

A Pronoun Analysis of Null Arguments in Korean

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ABSTRACT

This paper aims to account for null arguments in Korean under pro analysis. Korean is a radical pro-drop language; therefore pro is extremely productive. Thus, if pro analysis can capture interpretations of null arguments without postulating a separate operation such as argument ellipsis, it will be a good example of Occam's razor. We highlight the premise that pro is a silent form of an overt pronoun. This paper shows that the pronoun analysis of null arguments is both conceptually and empirically advantageous. Sloppy readings and nonspecific readings for mass nouns are regarded as data apparently supporting argument ellipsis. However, we show that the data can be reanalyzed under parallelism between null arguments and overt pronouns. We also show that only pronoun analysis can give a solid explanation to scope interaction between disjunction and negation and ellipsis-resistant constituents. We further discuss some advantages of pronoun analysis in comparison with another type of pro analysis, N(P) substitution analysis.

Keywords: null argument, pronoun analysis, argument ellipsis, N(P) substitution analysis

1. Introduction

Many languages employ null arguments. The nature of null arguments has been of great interest in generative grammar. The previous research has been roughly classified into three types: pro analyses (Ahn & Cho 2009, 2011a,b, 2012a,b, 2013, 2019, 2020, Hoji 1998, Moon 2010, 2015, 2017, 2019, Park 1994, 2014), argument ellipsis (AE) analyses (Kim 1999, Lee & Kim 2010, Lee 2011, 2016, Oku 1998, 2016, Saito 2007), and Verb-Stranding VP ellipsis (VVPE) analyses (Otani and Whitman 1991, Funakoshi 2012, 2013).

Consider VVPE analysis of null arguments first.

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- (1) A: Swunhi-ka maykcwu seypyeng-ul masiesse.
 S.-Nom beer three.bottle-Acc drank
 ‘Swunhi drank three bottles of beer.’
 B: Yenghi-to _____ masiesse.
 Y.-also drank
 ‘Yenghi also drank_____.’

Under the VVPE analysis, (1B) has the structure like (2).

(2) VVPE Analysis

[_{TP} Yenghi-to [_{T'} [_{VP} ~~maykcwu seypyeng-ul~~ t_i] masiesse_j]]

V moves out of VP to some higher functional head and the remnant VP undergoes ellipsis. VVPE analysis has a number of drawbacks, one of which is pointed out by Park (1994:165-166).

- (3) a. John studies English hard, and Mary does __, too.
 b. Cheli-nun yelsimhi yenge-lul kongpwuhay-ss-ko,
 Cheli-Top hard English-Acc study-Pst-Conj
 Yenghi-to _____ kongpwuhay-ss-ta.
 Yenghi-also study-Pst-Dec
 ‘Cheli studied English hard and Yenghi studied English (*hard), too’

In (3a), the second conjunct undergoes VP ellipsis and is interpreted as ‘Mary studies hard, too’. If VP ellipsis could be available in Korean, the second conjunct in (3b) would be interpreted as ‘Yenghi also studied English hard.’, contrary to fact. The second conjunct in (3b) is interpreted only as ‘Yenghi also studied English.’ Park (1994) presents this example to be against VVPE and argues that the null argument in Korean involves pro.

Pro analyses suggest that (1B) has the structure like (4a), while argument ellipsis analyses claim that (1B) has the structure like (4b).

(4) a. Pro Analysis

[_{TP} Yenghi-to [_{VP} pro masiesse]]

b. Argument Ellipsis Analysis

[_{TP} Yenghi-to [_{VP} [_{DP} ~~maykcwu seypyeng-ul~~] masiesse]]

In ellipsis theory, only functional heads such as C, T, and D can bear an [E] feature which enables to license the ellipsis of their complements (cf. Merchant 2001). Hence, the following question arises: what enables the argument to undergo ellipsis in (4b)? The possible candidate is V but it is a lexical category. Hence, theoretical burden falls on argument ellipsis analysis.¹⁾

By contrast, pro analyses don't have such burden. Korean is known as a radical pro drop language, so pro is extremely productive. Although Saito (2007:225) suggests that a null argument involves argument ellipsis, he notes that pro is needed independently of argument ellipsis in Japanese. For example, when a teacher comes into the classroom, a student can utter (5a) in Japanese. The same utterance is possible in Korean as shown in (5b).

- (5) a. pro kita.
 came
 'She/he came.'
- b. pro oassta
 came
 'She/he came.'

Both pro analyses and argument ellipsis analyses assume that pro involves in (5). Hence, if pro analysis can capture interpretations of null arguments well, without postulating separate operation like argument ellipsis, it will be a good example of Occam's razor. However, it has been claimed that some empirical data may support argument ellipsis. In this paper we will show that systematic reassessment of the data apparently supporting argument ellipsis of null arguments is available under silent pronoun analysis.

Among pro analyses, we would like to defend the premise that pro is a silent form of overt pronoun²⁾; henceforth, "pronoun analysis" of pro. Ahn & Cho (2009, 2010, 2011a,b, 2019, 2020) suggest that pro is a silent form of overt pronouns such as *ku* 'he', *kunye* 'she', *kukes* 'it', *kutul* 'they(human)', and *kukestul* 'they(nonhuman)'

1) A reviewer points out the possibility that V undergoes movement and Voice head of VoiceP licenses ellipsis of its complement VP. Another reviewer points out the possibility that T head licenses ellipsis of its complement VP. These approaches, however, cannot account for the interpretation of (3b). They have the same drawbacks with VVPE analysis.

2) We assume that some elements are inherently silent, and are registered as null morphemes in the lexicon. Various functional heads such as D, C, T and P, for example, can be null in the lexicon, and pronouns can be another instance of being null in the lexical entries.

and so on.³⁾ Under the analysis, a null argument in (6B) is a silent form of *kukes-ul*.

- (6) A: Swunhi-ka maykcwu seppyeng-ul masiesse.
S.-Nom beer three.bottle-Acc drank
'Swunhi drank three bottles of beer.'
- B: Yenghi-to pro masiesse.
Y.-also drank
'Yenghi also drank____.'
- C: Yenghi-to kukes-ul masiesse.
Y.-also it-Acc drank
'Yenghi also drank it.'

In what follows, we attempt to show that pronoun analysis has a number of merits over argument ellipsis analysis. To begin with, the pronoun analysis naturally captures the parallelism between (7B) and (7C).

