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Ellipsis of Arguments: Its Acquisition and Theoretical Implications

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Koichi Ohtaki, Ph.D.

University of Connecticut, 2014

ABSTRACT

This dissertation investigates the acquisition of Argument Ellipsis (AE). In Chapter 2, I discuss two theoretical approaches to the cross-linguistic distribution/acquisition of AE, namely, the Scrambling Analysis (Oku 1998) and the Anti-agreement Analysis (Saito 2007), and show that neither can be maintained, based on the facts from cross-linguistic distribution of AE and learnability considerations. Then, I propose that the cross-linguistic distribution/acquisition of AE are best accounted for by the morphology of extended nominal projections such as case and number. More specifically, it is argued that only languages that exhibit non-fusional, agglutinating (case) morphology allow AE. This proposal correctly explains the facts that are problematic for the previous analyses. Chapter 3 takes up the question of whether agreement actually blocks AE. Although the data reported by Şener and Takahashi (2010) suggest that subject agreement in Turkish blocks AE, in conformity to the Anti-agreement Analysis, I point out that AE in subject position can be blocked by various as-yet-unknown factors, and it is necessary to look at object agreement languages to test whether agreement blocks AE. The data from Hindi and Basque indicate that object agreement does not necessarily block AE, which supports the morphology-based analysis of AE put forth in this dissertation. Chapter 4 investigates how Japanese-speaking children acquire AE. It has been observed in the literature that Japanese-speaking children acquire case-markers quite early (Matsuoka 1998). Given that, the analysis proposed in this dissertation predicts that Japanese-speaking children acquire AE very early, despite the fact that direct positive evidence indicating that Japanese allows AE is virtually

non-existent in child-directed speech. To test the prediction, I conducted three experiments with Japanese-speaking children. What makes these experiments different from previous studies is that the sloppy/quantificational reading, which is a crucial indicator of ellipsis, is separated from the indefinite reading. The results from the experiments suggest that Japanese-speaking children aged four to six have knowledge of AE. These findings are consistent with the current proposal that relates the acquisition of AE and the acquisition of case markers.

Ellipsis of Arguments: Its Acquisition and Theoretical Implications

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Koichi Ohtaki

2014

APPROVAL PAGE

Doctor of Philosophy Dissertation

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CHAPTER 1: INTRODUCTION

1.1. Argument Ellipsis

This dissertation concerns the acquisition of Argument Ellipsis (henceforth, AE), which is observed only in a limited number of languages such as Japanese, Korean and Turkish. One of the major differences between English and Japanese is the distribution of phonologically null arguments. Japanese allows both null objects and subjects, as in (1b) and (2b), respectively, while English basically does not.

- (1) a. Ken-wa ringo-o tabe-ta. Demo,
Ken-TOP apple-ACC eat-PAST but
'Ken ate an apple, but'
b. Masa-wa [e] tabe-na-katta. [Object drop]
Masa-TOP eat-NEG-PAST
Lit. 'Masa didn't eat [e].'
- (2) a. Ken-wa [natto-ga oisii to] omotteiru. Demo,
Ken-TOP natto-NOM delicious COMP think but
'Ken thinks that natto is delicious, but'
b. Masa-wa [[e] oisii to] omottei-nai. [Subject drop]
Masa-TOP delicious COMP think-NEG
Lit. 'Masa doesn't think that [e] is delicious.'

The Japanese sentence in (1b) contains a null object and is interpreted as 'Masa didn't eat an apple.' The English translation under (1b), on the other hand, only means that 'Masa didn't eat anything,' indicating that the verb *eat* serves as an intransitive verb and English does not allow the option of

the direct object of the transitive verb *eat* remaining unpronounced. Similarly, the embedded subject is empty in the Japanese sentence in (2b), whereas its English translation is just ungrammatical. These simple facts show that English and Japanese are different in terms of the distribution of null arguments.

Since Kuroda (1965), many researchers have analyzed null objects in Japanese as phonologically empty pronouns (*pro*) (see Hoji 1985, Saito 1985, among many others). A main argument for this view comes from the observation that null objects obey Condition B, as illustrated in (3a), just like an overt pronoun in English (3b).

- (3) a. * Taroo₁/Daremo₁-ga [e₁] hihansimasita.
 Taroo/everyone-NOM criticized
 ‘Taroo/Everyone criticized him.’
 b. * Taroo₁/Everyone₁ criticized him₁.

