-COP
   Lit. ‘If it is to no one, it is a problem.’

In these examples, negation, which can license the NPIs, is in the first clause. Therefore, in principle, the NPIs could be licensed by the negation. However, unlike the cases of anaphor and case connectivity, these NPIs are not licensed in *sluicing* or reduced conditionals.

Note that this lack of NPI connectivity effects suggests that the relevant movement operation responsible for reduced conditionals as well as sluicing constructions is the movement involved specifically in the cleft formation. One may argue that long scrambling (Saito 1985, 1989, 1992 among many others) is the relevant movement. However, unlike cleft, long scrambling shows NPI connectivity effects, as can be seen in the following examples.

(15) a. [Toli-nun [Hana-ka amwu-eykey-to chotaycang-ul
top NOM apple-DAT invitation-ACC
ponay-cianhassta-ko] malhayssta.]send-not-COMP said
   ‘Taroo said that Hanako didn’t send the invitation letter to anyone.’

Second, the pronominal reduced conditional shows a similar *honorification* pattern to KPS. In (16) the copula shows subject honorification even though the honorifically superior person, *Kim-sensayngnim* ‘Mr. Kim’, is not in the subject position. Thus, as in KPS, we conclude that the copula agrees with the pronoun *kukes*, and therefore the same explanation of honorification agreement holds for pronominal reduced conditionals.

(16) Minsik-un Kim-sensayngnim ina Lee-sensayngnim-ul mannapoyn tushan-tey,
   M-TOP K-teacher.HON or L-teacher.HON-ACC meet.OBJ.HON seem-but
   manyak kukes-i Kim-sensayngnim isi-ess-tamyen kincangha-yss-ulkesita.
   it-NOM K-teacher.HON COP.SBJ.HON-PAST-COND nervous-PAST-may
   ‘It seems that Minsik met Mr. Kim or Mr. Lee, but if it was Mr. Kim, Minsik was
certainly nervous.’

Third, inversion of *kukes* and the remnant phrase is not allowed in pronominal reduced conditionals.

(17) Minsik-un sakwa na kyul-ul mek-un-tushan-tey,
   M-TOP apple or orange-ACC eat-PAST-seem-but
   a. manyak kukes-i sakwa-i-la-myen masiss-ess ulkes-ita.
      it-NOM apple-COP-LA-COND tasty-PAST must-COP
   b. *manyak sakwa-ka kukes-i-la-myen masiss-ess ulkes-ita.
      apple-NOM it-COP-LA-COND tasty-PAST must-COP
   ‘Minsik ate an apple or an orange, but if it was an apple (that he ate), it must
have been tasty.’

Fourth, just like KPS, the connectivity is revealed in the pronominal reduced conditional data with idioms, in which the idiomatic meaning is conserved only when kukes is present. We take this to argue that reconstruction of the part of idiom twumali.thokki(-lul) ‘two.rabbits-ACC’ into the hidden clausal structure behind kukes is possible for maintaining the idiomatic meaning.

(18) Chelswu-nun mikwuk-eye mwenka-lul cap-ass-ta-nuntey,
C-TOP USA-LOC something-ACC catch-PAST-HEARSAY-but
‘I heard that Chelswu had caught something in the US, but…’
manyak *(kukes-i)
manyak it-NOM
twumali.thokki(-lul) i-la-myen sengkonghankes-ita.
two.rabbits-ACC COP-LA-COND success-COP
Lit. ‘If it was “two rabbits”, it is a success.’
‘If he killed two birds with one stone, it is a success.’ (idiomatic meaning)

Therefore, we conclude that the movement responsible for these three constructions is not long scrambling, but movement involved with cleft formation. Following Hiraiwa & Ishihara (2002), this movement is referred to as focus movement. Finally, just like KPS, reduced conditionals require the presence of copula.

These parallelisms between KPS and Korean pronominal reduced conditionals (KPC) strongly suggest that kukes in these constructions is the same creature. If we analyze these constructions in different ways, we cannot account for the parallelism of these two instances of kukes.

3. Pronominalization approach to reduced conditionals
3.1. Properties of reduced conditionals
Our prediction here is that the reduced conditional corresponds to sluicing in Hiraiwa & Ishihara’s paradigm. To test this point, we need to examine whether the contrast between case-marked sluicing and non-case-marked sluicing also holds between the reduced conditional with a remnant bearing a case-marker and the one without a case-marker. Hiraiwa & Ishihara assume the following two properties: (i) case-marked sluicing allows multiple foci but non-case-marked sluicing does not; and (ii) case-marked sluicing shows island effects but non-case-marked sluicing does not. Reduced conditionals indeed exhibit such a contrast: the case-marked reduced conditionals, i.e. cleft-conditionals, allow multiple foci in (19a) but pseudocleft conditionals do not in (19b).