- (7) A: Swunhi-ka maykcwu seppyeng-ul masiesse.
S.-Nom beer three.bottle-Acc drank
'Swunhi drank three bottles of beer.'
- B: Yenghi-to pro masiesse. Kulentey Yenghi-nun twupyeng-ul masiesse.
Y.-also drank but Y.-Top two.bottle-Acc drank
'Yenghi also drank____. But Yenghi drank two bottles.'
- C: Yenghi-to kukes-ul masiesse. Kulentey Yenghi-nun twupyeng-ul masiesse.
Y.-also it-Acc drank but Y.-Top two.bottle-Acc drank
'Yenghi also drank beer. But Yenghi drank two bottles.'

The first sentence of (7B) contains *pro* while that of (7C) contains overt pronoun *kukes-ul* 'it-Acc'. Both of them can be followed by the clause, *Yenghi-nun twupyeng-ul masiesse* 'Yenghi drank two bottles.'

By contrast, if a null argument is derived by ellipsis, the discrepancy between (8B) and (8C) is unexpected.

3) Moon (2010, 2015, 2017, 2019) suggest that null arguments in Korean and overt pronouns "in English" pattern together in regards to sloppy and nonspecific interpretations. By contrast, the analysis advanced here focuses on the similar pattern between null arguments and overt pronouns "in Korean."

- (8) A: Swunhi-ka maykcwu seypyeng-ul masiesse.
 S.-Nom beer three.bottle-Acc drank
 ‘Swunhi drank three bottles of beer.’
- B: Yenghi-to ____ masiesse. Kulentey Yenghi-nun twupyeng-ul masiesse.
 Y.-also drank but Y.-Top two.bottle-Acc drank
 ‘Yenghi also drank ____. But Yenghi drank two bottles.’
- C: #Yenghi-to maykcwu seypyeng-ul masiesse. Kulentey Yenghi-nun
 Y.-also beer three.bottle-Acc drank but Y.-Top
 twupyeng-ul masiesse.
 two.bottle-Acc drank
 ‘Yenghi also drank beer. But Yenghi drank two bottles.’

The first sentence of (8B) contains a null argument. It can be followed by the clause, *Yenghi-nun twupyeng-ul masiesse* ‘Yenghi drank two bottles.’ However, the first sentence of (8C), the source of argument ellipsis, contains *maykcwu seypyeng-ul* ‘three bottles of beer’, which cannot be followed by the clause, *Yenghi-nun twupyeng-ul masiesse* ‘Yenghi drank two bottles.’ If the null argument in (8B) is derived by deletion of *maykcwu seypyeng-ul*, the contrast is not expected. In order for argument ellipsis analysis to account for these facts, the identity condition (whether it is semantic or syntactic) must be modified.

This paper aims to show that pronoun analysis is both conceptually and empirically advantageous over argument ellipsis analysis.⁴⁾ The structure of this paper is as follows. Section 2 introduces some data apparently supporting argument ellipsis and analyzes them under pronoun analysis. We show that the data in this section are not evidence against pronoun analysis. Section 3 focuses on empirical data that (presumably only) pronoun analysis gives a solid explanation to. We show that the data argue against argument ellipsis analysis. Section 4 explores properties of ellipsis-resistant and ellipsis-tolerant constituents, which may further support our analysis. Section 5 discusses empirical advantage of pronoun analysis, in comparison with N(P) substitution analysis. Section 6 concludes.

4) Ahn & Cho (2019) shows how pronoun analysis is empirically superior in explaining null CP asymmetries and resolving *wh*-puzzles. Ahn & Cho (2020) discusses two factors that are linked to sloppy interpretation of overt pronouns: singular vs. plural on the one hand, and human vs. nonhuman on the other. This paper focuses on phenomena that Ahn & Cho (2019, 2020) have not discussed.

2. On Argument Ellipsis

Landau (2018) suggests that missing objects in Hebrew are derived from argument ellipsis and supporting evidence is related to the interpretations that null arguments have. They are sloppy and nonspecific interpretations. In Hebrew, unlike missing objects, object pronouns do not have these interpretations. Hence, Landau (2018) concludes that missing objects in Hebrew are not silent forms of overt pronouns. However, we suggest that these interpretations are not good indication of ellipsis and that they are available with overt pronouns in Korean. In other words, the interpretations are explained under pronoun analysis.

First, sloppy interpretation of null arguments has been considered to support argument ellipsis analysis. However, if overt pronoun allows the interpretation, it is also explained under pronoun analysis. In Korean, overt pronouns and null arguments allow sloppy interpretation, as shown below.⁵⁾

- (9) a. Yenghi-nun chayksang-ul takkassta, Chelswu-ka kukes-ul takkun-hwuey.
 Y.-Top desk-Acc cleaned C.-Nom it-Acc clean-after
 ‘Yenghi cleaned her desk after Chelswu cleaned it.’
- b. Yenghi-nun chayksang-ul takkassta, Chelswu-ka ___ takkun-hwuey.
 Y.-Top desk-Acc cleaned C.-Nom clean-after
 ‘Yenghi cleaned her desk after Chelswu cleaned ___.’

Similar to the null argument in (9b), the overt pronoun *kukes-ul* in (9a) can refer to the one different from the desk Yenghi cleaned.⁶⁾

5) Two reviewers indicate that sloppy interpretation is hard to come by in (9a). As pointed out by Kim & Han (2016) and Kim (2019), speakers’ variation is observed with pronoun interpretation. The important thing we have to note here is that (9a) and (9b) show the parallel behavior: the preferred interpretation is strict interpretation in the pronoun argument in (9a) and the null argument in (9b). Although sloppy reading is not easily obtained in (9a) and (9b), some people (like us) can get some sloppy reading there. One more thing we have to note is the interpretation of (i).

- (i) Yenghi-nun chayksang-ul takkassta, Chelswu-ka chayksang-ul takkun-hwuey.
 Y.-Top desk-Acc cleaned C.-Nom desk-Acc clean-after
 ‘Yenghi cleaned her desk after Chelswu cleaned his desk.’

(i) has only sloppy interpretation. Argument ellipsis analyses claiming that null arguments are derived through NP deletion cannot explain the interpretational difference between (9b) and (i).

6) Landau (2018:4-5) shows that in Hebrew, null arguments like (ia) allow a sloppy reading, whereas object pronouns don’t, as shown in (ib).

In fact, it is reported that overt pronouns in some languages give rise to sloppy readings in some contexts. Runić (2014:121), for example, indicates that object clitics in Serbo-Croatian can have sloppy interpretation as shown in (10). The object clitic *ju* has sloppy readings.

- (10) Nicola je pozvao(svoju) djevojku na slavu a pozvao
 Nicola Aux invited his girlfriend on slava and invited
 ju je i Danilo.
 her.CL Aux and Danilo
 ‘Nicola invited his girlfriend to the slava, and Danilo invited her too.’