(Takahashi 2008a:308)

In out-of-blue contexts, (3a) is ungrammatical when the null object takes the subject *Taroo* or *daremo* ‘everyone’ as its antecedent. If the null object is an empty pronoun, (3a) is ruled out by Condition B, as the pronominal object is bound by the subject within the same clause. However, there are cases where the empty-pronoun analysis fails (cf. Xu 1986, Oku 1998). Consider the following examples.

- (4) a. Ken-wa [zibun-no kuruma]-o arat-ta.
 Ken-NOM self-GEN car-ACC wash-PAST
 Lit. ‘Ken washed self’s car.’
 b. Masa-mo [e] arat-ta.
 Masa-also wash-PAST
 ✓ Strict reading: Masa also washed Ken’s car.
 ✓ Sloppy reading: Masa also washed Masa’s car.
 c. Masa-mo sore-o arat-ta.
 Masa-also it-ACC wash-PAST
 Only the strict reading possible.

(4b) is ambiguous between a strict and a sloppy reading. Under the strict reading, (4b) means that Masa also washed Ken's car, while under the sloppy reading, it means that Masa also washed Masa's car. The availability of the sloppy reading is problematic for the empty-pronoun analysis as (4c), which has the overt pronoun *sore-o* in place of the empty object, is unambiguous: it only allows the strict reading.¹

¹ There are two potential issues involved in this argument. First, overt pronouns are sometimes capable of receiving the sloppy reading in English sentences like in (i).

- (i) The man who gave his paycheck_i to his wife was wiser than the man who gave it_i to his mistress.

(Karttunen 1969)

These pronouns are called 'paycheck pronouns' or 'pronouns of laziness.' If pronouns in principle can accommodate the sloppy reading, we might not have to assume another mechanism (ellipsis, for example) to account for the contrast in (4) (see e.g., Tomioka 1998, 2003).

Second, although the argument above crucially assumes that the null pronoun has the same interpretive properties as the overt counterpart, it is not necessarily the case. For example, it is probable that overt pronouns tend to be focussed or emphatic, because they have phonological content. Null pronouns, on the other hand, could be less focussed or emphatic, because they are phonologically null. Therefore, it might be the case that it is that contrast (i.e., focussed or not) that makes the difference in terms of the availability of the sloppy reading.

Given the potential problems above, it might be better to focus on syntactic properties, instead of interpretations, when we discuss whether null arguments should be analyzed as null pronouns or not. For example, it has been observed that the availability of the sloppy reading is subject to the parallelism constraint.

- (ii) a. Mary-wa [zibun-no kuruma]-ni not-ta.
 Mary-TOP self-GEN car-in ride-PAST
 Lit. 'Mary rode in self's car.'
- b. Demo, John-wa [e] nora-na-katta.
 but John-TOP ride-NEG-PAST
 Lit. 'But John did not ride [e].'
 ✓ Strict reading: 'But John did not ride Mary's car.'
 ✓ Sloppy reading: 'But John did not ride John's car.'
- (iii) a. Mary-wa [zibun-no kuruma]-o aratita.
 Mary-TOP self-GEN car-ACC wash-PAST
 'Mary washed her car.'
- b. Atode John-wa [e] not-ta.
 afterward John-TOP ride-PAST

The same pattern also holds when quantificational arguments are used as antecedents of null arguments (cf. Shinohara 2004, Takahashi 2008a).

- (5) a. Ken-wa [san-ko-no booru]-o ket-ta.
 Ken-TOP 3-CL-GEN ball-ACC kick-PAST
 ‘Ken kicked three balls.’
- b. Masa-mo [e] ket-ta.
 Masa-also kick-PAST
 Lit. ‘Masa also kicked [e].’
- c. Masa-mo sorera-o ket-ta.
 Masa-also them kick-PAST
 ‘Masa also kicked them.’

When anteceded by the quantificational object *san-ko-no booru* ‘three balls’ in (5a), the null object in (5b) can be interpreted as either ‘the same three balls that Ken kicked’ or ‘three balls (and the set of the balls that Masa kicked could be different from the set of the balls that Ken kicked).’² The latter interpretation, which is called a ‘quantificational reading’ in the literature, disappears in (5c) where the overt pronoun *sorera* ‘them’ is used in place of the null object, and the only interpretation available in (5c) is ‘Masa also kicked the same three balls that Ken

√ Strict reading: ‘Afterward, John rode in Mary’s car.’

* Sloppy reading: ‘Afterward, John rode in John’s car.’