(19) Multiple Foci
Minsik-i nwukwunka-eye mwenka-lul cwu-n tushantey …
M-NOM someone-DAT something-ACC give-PAST seem but
‘It seems that Minsik gave something to someone, but …’
a. Cleft conditional
(manyak kukes-i) Chelswu-eyekey sakwa-lul (sey-kay) i-la-myen …
manyak it-NOM C-DAT apple-ACC three-CL COP-LA-COND
‘(Lit.) if it was (three) apples to Chelswu …’
b. **Pseudocleft conditional**

*(manyak kukes-i) Chelswu sakwa (sey-kay) i-la-myen …*

manyak it-NOM C-ø apple-ø three-CL COP-LA-COND

‘(Lit.) if it was (three) apples to Chelswu …’

Furthermore, examples in (20) show that the case-marked reduced conditional is sensitive to the complex NP island, but the non-case-marked reduced conditional is not. This, in turn, suggests that movement is not involved in the pseudocleft (non-case-marked) reduced conditional.

(20) **Island Sensitivity**

Minsik-un [[hyeng-eykey mwuenka-lul ponayn] salam-ul
M-NOM brother-DAT something-ACC send person-ACC

chotayha-n tushantey …

invite-PAST seem but

‘It seems that Minsik invited a person who had sent something to his brother, but …’

a. **Cleft conditionals**

*(manyak kukes-i) sakwa-lul (sey-kay) i-la-myen …*

manyak it-NOM apple-ACC three-CL COP-LA-COND

‘If it was (three) apples …’

b. **Pseudocleft conditionals**

*(manyak kukes-i) sakwa (sey-kay) i-la-myen …*

manyak it-NOM apple-ø three-CL COP-LA-COND

‘If it was (three) apples …’

Summarizing the discussion so far, the conditional clauses reviewed in this subsection reveal significant similarities with the kes-ita in Korean (*no-da* in Japanese), cleft, and sluicing constructions. Furthermore, we have seen that KPS and pronominal reduced conditionals show striking parallelism. We thus conclude that they are variants of the same type of construction, and should be analyzed in an analogous fashion.

3.2. **The derivation of reduced conditionals**

Along with the focus constructions above, the basic line of analysis of the reduced conditional is built upon the analysis of sluicing by Baltin & Craenenbroeck (2008). We propose that reduced conditionals are derived from copula conditional clauses through movement of an NP followed by a clausal ellipsis, in much the same way as Sluicing in Korean (Lee 2012, Kim 2012, Choi 2012, Kim & Sells 2013) and Japanese (Fukaya & Hoji 1999, Hiraïwa & Ishihara 2002, Kizu 1997, Merchant 1998, 2001, 2006, Nishiyama et al. 1995, Takahashi 1994, a.o.). Furthermore, both copula conditionals and pronominal reduced conditionals involve the structure of the so-called kes-ita construction (cf. Kuno 1973, Noda 1997 for Japanese *no-ta* construction) as their underlying structure, just like in the case of Korean sluicing. However, we have not yet described the internal makeup of copula conditional clauses under the split-CP system.

The discussion so far confirms that many parts of the complex verbal morphology of conditional clauses are shared by the *kes-ita* construction. The right edge of conditional clauses, however, is different from that of cleft constructions in the following two respects: first, the top nodes of these constructions are occupied by different elements; and, second, the
morphemes that comprise conditional morphology can be omitted relatively freely. Compared with the *kes-*ita construction that we observed above and schematized below in (21a), the structure of copula conditionals can be illustrated as in (21b).

(21) a. *Kes-*ita Constructions
    \[ \text{ForceP} \left[ \text{TopP} \left[ \text{FocP} \left[ \text{FinP[IP[VP...V]-tense]-kes}] \right]\right](-ita) \right] \]

b. *Conditionals*
    \[ \text{ForceP} \left[ \text{FocP} \left[ \text{ReportP[TopP[TopP[TopP[TopP[FinP[IP[VP...V]-tense]-kes](-ila)](-ila)]]](-ila)](ko-ha)[(-ila)](-ila)]\right](-ila)](-ila)](-ila)]\right](-ila)](-i...
Under this analysis, we can successfully capture the similarities between copula conditional constructions and focus constructions. As in the case of focus constructions, the copula clausal conditional, the cleft conditional and the reduced conditional show similarities because they are derived from the homogenous underlying structure. Furthermore, we can derive the parallelisms between KPS and reduced conditionals with *kukes* in Korean. All of them are residues of FinP ellipsis. The crucial differences between focus constructions and conditional constructions are their surface verbal morphology, Force\(^0\) elements, and the optional Report/Focus head.