As also noted by Merchant (2013), even in English, sloppy interpretations are observed in various constructions that ellipsis cannot be implicated. The interpretation is even available ‘inside’ pronouns, as in the famous paycheck examples.

- (11) a. Ralph ate his ice-cream with a spoon, and Seymour did the same thing.
 b. Harvey stubbed his toe on the doorstep, and it happened to Max, too.
 c. Undergraduates can be covered under their parents’ health plans if desired; {likewise for graduate students. | that goes for grad students, too.}
 d. A professor who pays down her mortgage with her paycheck is wiser than one who gambles it away in online poker.

Bach, Bresnan, and Wasow (1974:612) also notes that an overt pronoun in English like *one* can also yield sloppy reading.

- (12) Harry found a place to park his car before Harriet could find one (=a place to park her car).

-
- (i) a. Gil nika et ha-šulxan šelo axarey še-Yosi nika ____.
 Gil cleaned Acc the-table his after that-Yosi cleaned
 ‘Gil cleaned his table after Yosi did.’ (strict or sloppy)
 b. Gil nika et ha-šulxan šelo axarey še-Yosi nika oto.
 Gil cleaned Acc the-table his after that-Yosi cleaned it.Acc
 ‘Gil cleaned his table after Yosi did.’ (only strict)

Landau (2018) suggests that the availability of a sloppy reading in (ia) is inexplicable if the null argument is just the unpronounced version of the accusative pronoun in (ib). Thus, it seems that Korean pronouns behave differently from Hebrew pronouns in this respect.

The data we have discussed here also show that sloppy interpretations are no longer considered essential criteria for ellipsis phenomena.

Landau (2018) further shows that null arguments contrast with pronouns in allowing nonspecific readings for mass noun. He considers the contrast as evidence for argument ellipsis analysis. However, in Korean, both overt pronouns and null arguments allow nonspecific readings, as shown in (13).

- (13) A: Na-nun ton-i namunkey epse.
 I-Top money-Nom left not.have
 'I have no money left.'
- B: Na-to _____ namunkey epse.
 I-also left not.have
 'I also have no money left.'
- C: Na-to kukes-i namunkey epse.
 I-also it-Nom left not.have
 'I also have no money left.'

In (13), the antecedent is a mass noun. Both the null argument and the overt pronoun have nonspecific readings.⁷⁾⁸⁾

A similar example is noted by Park and Bae (2012). They argue that an interpretation of a null argument in modifier-noun contexts seems to support argument ellipsis analysis. In (14A), the antecedent of a null argument consists of modifier, *khi khun* 'tall' and noun *yeca* 'woman'.

7) Landau (2018:5-6) shows that null arguments in Hebrew contrast with pronouns in allowing nonspecific readings for mass nouns.

- (i) A: lo niš'sar li kesef.
 not remained to.me money
 'I have no money left.'
- B: li niš'sar _____ / *oto.
 not remained *it
 'I have no money left.'

Again, Hebrew and Korean do not pattern alike concerning nonspecific readings for mass nouns by null arguments and pronouns.

8) Specific reading is also possible in (13). Since Landau (2018) argues that nonspecific reading is not accounted for under pro analysis, our discussion focuses on nonspecific reading. As pointed out by a reviewer, speakers' variation is observed with the well-formedness of (13C).

(14) A: John-un khi khun yeca-lul coahay.
J.-Top height tall woman-Acc like
'John likes tall women.'

B: Bill-to _____ coahay.
Bill-also _____ like
'Bill also likes tall women.'

C: Bill-to khi khun yeca-lul coahay.
Bill-also height tall women-Acc like
'Bill also likes women.'

(Park & Bae 2012:854)

Argument ellipsis analysis suggests that the null argument in (14B) is derived by ellipsis of *khi khun yeca-lul* 'tall woman-Acc'. Under the analysis, the interpretation of (14B) is well explained.

We suggest that the interpretation can also be captured under pronoun analysis. At first, the following question can arise: Which pronoun is silent in the object position in (15B)?

(15) A: John-un khi khun yeca-lul coahay.
J.-Top height tall woman-Acc like
'John likes a tall woman.'

B: Bill-to _____ coahay.
Bill-also _____ like
'Bill also likes a tall woman.'

C: Bill-to kunye-lul coahay.
Bill-also her-Acc like
'Bill also likes her.'

D: Bill-to ku-lul coahay.
Bill-also he-Acc like
'Bill also likes him.'

E: Bill-to kutul-ul coahay.
Bill-also they-Acc like
'Bill also likes them.'

Only (15E) has the same interpretation with (15B). Ahn & Cho (2020) indicates that singular human overt pronoun like *ku-lul* 'him-Acc' and *kunye-lul* 'her-Acc' does not have sloppy interpretation while plural pronoun *kutul-ul* 'them-Acc' does.⁹⁾

Tomioka (2014:253-254) also notes that in English, plural pronouns can have sloppy interpretation unlike singular pronouns, as shown in (16).

- (16) a. Johnny worships his father, but Bobby finds him annoying.
 (*sloppy Interpretation)
 b. Johnny loves his grandparents, but Bobby finds them overbearing.
 (??sloppy interpretation)
 c. Professor A treats his students with respect, but Professor B treat them like idiots. ($\sqrt{\text{sloppy interpretation}}$)

Singular personal pronouns resist sloppy interpretation, and making them plural seems to allow sloppy interpretation in English. In this line of reasoning, we suggest that the null argument in (15B) is a silent form of *kutul-ul*. Under the pronoun analysis, the interpretation of (15B) can be captured parallel to (15E).

Along the similar vein, the interpretation of the null argument in (17B) can be accounted for under pronoun analysis.

- (17) A: Na-nun ccacangmyen-ul coahay.
 I-Top black.bean.sauce.noodle-Acc like
 'I like black-bean-sauce noodle.'
 B: Na-to _____ coahay.
 I-also like
 'I like, _____ too.'

9) A reviewer points out the number disagreement between the singular noun *khi khun yeca-hul* 'tall woman-Acc' and the plural pronoun *kutul-ul* 'them-Acc'. We note that *khi khun yeca-hul* 'tall woman-Acc' has generic reference. This refers not to a particular tall woman but to the class of tall women as a whole. Number does not affect the generic interpretation cross-linguistically, as shown in (i).

- (i) a. A dog makes a fine pet.
 b. Dogs make fine pets.

(ia) and (ib) have the equivalent interpretation.

We also note that number agreement is sometimes not obligatory in Korean, as shown in (ii) (Cho 1996).