(Neeleman and Szendrői 2007)

The availability of the sloppy reading in (iib) shows that PPs can be elided when their antecedents are also PPs. Although the verb *noru* ‘ride’ in (ii) takes a PP complement, the verb *arau* ‘wash’ in (iiia) takes an NP complement. Importantly, the sloppy reading is unavailable in (iiib), because the parallelism is not satisfied. Given the well-known assumption that ellipsis obeys the parallelism constraint, the unavailability of the sloppy reading suggests that the sloppy reading in Japanese null arguments comes from (argument) ellipsis, not from null pronouns.

² See Shinohara (2004) and Takahashi (2008a) for more examples and discussion regarding quantificational null arguments. In addition to the two interpretations presented here, there is another interpretation available in (5b), which is called an ‘indefinite reading’ (cf. Hoji 1998). Section 2.2.2 discusses the interpretations of quantificational null arguments in more detail.

kicked.’ Again, these facts indicate that the parallelism between null arguments and pronouns does not hold, and that null arguments in Japanese cannot be simply analyzed as a silent, phonetically null version of overt pronouns.³

Recent studies (e.g., Oku 1998, Kim 1999, Saito 2007, Takahashi 2008a) claim that the sloppy/quantificational reading in (4b)/(5b) results from ellipsis of arguments (AE), as illustrated in (6) and (7).^{4,5}

- (6) Masa-mo [~~zibun-no kuruma~~]-o arat-ta.
Masa-also self-GEN car-ACC wash-PAST
- (7) Masa-mo [~~san-ko-no booru~~]-o ket-ta.
Masa-also three-CL-GEN ball-ACC kick-PAST

Since the elided part has a full-fledged structure including the reflexive *zibun* and the quantificational expression *san-ko-no ball* ‘three balls,’ these sentences correctly obtain the sloppy/quantificational reading.⁶ Interestingly, it has been observed that the presence of null arguments in a language does not necessarily imply that AE is available in the language - that is, there exist languages that have null arguments, but not AE. Spanish is one of these languages, according to Oku (1998).

³ The same problems discussed in fn. 1 also hold for quantificational null arguments.

⁴ There are two major ways to implement ellipsis – LF-copy and PF-deletion. LF-copy (cf. Chung et al. 1995, Oku 1998) refers to the operation that antecedents of deletion are copied into ellipsis sites at the LF component. PF-deletion (cf. Merchant 2001), on the other hand, gives the PF interface instructions not to parse phonological features of elided materials. In this dissertation, I am not concerned with distinguishing between these two approaches, and simply adopt a version of PF-deletion without further discussion.

⁵ For non-elliptical approaches to the sloppy reading in Japanese null arguments, see, e.g., Hoji (1998) and Tomioka (2003).

⁶ Presumably, the strict reading is obtained by placing an empty pronoun *pro* in the object position.

- (8) a. María cree [que su propuesta será aceptada] y
 María believes that her proposal will-be accepted and
 ‘María₁ believes that her₁ proposal will be accepted and...’
 b. Juan también cree [que [e] será aceptada]⁷
 Juan too believes that will-be accepted
 Lit. ‘Juan also believes that [e] will be accepted’
 ✓ Strict reading, * Sloppy reading

(Oku 1998:305)

Although (8b) is grammatical in Spanish, it only has the strict reading. The sloppy reading is unavailable in (8b) unlike the Japanese example in (9b) where the embedded subject can be interpreted sloppily (i.e., as John’s paper).

- (9) a. Mary-wa [zibun-no ronbun-ga saiyo-sare-ru-to] omotteiru
 Mary-TOP self-GEN paper-NOM accept-PASS-PRES-COMP think
 ‘Mary₁ thinks that her₁ paper will be accepted’
 b. John-mo [[e] saiyo-sare-ru-to] omotteiru
 John-also accept-PASS-PRES-COMP think
 Lit. ‘John also thinks that [e] will be accepted’
 ✓ Strict reading, ✓ Sloppy reading

(Oku 1998:305)

The difference between Spanish and Japanese in terms of the availability of AE raises the following questions: (a) How do children learn the availability/absence of AE in their language?

⁷ Although Oku’s (1998) examples all employ the indicative mood, the sloppy reading is still absent with the subjunctive mood (José Riqueros Morante, p.c.).

- (i) a. Juan_i espera [que su_i gato atrape ratones], y
 Juan hope that his cat catch mice and
 ‘Juan hopes that his cat catches mice, and’
 b. Carlos también espera [que [e] atrape ratones]
 Carlos too hope that catch mice
 Lit. ‘Carlos also hopes that [e] catches mice.’ ✓ Strict reading, * Sloppy reading

(b) How is AE distributed cross-linguistically?⁸ This dissertation is an attempt to answer these questions both by presenting a novel analysis of the parameter of AE, corroborated with data from languages with object agreement, and by conducting experiments with Japanese-speaking children to test the predictions from the proposal.