As such, the reduced conditional with pronoun can tell us about the mechanism of the pronominalization in general in Korean. Recall that, we found, clausal pronouns show connectivity effects with respect to Binding Condition C and A, case/postposition, honorification, island, and Idioms, summarized as the following.

(25)

<table>
<thead>
<tr>
<th></th>
<th>Connectivity Effects</th>
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<tbody>
<tr>
<td></td>
<td>NPI</td>
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<tr>
<td><strong>KPS</strong></td>
<td>*</td>
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<tr>
<td><strong>Reduced conditionals</strong> (i.e. without <em>kukes</em> ‘it’)</td>
<td>*</td>
</tr>
<tr>
<td><strong>Kukes conditionals</strong></td>
<td>*</td>
</tr>
</tbody>
</table>

The present analysis of pronominalization predicts the following data of case connectivity above, by assuming that the proform *kukes* contains elided internal structure that can host the trace of the focused phrase *Chelswu-lul*, serving as a reconstruction site for binding.

(26) ku/kusalam\(_1\)-un nwukwanka\(_2\)-lul pinanhan-tushan-ney
he/that.person-TOP someon-ACC blamed-likely-but
manyak [C\(_{\text{kukes}}\)-ku/kusalam-\(_i\)-Chelswu-lul pinanha-n] *([C\(_{\text{kukes}}\)]-i)
manyak he/that.person-NOM C-ACC blame-PAST it-NOM
Chelswu\(_{1\prime}\)/\(_2\)-lul\(_3\) i-la-myen, kumantwueyahanta.
C-ACC COP-LA-COND stop-had.better
‘He\(_1\) blamed someone\(_2\), but if it is Chelswu\(_{1\prime}/\(_2\), he had better stop doing it.’

Thus, as in the examples of reflexive connectivity, this pattern suggests the existence of hidden clausal structure.

Cleft, sluicing and reduced conditionals all show further parallelism in terms of *NPI-licensing*. Just as an NPI cannot be the focus of cleft, sluicing and reduced conditionals also resist leaving an NPI as the remnant. This fact follows straightforwardly from our ellipsis analysis of reduced conditionals.

(27) Chelswu-nun chotayhya-yaha-yssten nwukwunaka-eykey
C-TOP invite-supposed.to-COP.PAST someone-to
chotaycang-ul ponay-cianhassta-ko malha nuntey,
invitation-ACC sent-not-COMP says but
‘Chelswu says that he didn’t send an invitation letter to one of the guests who was supposed to be invited, but…’

*manyak [C\(_{\text{Chelswu}}\)-ka t\(_{\text{manyak}}\)-t\(_{\text{manyak}}\)] chotaycang-ul ponay-cianh-un]
manyak C-TOP to.no.one invitation-ACC sent-not-COMP
Another crucial set of data concerns idioms, which reveals that reconstruction is possible, preserving the idiomatic meaning. In the following example, *twumali.thokki(-lul) cap* ‘catching two rabbits’ has the idiomatic meaning of ‘killing two birds with one stone’, which is preserved under the pronominal conditional (as well as KPS).

(28) Chelswu-nun mikwuk-eyse mwuenka-lul cap-ass-ta nuntey,
   C-TOP USA-LOC something-ACC catch-PAST-HEARSAY but
   ‘I heard that Chelswu had caught something in the US, but…’
   manyak [cap[ Chelswu-ika twumali.thokki-lul cap un]} *(c-kukes)]-i)
   manyak C-NOM two.rabbits-ACC catch-PAST it-NOM
   *twumali.thokki(-lul) i-la-myen sengkonghankes-ita.
   two.rabbits-ACC COP-LA-COND success-COP
   Lit. ‘If it was “two rabbits”, it is a success.’
   ‘If he killed two birds with one stone, it is a success.’ (idiomatic meaning)

Furthermore, recall that the argument-adjunct asymmetry shows parallels between reduced conditionals and copula clausal conditionals. As illustrated below, this is also predicted within the current approach, which assumes that the pronominal *kukes* is the result of FinP ellipsis after the movement of the DP, but not of adverb.