- (ii) John-i caki-tul-i iky-ess-ta-ko malhay-ss-ta.
 John-Nom self-Pl-Nom win-Pst-Dec-Comp say-Pst-Dec
 'Lit. John said that selves won.'

In (ii) the plural reflexive form *caki-tul* is used and *caki* is properly bound by the antecedent John, irrespective of number agreement.

C: Na-to kukes-ul coahay.
 I-also it-Acc like
 'I also like it.'

(Ahn & Cho 2013:530)

The null argument in (17B) is a silent form of *kukes-ul* 'it-Acc' in (17C). Both (17B) and (17C) are interpreted as 'I also like black-bean-sauce noodle'.

In sum, unlike Hebrew, null arguments and overt pronouns in Korean pattern together in regards to sloppy and nonspecific interpretations. Thus, null arguments can be understood as silent counterparts of pronouns, dispensing with argument ellipsis analysis in Korean.

3. Against Argument Ellipsis Analysis

This section discusses empirical data that only pronoun analysis can give a solid explanation to. The data in this section strongly argues against argument ellipsis analysis.

3.1. Disjunction and Negation

Sakamoto (2013) argues that disjunctive reading is a hallmark of argument ellipsis in Japanese. Sakamoto (2013) notes that the English pronouns like *her* in (18b) only yield the D(isjunctive) E-type (DE) but not D(-isjunctive) reading.¹⁰⁾

- (18) a. John scolded [either Mary or Nancy].
 b. Bill scolded **her**, too.
 √DE-reading: Bill scolded the one that John scolded.
 /*D-reading: Bill scolded either Mary or Nancy.

However, in English there is a case where overt pronoun can have disjunctive reading. *One* can yield disjunctive reading as shown in (19).

- (19) John told either Mary or Nancy that Bill wanted to see one of them
 (= Mary or Nancy). (Sakamoto 2015. fn. 6)

10) Ahn & Cho (2020) briefly discusses scope of disjunction and negation in null argument contexts. This paper explore more data regarding this topic in Japanese and Korean.

In Korean, both null arguments and pronoun preserve the disjunctive reading.

- (20) a. Inho-ka sakwa-na pay-lul salkeya.
I.-Nom apple-or pear-Acc buy.will
'Inho will buy an apple or a pear.'
- b. Yujini-to kukes-ul salkeya.
Y.-also it-Acc buy.will
'Yujini also will buy it.'
- c. Yujini-to ____ salkeya.
Y.-also ____ buy.will
'Yujini also will buy ____.'

Like the null object in (20c), the overt pronoun *kukes-ul* 'it-Acc' can receive the disjunctive reading: it can be interpreted as 'an apple or a pear'.

Therefore, disjunctive reading does not seem to be a hallmark of argument ellipsis contra Sakamoto (2013). In addition, the well-formedness of (21b) supports that overt pronoun preserves the disjunctive reading.¹¹⁾

- (21) a. Inho-ka sakwa-na pay-lul salkeya.
I.-Nom apple-or pear-Acc buy.will
kucwung enukesincinun molukeysse.
of.them which not.know
'Inho will buy an apple or a pear. I don't know which of them it is.'
- b. Yujini-to kukes-ul salkeya. kucwung enukesincinun molukeysse.
Y.-also it-Acc buy.will of.them which not.know
'Yujini also will buy it. I don't know which of them it is.'
- c. Yujini-to ____ salkeya. kucwung enukesincinun molukeysse.
Y.-also ____ buy.will of.them which not.know
'Yujini also will buy ____ . I don't know which of them it is.'

kucwung enukesincinun molukeysse 'I don't know which one of them it is.' can occur in (21), which means that the thing which Yunjini will buy can be different from the thing which Inho will buy. The disjunctive reading is available for null arguments and overt pronouns, so the null argument in (21c) can be analyzed as a silent form

11) As pointed out by a reviewer, there seems to be speakers' variation with respect to the disjunctive reading of overt pronoun in (20b) and (22b).

of *kukes* 'it'.

Scope fact is another significant phenomenon related to disjunction. Tomioka (2014:258) notes that a disjunctive phrase with *ka* in Japanese obligatorily takes wider scope with respect to negation, as in (22a), but if a disjunctive phrase is anaphoric to a previously mentioned disjunction and remains silent, its scope can be confined with that of negation (22b).¹²⁾

- (22) a. Mari-wa [Yumi-ka Kana-ni] aw-anak-atta.
Mari-Top [Yumi-or Kana-Dat] meet-Neg-Pst.
'Yumi or Kana, Mari failed to meet.' (or > Neg)
- b. Mari-wa [Yumi-ka Kana-ni] at-ta.
Mari-Top Yumi-or Kana-Dat meet-Pst.
Sayaka-wa ___ aw-anak-atta.
Sayaka-Top meet-Neg-Pst
'Mari met Yumi or Kana. Sayaka did not meet (Yumi or Kana).'
(Neg > or)

This scope phenomenon is inexplicable under the argument ellipsis analysis. On the view, (22b) is derived from (22a) by ellipsis, so the scope contrast is not expected.

A similar phenomenon is observed in Korean.¹³⁾

12) In Japanese, there seems to be inter-speaker variation in scope of negation. Sakamoto (2013) observes that null objects must take scope over negation.

- (i) a. John-wa supeingo ka huransugo-o hanasanai.
John-Top Spanish or French-Acc not.speak
'lit. John does not speak either Spanish or French.'
- b. Hanako-mo ___ hanasanai.
Hanako-also not.speak
'lit. Hanako also does not speak ____.'

In (ia), the disjunctive object obligatorily takes scope over negation. He argues that this scopal property also holds for a sequential sentence with an anaphoric null argument that has a disjunction as its antecedent. According to Sakamoto (2013), in (ib), the null object must take scope over negation (note that the negation is clearly outside of the ellipsis site). The scope judgment is totally different from that of Tomioka (2014). Funakoshi (2013), Oku (2016) and Saito (2017) agree with Tomioka (2014) in that in (ib) negation obligatorily takes wide scope. Careful and extensive experimental investigations related to speakers' variation are solicited for future research (cf. Kim & Han 2016, Han et al. 2007, 2019).

13) With respect to scope of disjunction and negation, Japanese and Korean show slight difference. Unlike the Japanese example (22a), the similar example (23a) in Korean allows the wide scope reading of negation although it is not a preferred reading.