1.2. Acquisition of Argument Ellipsis

As is evident, not every language allows AE. This means that children need to learn whether his/her language allows AE or not. Learning AE is not so straightforward for children, because positive evidence that directly indicates the availability/absence of AE in his/her language is virtually non-existent in child-directed speech (cf. Sugisaki 2009, see also Section 4.2). Just observing the distributional patterns of null arguments is not enough to see whether a language allows AE or not. What is necessary to (directly) learn AE is to see whether null arguments can accommodate the sloppy/quantificational reading. However, such direct positive evidence is not available to children.

Several proposals have been made to answer the question under the Principles and Parameters approach to Universal Grammar (cf. Chomsky 1981). All of the proposals share the idea that the availability/absence of AE is connected to other prominent grammatical properties that children can easily observe, and thus they do not need to learn AE by means of direct positive evidence. In other words, the availability/absence of AE is determined by a ‘parameter,’ which is assumed to be locus of language variation, and setting of which has multiple consequences for the grammar children are acquiring. For example, Japanese allows relatively free word order, as shown in (10).

⁸ These questions are still important even if ‘ellipsis’ as the account of the phenomenon turns out not to be the right account.

- (10) a. Ken-ga Masa-o home-ta.
 Ken-NOM Masa-ACC praise-PAST
 ‘Ken praised Masa.’
- b. Masa-o Ken-ga home-ta.
 Masa-ACC Ken-NOM praise-PAST
 ‘Ken praised Masa.’
- c. Ken-ga [Nobu-ga Masa-o home-ta to] it-ta.
 Ken-NOM Nobu-NOM Masa-ACC praise-PAST COMP say-PAST
 ‘Ken said that Nobu praised Masa.’
- d. Masa-o Ken-ga [Nobu-ga home-ta to] it-ta.
 Masa-ACC Ken-NOM Nobu-NOM praise-PAST COMP say-PAST
 ‘Ken said that Nobu praised Masa.’

In addition to the canonical SOV word order in (10a), Japanese allows the direct object *Masa-o* to be ‘scrambled’ in front of the subject. An object can even move across a clause boundary, as shown in (10d), where the embedded object moves in front of the matrix subject (cf. Saito 1992). Oku (1998) argues that the availability of AE is connected to the availability of free word order, which is easily observable to children.⁹ In other words, it is assumed that there is a parameter that determines both the availability of AE and the availability of free word order, and that setting of the parameter through the observation of word order automatically determines the availability of AE.

Another parametric proposal connects the availability of AE to the presence/absence of agreement (cf. Saito 2007, Takahashi, in press). Although, as shown in (11b), English exhibits subject-predicate agreement when a subject is ‘third person singular,’ Japanese does not show any subject-predicate agreement.

- (11) a. I play basketball every day.
 b. John plays basketball every day.

⁹ As discussed in Section 2.3.1, the availability of long-distance scrambling in (10d) is particularly important for Oku (1998). See also Section 2.4.2 for a potential learnability problem arising from Oku’s (1998) analysis.

Building upon Kuroda's (1988) insight that absence of agreement in Japanese has far-reaching consequences for the properties of the grammar of Japanese, Saito (2007) argues that the availability of AE in a language follows from the presence/absence of agreement.¹⁰ Again, children do not need to learn AE directly under this analysis: what is necessary for children to learn whether his/her language allows AE is the presence/absence of agreement.

I argue in this dissertation that these parametric proposals concerning AE are untenable on the grounds that they make undesirable predictions for both the acquisition of AE and the cross-linguistic distribution of AE. More specifically, considering the detailed mechanics of the parameters, it turns out that neither free word order nor presence/absence of agreement properly work as a trigger for the acquisition of AE. Furthermore, there exist certain numbers of languages that fall out of the predictions from the proposed parameters. For example, it will be reported in Section 2.4.2 that Serbo-Croatian does not allow AE even though its word order is relatively free as Japanese is. Also, it is reported by Simpson et al. (2013) that Hindi allows AE despite the presence of overt agreement between an elided argument and a predicate. These problems all indicate that previous parametric proposal for AE are insufficient, and a novel approach that will solve these problems, maintaining the explanatory power of the acquisition and cross-linguistic distribution of AE, is required.