(29) a. atul-i muenka-lul maytal ponayn-tako ha-ess-nuntay,
   son-NOM something-ACC every.month send-COMP say-PAST-but
   enemi-nun (manyak) [m[ atul-i yongton-ul maytal]
   mother-TOP manyak son-NOM pin.money-ACC every.month
   ponay-nun] *(c-kukes)]-i) yongton-ul_1 i-la-myen kippeha-si-lkeya.
   send-PRES it-NOM pin.money-ACC COP-LA-COND be.glad-SBJ.HON-will
   ‘The son said to send something every month, but the mother will be glad if it
   is the pin money.’

b. atul-i yongton-ul encey ponayn-tako ha-ess-nuntay,
   son-NOM pin.money-ACC sometime send-COMP say-PAST-but
   *enemi-nun (manyak) [m[ atul-i yongton-ul]
   mother-TOP manyak son-NOM every.month pin.money-ACC
   ponay-nun] *(c-kukes)]-i) maytal_1 i-la-myen kippeha-si-lkeya.
   send-PRES it-NOM every.month COP-LA-COND be.glad-SBJ.HON-will
   ‘The son said to send the pin money sometime, but the mother will be glad if it
   is every month.’

Finally, we have shown that both case-marked and non-case-marked pronominal conditionals as well as KPS and reduced conditionals, exhibit island effects.
(30)  

<table>
<thead>
<tr>
<th></th>
<th>Island for case marked ones</th>
<th>Non-island for non-case marked ones</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KPS</strong></td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Reduced conditionals</td>
<td>√</td>
<td>√</td>
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<tr>
<td>(i.e. without kukes ‘it’)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kukes conditionals</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

The following structure in (31a) is ungrammatical since the CP with the pronominal head is an island that bans the movement of ‘apple-Acc’.

(31)  

**Island Sensitivity**

Minsik-un [[hyeng-eykey **mwuenka-lul** ponayn] salam]-ul  
M-NOM brother-DAT something-ACC send person-ACC  
chotayha-ntushantey…  
invite-PAST seem but  
‘It seems that Minsik invited a person who had sent something to his brother, but …’

a.  

*Cleft conditionals*

* (manyak) { [c,] [hyeng-eykey ] i-la-myen } \( [c,] \text{kukes}] \)-i  
manyak brother-DAT apple-ACC send it-NOM  
sakwa-lul (sey-kay) i-la-myen …  
apple-ACC three-CL COP-LA-COND

b.  

*Pseudocleft conditionals*

(manyak kukes-i) **sakwa** (sey-kay) i-la-myen …  
manyak it-NOM apple-ø three-CL COP-LA-COND

‘If it was (three) apples …’

These facts collectively support the current proposal that the pronominal conditional has the *internal structure*. We thus conclude that reduced conditionals show that the pronominal *kukes* is a clausal pronoun, i.e. the residue of ellipsis.

Based on the composition of right periphery observed so far, we propose the following *internal structure of conditionals* in Korean.

(32)  

**Internal syntax of copula conditional clauses in Korean**

![Diagram of internal structure of copula conditional clauses in Korean](image-url)

4. Conclusion
In the present study, we offer an analysis of conditional clauses in Korean, focusing on two important aspects. The primary goal is to investigate the syntax of right periphery of reduced conditionals, driven from full clausal conditionals: we suggest the structure of the right-periphery in Korean conditional clauses, showing that the conditional maker myen should be outside of the Report head (and nominalizer) (Saito 2010), forming a double-headed structure with two Forces, the (reported) declarative and the conditional.

The second goal is to examine the nature of the clausal pronoun kukes in reduced conditionals, which, we argue, is the result of ellipsis, based on the ellipsis theory of pronominalization (Baltin & Craenenbroeck 2008). A variety of connectivity effects supports the current proposal that the pronominal conditional has internal structure, i.e. the pronominal kukes is a clausal pronoun, which is the residue of ellipsis. This reveals that the pronoun vs. ellipsis distinction is too simplistic, since there are cases where pronouns are the result of ellipsis process as claimed by Baltin & van Craenenbroeck. The implication of the present study is that we can argue against a simple-minded dichotomy of anaphora that assumes that there are two types of anaphora, Deep and Surface, and that Deep anaphora does not have syntactic structure. Instead, we argue for the analysis that a pronoun is really the product of ellipsis.

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