- (23) a. Chelswu-nun Yenghi-na Swunhi-lul mannaci moshaysse.
 C.-Top Y.-or S.-Acc meet not.Pst
 ‘Chelswu didn’t meet Yenghi or Swunhi.’
 (or > neg: preferred reading, neg > or: possible reading)
- b. Chelswu-nun Yenghi-na Swunhi-lul mannasse.
 C.-Top Y.-or S.-Acc met
 Dongswu-nun _____ mannaci moshaysse.
 D.-Top meet not.Pst
 ‘Chelswu met Yenghi or Swunhi. Dongswu didn’t meet.’
 (neg > or, *or > neg)

In (23a), scope ambiguity is observed. In a preferred interpretation, disjunctive objects take scope over negation. However, it is possible for negation to take scope over disjunction. Interestingly, in (23b), negation obligatorily takes wide scope.¹⁴ Were the null argument derived by deletion of *Yenghi-na Swunhi-lul*, this scope difference between (23a) and (23b) is unexpected. However, if the null argument is a silent form of plural overt pronoun *kayney* ‘them’, the scope fact in (23b) is well accounted for. Consider (24).¹⁵

14) Lee (2016:10) claims that the null argument in (ib) shows scope ambiguity, like the disjunctive argument in (ia).

- (i) a. Chelswu-nun pihca ttonun suphakeyithi-lul cohaha-ci anh-nun-ta.
 C.-Top pizza or spaghetti-Acc like-Comp Neg-Pres-Dec
 ‘lit. Chelswu does not like either pizza or spaghetti.’
- b. Tongswu-to _____ cohaha-ci anh-nun-ta.
 T.-also like-Comp Neg-Pres-Dec
 ‘lit. Tongswu also does not like.’

Lee (2016) claims that both (ia-b) are interpreted as ‘Chelswu either does not like pizza or does not like spaghetti.’ or as ‘Chelswu eats neither pizza nor spaghetti.’ To our informants and us, only the latter reading is available in (ib). In Korean, there also seems to be speakers’ variation in scope of negation. Han et al (2007) suggests that there are two populations of Korean speakers with respect to scope of negation and quantified NPs. Likewise, experimental studies may prove a similar result about scope of negation and null arguments. We will leave this topic for future research.

15) As pointed out by a reviewer, when *kay-lul* ‘him-Acc’ is used, the same interpretation as (23b) is not observed as shown in (i).

- (i) Chelswu-nun Yenghi-na Swunhi-lul mannasse.
 C.-Top Y.-or S.-Acc met
 Dongswu-nun kay-lul mannaci moshaysse.
 D.-Top they-Acc met not.Pst
 ‘Chelswu met Yenghi or Swunhi. Dongswu didn’t meet him.’

The reviewer raises the following question: In addition to contextual information, is there a principle to determine which pronoun is silent in each specific case? We leave this issue for future research.

(24) Chelswu-nun Yenghi-na Swunhi-lul mannasse.
 C.-Top Y.-or S.-Acc met
 Dongswu-nun kayney-lul mannaci moshaysse.
 D.-Top they-Acc met not.Pst
 ‘Chelswu met Yenghi or Swunhi. Dongswu didn’t meet them.’
 (neg > or, *or > neg) (Ahn & Cho 2020:9)

In (24), negation takes obligatorily wide scope, which lends another support to the pronoun analysis of null arguments in Korean.

3.2. Quantified Arguments

When quantified arguments occur in antecedent clause, the interpretation of null arguments like (25B) seems to support the pronoun analysis. Under the pronoun analysis, (25B) has the structure like (25B’) while under argument ellipsis analysis, (25B) is derived from (25B’’) by ellipsis.

(25) A: Na-nun khemphyuthe sey tay-ka philyohay.
 I-Top computer three Cl-Nom need
 ‘I need three computers.’
 B: Na-nun ___ philyohaci anha.
 I-Top need not
 ‘I don’t need (three computers).’
 B’: Na-nun kukes-i philyohaci anha.
 I-Top that-Nom need not
 ‘I don’t need them.’
 B’’: Na-nun khemphyuthe sey tay-ka philyohaci anha.
 I-Top computer-Nom three Cl-Nom need not
 ‘I don’t need three computers.’

(26) shows that the interpretation of the null argument can be explained only under the pronoun analysis.

(26) A: Na-nun khemphyuthe sey tay-ka philyohay.
 I-Top computer three Cl-Nom need
 ‘I need three computers.’

- B: #Na-nun ____philyohaci anha. Twutay-myen tway.
 I-Top need not two.Cl-if enough
 'I don't need. Two computers are enough for me.'
- B': #Na-nun kukes-i philyohaci anha. Twutay-myen tway.
 I-Top that-Nom need not two.Cl-if enough
 'I don't need three computers. Two computers are enough for me.'
- B'': Na-nun khemphyuthe sey tay-ka philyohaci anha.
 I-Top compuer three Cl-Nom need not
 Twutay-myen tway.
 two.Cl-if enough
 'I don't need three computers. Two computers are enough for me.'

The first sentence of (26B) contains a null argument and is interpreted as 'I don't need any computers at all.' The same interpretation is obtained in the first sentence of (26B'). Hence, *twutay-myen tway* 'Two computers are enough for me' cannot follow the sentence containing a null argument (26B) or an overt pronoun (26B'). The parallel interpretation supports that a null argument is a silent form of an overt pronoun. The contrast between (26B) and (26B'') is inexplicable if the null argument of (26B) is derived by ellipsis of (26B'').¹⁶⁾

A similar phenomenon is found with (27), where the antecedent clause has a quantified argument, *yel-tay isang-uy cha-lul* 'more than 10 cars'.

- (27) John-un cinan tal-ey yel-tay isang-uy cha-lul phalassci-man.
 J.-Top last month-in 10-Cl more-Gen car-Acc sold-but
 Bill-un _____ phalci-mos-hayss-e.
 B.-Top sell-Neg-did-Dec
 'lit. John sold more than 10 cars last month, but Bill couldn't sell ____.'
 (Park & Bae 2012: 853)

In (27), the second conjunct with a null argument means 'Bill didn't sell cars'. Under the pronoun analysis, the interpretation of (27) can be captured in a similar way to overt pronoun, as shown in (28).

16) As pointed out by a reviewer, Moon (2019) assumes that a null argument in Korean is like *ones* in English. On this view, the null argument refers to computers. The interpretation of (26B) is explained. However, the analysis advanced here suggests that a null argument is a silent form of overt pronouns in Korean. Korean doesn't have overt pronoun corresponding to *ones* in English, so we don't pursue the idea that the null argument in (26B) is a silent form of *ones* in English.

(28) John-un cinan tal-ey yel-tay isang-uy cha-lul phalassci-man.
 J.-Top last month-in 10-Cl more-Gen car-Acc sold-but
 Bill-un kumankhum-ul phalci-mos-hayss-e.
 B.-Top that.much-Acc sell-Neg-did-Dec
 'lit. John sold more than 10 cars last month, but Bill couldn't sell that much.'