1.3. The Main Proposal of the Dissertation

I propose in this dissertation that it is morphology of noun phrases that determines the availability of AE in a language. To be more precise, building on the work by Neeleman and Szendrői (2007), I argue that the distinction between fusional and agglutinating case morphology is a key factor to

¹⁰ See Section 2.3.2 for details of Saito's (2007) analysis. As we see in the section, 'agreement' in Saito's (2007) analysis crucially includes not only 'overt' morphological agreement, but also 'abstract' syntactic agreement.

understand the acquisition and the cross-linguistic distribution of AE.

It is well-known that noun phrases in Japanese are accompanied by case markers, as shown in (12).

- (12) Ken-ga Masa-ni Nobu-o syookai-si-ta.
Ken-NOM Masa-DAT Nobu-ACC introduction-do-PAST
'Ken introduced Nobu to Masa.'

In (12) the nominative marker *-ga*, the dative marker *-ni*, and the accusative marker *-o* are attached to the nouns. As is obvious in this simple example, cases in Japanese are 'agglutinating,' meaning that each case has its own morphological realization that is attached to noun phrases. Put differently, cases in Japanese are independent from other morphological properties such as person, number and gender.

This contrasts with cases in English. Although proper nouns in English do not exhibit morphological cases at all, personal pronouns change their forms in accordance with cases, as given in the personal pronoun paradigm in Table 1.1.

Table 1.1: English personal pronoun paradigm

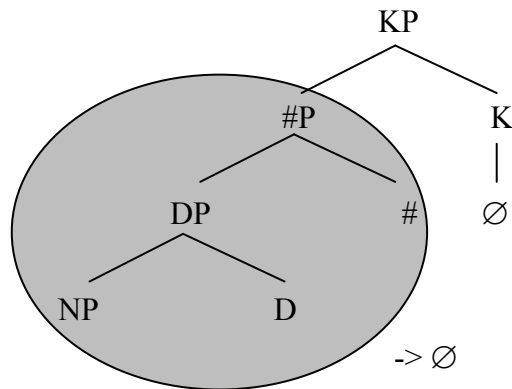
	Nominative	Accusative	Possessive
1st, SG	I	me	my
2nd, SG	you	you	your
3rd, SG, m	he	him	his
3rd, SG, f	she	her	her
1st, PL	we	us	our
2nd, PL	you	you	your
3rd, PL	they	them	their

What is different between English and Japanese in terms of case morphology is that English cases are 'fusional' in that their morphological realization are dependent on other morphological properties such as person and number. Therefore, unlike Japanese, it is impossible to single out

case morphemes from the paradigm in Table 1.1.

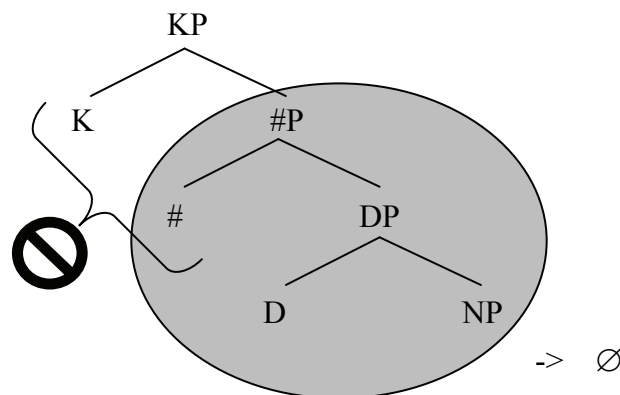
I argue that only languages that exhibit non-fusional, agglutinating case morphology allow AE. This generalization follows from the analysis that what is actually elided in AE is not an argument itself, but a complement of the functional category K(ase) (cf. Bittner and Hale 1996), as illustrated in (13).

(13) AE in Japanese



Combined with zero-pronunciation of K, which will be discussed in Section 2.5.5 in more detail, elision of the complement of K in effect yields AE. In languages with non-fusional case morphology such as Japanese, elision of the complement of K does not cause any problems. On the other hand, elision of the complement of K in languages with fusional case morphology yields a different outcome.

(14) AE in English



Given that fusional case morphology is the result of combining the K and # head in the morphological component, and that elided part constitutes an opaque domain for morphological processes, ellipsis of the complement of K in languages with fusional case morphology necessarily creates ill-formed configuration, as illustrated in (14). Therefore, AE is not allowed in languages with fusional case morphology.

It will be shown in this dissertation that the morphology-based analysis is better than the previous analyses in many respects. First, it makes better predictions than the previous analyses concerning the cross-linguistic distribution of AE. Second, as it turns out in Chapter 4, the morphology-based analysis makes better predictions for the acquisition of AE as well. Also, as discussed in Chapter 5, the morphology-based analysis, which eliminates cross-linguistic differences from narrow syntax, is consistent with the current Minimalist view that narrow syntax should not be the locus of language variation, and ‘parametrization and diversity, then, would be mostly – possibly entirely – restricted to externalization’ (Berwick and Chomsky 2011:37, see also Boeckx 2010 and Gallego 2011).

1.4. Outline of the Dissertation

In Chapter 2, I will first defend the position that AE is an indispensable operation for a certain number of languages such as Japanese. Specifically, it will be shown that neither phonetically null pronouns, *pros*, nor other types of ellipsis such as VP-ellipsis can explain the whole range of interpretations arising from null arguments in Japanese, and the operation that elides just arguments (i.e., AE) is necessary. Then, I will point out problems with the previous parametric proposals of AE, focusing in particular on Oku’s (1998) Scrambling Analysis and Saito’s (2007) Anti-agreement Analysis, and propose a novel analysis of the cross-linguistic distribution and acquisition of AE, centering on the relationship between AE and morphological properties of noun phrases.

Chapter 3 will address the question of whether agreement blocks AE. Although a previous study by Şener and Takahashi (2010) shows that subject-predicate agreement in Turkish blocks AE, in conformity with the prediction by the Anti-agreement analysis, I will point out some confounding factors related to lack of AE in subject positions in Turkish, and argue that we need to look at object agreement languages to understand the relationship between agreement and AE. Three languages with object agreement will be discussed: Hindi, Basque, and Kaqchikel Maya. It will turn out that agreement does not necessarily block AE, and that what determines the availability of AE is the morphology of noun phrases, supporting the proposal made in Chapter 2.

Chapter 4 will look at the acquisition of AE by Japanese-speaking children. The morphological analysis proposed in this dissertation, but not the previous parametric proposals by Oku (1998) and Saito (2007), predicts that AE is acquired very early, despite the fact that direct positive evidence for the availability of AE is virtually non-existent in child-directed speech. More specifically, given the fact that Japanese-speaking children acquire case markers quite early (cf. Matsuoka 1998), the current morphology-based analysis predicts that pre-school children will have access to the sloppy/quantificational reading, which is regarded as an indication of ellipsis.¹¹ To test the ‘Prediction of Earliness’ (cf. Snyder 2007), I conducted three experiments with Japanese-speaking children aged four to six. Importantly, these experiments are different from the previous studies by Sugisaki (2007, 2009b) in that the sloppy/quantificational reading is separated from an indefinite interpretation of null arguments (cf. Hoji 1998), which

¹¹ This prediction holds only when there are not other prerequisites for the acquisition of AE. The theory put forth in this dissertation assumes that the availability of AE in a language directly follows from morphology of its nominal phrases, and that children do not have to learn anything other than morphology of nominal phrases to acquire AE.

Note, importantly, that the ‘tests’ for the availability of AE, not AE itself, involve knowledge other than AE. For example, the sloppy reading, which is often used as the indication of AE in this dissertation, involves variable binding, and knowledge of variable binding is necessary to correctly get the sloppy reading.

would confound the availability of AE in child language.

As concluding remarks, some theoretical consequences of the proposal made in this dissertation will be discussed in Chapter 5. Specifically, it will be discussed how generative grammar has tried to capture language variation, and how the proposal to be made in this dissertation contributes to the understanding of the recent approach to language variation, which attempts to eliminate language variation from narrow syntax (Berwick and Chomsky 2011, Boeckx 2010, Gallego 2011). In addition, a possibility of unifying Radical Pro Drop (cf. Neeleman and Szendrői 2007) and AE will be also pursued.

CHAPTER 2: ARGUMENT ELLIPSIS ARISING FROM NON-FUSIONAL CASE MORPHOLOGY

2.1. Introduction

This chapter explores a novel approach to the cross-linguistic distribution of AE. In the first few sections, I defend the position that AE is an indispensable operation of grammar (at least for some languages like Japanese). The existence of AE is not self-evident, because the same effects might be obtained through other grammatical devices that have been already assumed. It is shown in this chapter that the whole range of interpretations arising from null arguments in Japanese cannot be explained either by phonologically empty pronouns, *pros*, or by other types of deletion operations such as VP-ellipsis. These facts lead us to conclude that a limited range of languages have an option of eliding only arguments (AE). The next question to be addressed is what kind of languages allows for AE. I discuss two previous studies concerning the parameter of AE – the Scrambling Analysis by Oku (1998), and the Anti-agreement Analysis by Saito (2007), and show that these two analyses make wrong predictions for the cross-linguistic distribution and acquisition of AE. Then, I propose a novel approach to the cross-linguistic distribution of AE, arguing that only languages that exhibit non-fusional nominal morphology allow AE. The new way of understanding AE makes better predictions for both the cross-linguistic distribution and acquisition of AE than the two previous analyses.