Given that the null argument in (27) is a silent form of *kumankhum* 'that much', the similarity in interpretation between (27) and (28) can be well captured.

Now, consider null arguments in 'missing antecedents' contexts. Saito (2007) provides an interesting example that might be problematic under pro analysis. The corresponding Korean example like (29) is given by Park & Bae (2012). In (29), there is no obvious antecedent for a null argument.

(29) Ku pension-un halu-ey sey-thim isang-ul
 the pension-Top one day-in three-group more than-Acc
 patulswuissci-man i pension-un _____patulswueps-e.
 can.accomodate-but this pension-Top cannot.accomodate-Dec
 'That pension/inn can accommodate more than three teams per day but
 this pension cannot accommodate more than three teams per day.'
 (Park & Bae 2012: 855)

Park & Bae (2012) claims that if a null argument is pro, the null argument can have trouble in finding a suitable antecedent. However, unlike the claim, an antecedent of pro need not be overt. Pronoun analysis well accounts for interpretations of null arguments in missing antecedent contexts, as shown in (30).

(30) Ku pension-un ecey sey-thim isang-ul
 the pension-Top yesterday three-group more than-Acc
 patassci-man i pension-un kumankhum-ul
 accommodated-but this pension-Top that.much-Acc
 patci-an-ass-e.
 accommodate-not-Pst-Dec
 'That pension/inn accommodated more than three teams yesterday but this
 pension didn't accommodate that much (yesterday).'

We suggest that pro in (29) is also a silent form of *kumankhum* 'that much'. When

an overt antecedent is missing, *pro* searches for the complement of *patci-an-ass-e* and *kumankhum* is selected, which refers to the salient entity in the discourse.

4. Ellipsis-Resistant Constituents

Oku (2016) examines ellipsis-resistant constituents. According to Oku (2016), adjuncts are classified into two types: ellipsis-resistant adjuncts and ellipsis-tolerant adjuncts. In the latter, although an adjunct is not overtly realized, the adjunct interpretation is possible. By contrast, in the former, adjunct ellipsis doesn't seem to be possible. In other words, if adjuncts do not occur overtly, the interpretations related to the adjuncts are not obtained. Oku (2016) also discusses PP with *only* phrase and *wh*-phrases, which seems to be ellipsis-resistant constituents. When these constituents do not occur, the relevant readings disappear. We suggest that the ellipsis-resistant properties result from inherent properties of pronouns, which further supports the pronoun analysis of null arguments.

First, let us look into ellipsis-resistant adjuncts and ellipsis-tolerant adjuncts. Locative PPs can be unpronounced as shown in (31b). The interpretation related to the unpronounced PP is obtained in (31b), which shows that the locative PP is ellipsis-tolerant.

- (31) a. Ziroo-wa Zibun-no heya-de Hamlet-o yomi,
 J.-Top self-Gen room-in Hamlet-Acc read-and
 b. Taroo-wa [e] Lear Oh-o yonda.
 T.-Top King Lear-Acc read
 ‘Jiro_i read Hamlet in his_i room and Taro_j read King Lear [e].’
 ([e] can be in his_j room’) (Oku 2016: 59)

Murasugi (1991) suggests that locative and temporal PPs can be silent in Japanese. Following Saito (2007), Oku (2016) suggests that locative PPs are eligible for ellipsis.

- (32) a. Taroo-wa [zibun-no oya-no ie-ni] sunde iru
 Taroo-T self-Gen parent-Gen house-in live
 ‘Taroo lives in his parents’ house.’
 b. Demo, Hanako-wa [e] sunde inai
 but H.-Top live-not
 ‘But Hanako does not live in his/her parents’ house.’

Interestingly, locative PPs are not always ellipsis-tolerant. Compare (32) with (33).

- (33) a. Hanako-wa zibun-no oya-no ie-de hiroo-en-o
 H.-Top self-Gen parent-Gen house-in wedding-reception-Acc
 okonatta ga,
 did but
 ‘Hanako gave her wedding reception at her parent’s house, but
- b. Yuko-wa ([e]) hiroo-en-o okonaw-anak-atta.
 Y.-Top wedding-reception-Acc do-not-Pst
 ‘Yuko didn’t give her wedding reception.’
 (*[e] = at her parents’ house) (Oku 2016: 59)

In (33b), the locative PP behaves like an ellipsis-resistant adjunct. The locative PP is unpronounced, and the adjunct interpretation disappears. Oku (2016) proposes that in (33b) the object NP stays intact and is reinterpreted as contrastive focus.¹⁷ Since the predicate in (33b) is negated, the leftover object NP is most naturally interpreted as the focus of negation. (33b) means that Yuko did not have her wedding reception at all. As a result, it is very difficult to get the adjunct ellipsis reading in (33b).

This analysis raises a non-trivial question. Under the ellipsis analysis, (33b) has the structure like (34b).

- (34) a. Hanako-wa zibun-no oya-no ie-de hiroo-en-o
 H.-Top self-Gen parent-Gen house-in wedding-reception-Acc
 okonatta ga,
 did but
 ‘Hanako gave her wedding reception at her parent’s house, but
- b. Yuko-wa [~~zibun-no oya-no~~ ie-de]
 Y.-Top self-Gen parent-Gen house-in
 hiroo-en-o okonaw-anak-atta.
 wedding-reception-Acc do-not-Pst
 ‘Yuko didn’t give her wedding reception.’(*[e] = at her parents’ house)

17) This proposal is based on Kuno (1982), as shown in (i).

(i) Ban Against Partial Discourse Deletion

If discourse deletion of recoverable constituents is to apply it across the board to nonfocus constituents. Nonconstituents which are left behind by partial discourse deletion will be reinterpreted, if possible, as representing contrastive foci.

As a result of ellipsis, *zibun-no oya-no ie-de* ‘at her parent’s house’ does not remain at PF. However, the locative PP remains at LF. A detailed explanation is needed as to why the locative PP which remains at LF has difficulty in getting the interpretation like ‘at her parent’s house’.

A similar example is found in Korean, as shown in (35).

- (35) Chelswu-nun caki-uy pang-eyse Hamlet-ul ilk-ko
 C.-Top self-Gen room-at Hamlet-Acc read-and
 Tongswu-nun _____ King Lear-lul ilkessta.
 T.-Top King Lear-Acc read
 ‘Chelswu_i read Hamlet in his_i room and Tongswu_j read King Lear [e].’
 ([e] can be in his_j room’)

We suggest that the null locative PP in (35) is a silent form of overt pronoun *kukoseyse/kekise* ‘there’ in (36).