2.2. Pro and Ellipsis

Before addressing the cross-linguistic distribution of AE, I would like to clarify why certain null arguments need to be analyzed as ‘elided arguments,’ instead of phonologically empty pronouns (i.e., *pros*) or other types of ellipsis (such as VP-ellipsis). First, I show in this section that certain null arguments cannot be analyzed as either phonologically empty definite pronouns (*pro_{def}*) or phonologically empty indefinite pronouns (*pro_{indef}*). These facts lead us to conclude that assuming phonologically empty pronouns is insufficient to account for the whole range of interpretations arising from null arguments, and that the mechanism that allows arguments to be elided is necessary.

2.2.1. Not *Pro_{def}*

The argument against the *pro_{def}* analysis comes from the lack of Condition B effect (cf. Chomsky 1981) that certain null arguments show. The sentence in (15) shows that, when it is uttered in out-of-blue contexts, the personal pronoun *kare* ‘he’ induces a Condition B violation, hence the obligatory disjoint reference between the pronoun and the c-commanding antecedent *Masa*.

- (15) *Masa*₁-wa *kare*_{*1/2}-o home-ta.
Masa-TOP he-ACC praise-PAST
Lit. ‘*Masa*₁ praised him_{*1/2}.’

Just like the overt definite pronoun in (15), the null argument in (16) cannot co-refer with the subject.

- (16) *Masa*₁-wa [*e*_{*1/2}] home-ta.
Masa-TOP praise-PAST
Lit. ‘*Masa*₁ praised [*e*_{*1/2}].’

Although the interpretive parallelism between the overt definite pronoun in (15) and the null argument in (16) appears to support the *pro*_{def} analysis, there are cases where the *pro*_{def} analysis fails (cf. Xu 1986, Oku 1998, Kim 1999). Consider the sentences in (17):

- (17) a. Masa₁-wa zibun₁-o home-ta.
 Masa-TOP self-ACC praise-PAST
 Lit. ‘Masa₁ praised self₁.’
 b. Ken₂-mo [*e*_{1/2}] home-ta.
 Ken-also praise-PAST
 Lit. ‘Ken₂ also praised [*e*_{1/2}].’
 c. Ken₂-mo kare_{1/*2}-o home-ta.
 Ken-also he-ACC praise-PAST
 Lit. ‘Ken₂ also praised him_{1/*2}.’

As we saw in Chapter 1, the sentence in (17b) is ambiguous between a strict and a sloppy reading. While the strict reading (i.e., ‘Ken also praised Masa’) is expected under the *pro*_{def} analysis, the sloppy reading (i.e., ‘Ken also praised himself’) is not, as (17c), which has an overt definite pronoun in place of the null argument, is unambiguous: it only allows for the strict reading.¹² In other words, the null argument in (17b) somehow obviates the Condition B violation, unlike the overt definite pronoun in (17c). These facts suggest that certain null arguments do not fall into null definite pronouns, which are considered to be subject to Condition B.

Importantly, the presense of the linguistic antecedent in (17a) opens the possibility of the sloppy reading in (17b). In contrast, as Takahashi (2008b) reports, contextual (i.e., not linguistically overt) antecedents do not license the sloppy reading.

¹² See fn.1 for potential problems of the argument.

- (18) [Watching a boy hitting himself]
 Taroo: Hanako-mo [e] tataku daroo.
 Hanako-also hit will
 Lit. ‘Hanako will hit [e], too.’

Though the fact is not so clear-cut, the sentence in (18) does not have the sloppy interpretation ‘Hanako will hit herself, too.’ These facts suggest that linguistic antecedents are necessary to get the sloppy reading, which would be totally unexpected if the null argument were exclusively analyzed as *pro*_{def}.

2.2.2. Not *Pro*_{indef}

It is shown in the previous section that *pro*_{def} cannot explain the whole range of data concerning the interpretation of null arguments. However, showing that certain null arguments do not fall into *pro*_{def} is still insufficient to argue against the pronoun-oriented approach. Hoji (1998) claims that null arguments such as in (19b) should be analyzed as phonologically empty indefinite *pros*, arguing against the ellipsis analysis.