- (36) Chelswu-nun caki-uy pang-eyse Hamlet-ul ilk-ko
 C.-Top self-Gen room-at Hamlet-Acc read-and
 Tongswu-nun kukoseyse King Lear-lul ilkessta.
 T.-Top there King Lear-Acc read
 ‘Chelswu_i read Hamlet in his_i room and Tongswu_j read King Lear there.’
 (‘there can be in his_j room.’)

Interestingly, *kukoseyse* ‘there’ can refer to Tongswu’s room, which is an instance of sloppy reading. We can further account for the contrast between (35) and (37).

- (37) Chelswu-nun caki-uy pang-eyse Hamlet-ul ilk-ko
 C.-Top self-Gen room-at Hamlet-Acc read-and
 Tongswu-nun _____ Hamlet-ul ilkciahnassta.
 T.-Top H.-Acc read.not
 ‘Chelswu_i read Hamlet in his_i room and Tongswu_j didn’t read Hamlet.’
 (*‘Dongswu didn’t read Hamlet in his room.’)

The second conjunct in (37) does not mean that ‘Dongswu didn’t read Hamlet in Dongswu room’ (sloppy reading). This contrasts with (38) that may give rise to sloppy reading, which contains overt locative pronoun.¹⁸⁾

- (38) Chelswu-nun caki-uy pang-eyse Hamlet-ul ilk-ko
 C.-Top self-Gen room-at Hamlet-Acc read-and
 Tongswu-nun kukoseyse Hamlet-ul ilkciahnassta.
 T.-Top there H.-Acc read.not
 ‘Chelswu_i read Hamlet in his_i room and Tongswu_j didn’t read Hamlet
 there(=in his_{i/j} room).’

We suggest that when overt objects are the same in both the conjuncts, the locative *kukoseyse* ‘there’ gets focus. Since a focused pronoun is strong and cannot be silent, the second conjunct in (37) is not interpreted as ‘Dongswu didn’t read Hamlet in his room’. Rather, the second conjunct in (37) is interpreted as ‘Dongswu didn’t read Hamlet at all’. By contrast, when overt objects are not the same in both the conjuncts, the objects get focus and the locative adjunct is not a focused pronoun. Then, the locative pronoun can be silent. Hence, the second conjunct in (35) can be interpreted as ‘Tongswu_j read King Lear in his_j room’.

In a parallel way, we can account for the contrast between (39) and (40).

- (39) a. Chelswu-nun caki-uy pwumo-uy cip-eyse
 C.-Top self-Gen parents-Gen house-at
 kyelhon reception-ul hayssciman
 wedding reception-Acc gave.but
 ‘Chelswu gave his wedding reception at his parent’s house, but
 b. Tongswu-nun kyelhon reception-ul hachahnassta.
 T.-Top wedding reception-Acc give.not.Pst
 ‘Tongswu didn’t give his wedding reception
 (*at his parents’ house).’
- (40) a. Chelswu-nun caki-uy pwumo-uy cip-eyse
 C.-Top self-Gen parents-Gen house-at
 kyelhon reception-ul hayssciman
 wedding reception-Acc gave.but
 ‘Chelswu gave his wedding reception at his parent’s house, but

18) *Kukoseyse* ‘there’ can refer to either Tongswu’s room or Chelswu’s room. The latter interpretation, strict interpretation is strongly preferred. With respect to availability of sloppy interpretation, there seems to be speakers’ variation.

- b. Tongswu-nun _____sayngil party-lul hayssta.
 T.-Top birthday party-Acc gave
 ‘Tongswu gave a birthday party at his parents’ house.’

Suppose (39b) and (40b) involve silent forms of overt pronouns, as shown in (41b-42b), respectively.

- (41) a. Chelswu-nun caki-uy pwumo-uy cip-eyse
 C.-Top self-Gen parents-Gen house-at
 kyelhon reception-ul hayssciman
 wedding reception-Acc give
 ‘Chelswu gave his wedding reception at his parent’s house, but
- b. Tongswu-nun kukoseyse kyelhon reception-ul haciasnassta.
 T.-Top there wedding reception-Acc give.not
 Tongswu didn’t give his wedding reception at his parents’ house.’
- (42) a. Chelswu-nun caki-uy pwumo-uy cip-eyse
 C.-Top self-Gen parents-Gen house-at
 kyelhon reception-ul hayssciman
 wedding reception-Acc give.but
 ‘Chelswu gave his wedding reception at his parent’s house, but
- b. Tongswu-nun kukoseyse sayngil party-lul hayssta.
 T.-Top there birthday party-Acc gave
 ‘Tongswu gave a birthday party at his parents’ house.’

Under the analysis advanced here, the locative pronoun in (41b) is focused, so it cannot be silent. Hence, (39b) cannot have the same interpretation that (41b) has. By contrast, the locative pronoun in (42b) is not focused, so it can be silent. Hence, (40b) and (42b) both are interpreted as ‘Tongswu gave a birthday party at his parents’ house’ (sloppy reading).

We suggest that the locative PP in (43) behaves not like an adjunct but like a complement with respect to distribution of null elements. (43b) has the same interpretation with (44b).

- (43) a. Chelswu-nun caki-uy pwumo-uy cip-eyse santa.
 C.-Top self-Gen parents-Gen house-in live
 ‘Chelswu lives in his parents’ house.’

- b. kulentey Yenghi-nun _____ salciahnnunta.
 but Y.-Top live.not
 'But Yenghi does not live in her parents' house.'

(44) a. Chelswu-nun caki-uy pwumo-uy cip-eyse santa.
 C.-Top self-Gen parents-Gen house-in live
 'Chelswu lives in his parents' house.'

- b. kulentey Yenghi-nun kukoseyse salciahnnunta
 but Y.-Top there live.not
 'But Yenghi does not live there.'

With respect to silent forms, asymmetry between adjunct and complement is observed. As noted by Ahn & Cho (2012c:376), adjunct pronoun *kulehkey* 'so' cannot be silent.

(45) a. Chelswu-ka chenzhenhi ttwiessta.
 C.-Nom slowly ran
 'Chelswu ran slowly.'

- b. Yenghi-to twiessta.
 Y.-also ran
 'Yenghi also ran.' (≠Yenghi also ran slowly.)

c. Yenghi-to kulehkey ttwiessta.
 Y.-also so ran
 'Yenghi also ran slowly.'

(46) a. Chelswu-ka wiamulo cwukessta.
 C.-Nom cancer.of died
 'Chelswu died of cancer.'

- b. Yenghi-to cwukessta.
 Y.-also died
 'Yenghi also died.' (≠Yenghi also died of cancer.)

c. Yenghi-to kulehkey cwukessta.
 Y.-also so died
 'Yenghi also died of cancer.'

If *kulehkey* can be silent, (45b) and (46b) have the same interpretation with (45c)

and (46c), respectively, contrary to fact. Thus, it seems that manner adverbials cannot be realized as silent pronouns unlike locatives in Korean.

Let us look at another type of ellipsis-resistant constituents. Funakoshi (2013) notes that ellipsis is not possible with PPs with *only* as shown in (47). A similar phenomenon is found in Korean, too,

(47) John-wa Mary-to-dake asob-e-ru *Bill-mo [e] asob-e-ru
 J.-Top M.-with-only play-can-Pres B.-also play-can-Pres
 ‘Lit. John can play only with Mary. Bill can play [e], too.’

(48) Chelswu-nun Yenghi-wa-man nolswuissta *Tongwu-to [e] nolswuissta.
 C.-Top Y.-with-only play.can T.-also play.can
 ‘Lit. John can play only with Mary. Bill can play [e], too.’

Oku (2016) suggests that the PP *Mary-to-dake* ‘only with Mary’ is focused and that it conflicts with defocusing requirement for ellipsis. According to the pronoun analysis advanced here, the interpretation in (47-48) is impossible because *pro* (silent pronouns) cannot refer to delimiter phrases.

Let us look at the last type of ellipsis-resistant constituents, *wh*-phrases. Ahn & Cho (2012a) also notes that null arguments cannot have *wh*-interpretation, as shown in (49).

(49) A: John-un mwues-ul mek-ess-ni?
 J.-Top what-Acc eat-Pst-Q
 ‘What did John eat?’
 B: Bill-un [e] mek-ess-ni?
 B.-Top eat-Pst-Q
 ‘Did Bill eat?’

(50) a. Bill-un [mwues-ul] mek-ess-ni
 b. Bill-un pro mek-ess-ni

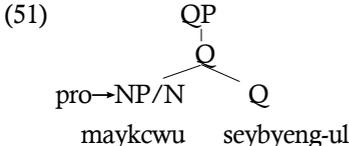
Although the antecedent clause (49A) has *wh*-phrase, the null argument in (49) does not have *wh*-interpretation. Absence of *wh*-interpretation supports that the null argument is *pro* in (50b), which lacks *wh*-features, not deleted argument in (50a).

Oku (2016) suggests that *wh*-phrase is interpreted as focus and that it is ellipsis

resistant. If the argument ellipsis analysis is more solid, the more detailed mechanism of ellipsis should be given. As already discussed, it has not been discussed what deletion process for argument ellipsis looks like. By contrast, pronoun analysis suggests that various properties results from general properties of pronoun, dispensing with an additional operation like argument ellipsis.

5. On N(P) Substitution Analysis

In order to account for properties of null arguments, it is essential to use a right version of pro analyses. Pro analyses can be roughly classified into two groups. One group is N(P) substitution analysis. Under the analysis, pro is not only used as a pronominal element but also refers to (morphologically) a bare nominal, which can be interpreted as indefinite or definite NP, depending on the context (Hoji 1998, Ahn & Cho 2012a,b, 2013). According to the N(P) substitution analysis, for example, in the case of *maykcwu seybyeng-ul* ‘three bottles of beer’, pro refers to NP *maykcwu* ‘beer’, as illustrated in (51).¹⁹⁾



The N(P) substitution analysis well accounts for the well-formedness of (52B) and (52C).

- (52) A: Swunhi-ka maykcwu seybyeng-ul masiesse.
 S.-Nom beer three-Acc drank
 ‘Swunhi drank three bottles of beer.’
- B: Yenghi-to pro massiesse. Kulentey Yenghi-nun twupyeng-ul masiesse.
 Y.-also drank but Y.-Top two.bottle-Acc drank
 ‘Yenghi also drank___. But Yenghi drank two bottles.’

19) According to Chomsky (1995), a category that does not project any further is a maximal projection XP and one that is not a projection at all is a minimal projection. In this line of reasoning, in (51), N is NP at the same time.

C: Yenghi-to maykcwu masiesse. Kulentey Yenghi-nun twupyeng-ul
 Y.-also beer drank but Y.-Top two.bottle-Acc
 masiesse.
 drank
 ‘Yenghi also drank beer. But Yenghi drank two bottles.’

Parallel to (52C), containing bare NP *maykcwu* ‘beer’, (52B), containing *pro*, can be followed by the clause, *Yenghi-nun twupyeng-ul masiesse* ‘Yenghi drank two bottles’.

N(P) substitution analysis, however, is problematic in accounting for the interpretation of (53B).²⁰⁾

- (53) A: John-un khi khun yeca-lul coahay.
 J.-Top height tall woman-Acc like
 ‘John likes tall women.’
 B: Bill-to pro coahay.
 Bill-also like
 ‘Bill also likes tall women.’
 C: Bill-to yeca-lul coahay.
 Bill-also women-Acc like
 ‘Bill also likes women.’
 D: Bill-to kutul-ul coahay.
 Bill-also they-Acc like
 ‘Bill also likes them.’

On this view, *pro* in (53B) refers to *yeca-lul* ‘woman-Acc’. Under the analysis, (53B) will have the same interpretation with (53C), contrary to fact. The discrepancy

20) *khi khun yeca* ‘tall woman’ can have the structure like (i).

(i) [_{NP} khi khun [_{NP} yeca]]

NP substitution analysis raises the following question: Why can’t *pro* refer to the lower NP? If *pro* refers to lower NP, the interpretation like (53B) is possible, contrary to fact. In a similar situation, *one* replacement is possible in the lower N’ as shown in (ii).

(ii) a. the [_{N’} [_{N’} student] with red hair]
 b. the one with blue hair
 c. the one

In (iic), *one* replaces the upper N’. In (iib) *one* replaces the lower N’. Hence, the eccentric nature of *pro* replacement within NP substitution analysis needs solid explanation.

6. Conclusion

We have shown that pronoun analysis can capture interpretations of null arguments, without postulating separate operation like argument ellipsis. From the view of Occam's razor, pronoun analysis is better than its alternative analyses. More specifically, we have shown that pronoun analysis can account for two readings of null arguments, sloppy readings and nonspecific readings for quantifiers and mass nouns. We have also shown that pronoun analysis is empirically superior in accounting for scope interaction between disjunction and negation and ellipsis-resistant constituents. We have also proved that pronoun analysis is empirically advantageous in comparison with another type of pro analysis, N(P) substitution analysis.

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