- (19) a. Masa-wa [zibun-no kuruma]-o arat-ta.
 Masa-TOP self-GEN car-ACC wash-PAST
 Lit. ‘Masa washed self’s car.’
 b. Ken-mo [e] arat-ta.
 Ken-also wash-PAST
 Lit. ‘Ken also washed [e].’

Hoji (1998) argues that what has been considered as the sloppy reading in (19b) is actually a ‘sloppy-like’ reading arising from indefinite interpretations of empty *pros*. More specifically, he reports that (19b) can be followed by (20), which indicates that the null object in (19b) can be

interpreted as a phonologically empty indefinite NP.¹³

- (20) Dare-no kuruma(da)-ka siranai kedo.
 who-GEN car(copula)-Q not.know but
 ‘But I don’t know whose car (he washed).’ (Hoji 1998:143)

Also, Jonathan Bobaljik (p.c.) points out that the English indefinite pronoun *one* in the example (21b) is three-way ambiguous, allowing the strict, sloppy, and indefinite reading.¹⁴

- (21) a. John washed a car of his, and
b. Bill washed one, too.

This suggests that indefinite pronouns can accommodate the sloppy reading. Based on this, proponents of the pronoun-oriented approach might say that both definite and indefinite pronouns can be null in languages like Japanese, and there is no need to assume AE independently.¹⁵

¹³ Hoji (1998) attributes this observation to Ayumi Ueyama (p.c.). The gloss of (20) has been added by the present author.

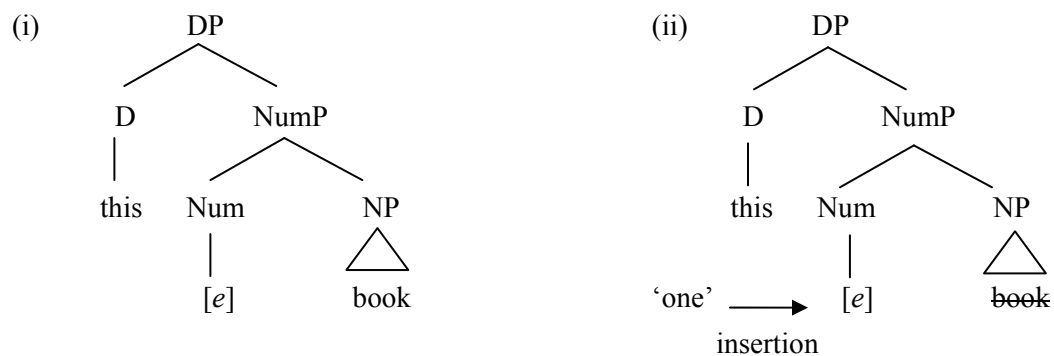
¹⁴ Since the English indefinite pronoun *one* is assumed to replace N', or NP (under the DP hypothesis), the 'of-phrase possessor,' instead of the ordinary possessor phrase *his car*, is used in (21a).

¹⁵ In fact, the grammar of the indefinite pronoun *one* is closely intertwined with ellipsis. For example, assuming the nominal structure in (i), Llobert-Huesca (2002) argues that *one* is inserted to the Number head as the result of NP-ellipsis. More specifically, in line with the analyses of *do*-support proposed by Halle and Marantz (1993), Bobaljik (1994), and Lasnik (1995), Llobert-Huesca (2002) claims that the Number head is an affix, and *one* is inserted to the Number head to support the stranded Number head when the complement NP is elided by NP-ellipsis, as illustrated in (ii).

However, as originally observed by Shinohara (2004) and developed later by Takahashi (2008a), null arguments in Japanese allow a wider range of interpretations than indefinite pronouns. Consider the examples in (22) below:

- (22) a. Masa-wa [san-ko-no booru]-o ket-ta.
 Masa-TOP 3-CL-GEN ball-ACC kick-PAST
 ‘Masa kicked three balls.’
- b. Ken-mo [e] ket-ta.
 Ken-also kick-PAST
 Lit. ‘Ken also kicked [e].’

In (22b) the direct object, which is anteceded by the quantificational expression *san-ko-no booru* ‘three balls,’ is not pronounced. It has been observed that (22b) allows various interpretations. First, it can mean that Ken also kicked all three balls that Masa kicked. Following Takahashi (2008a), I call this an *E-type* reading, because the null object under this interpretation functions just like what is called an E-type pronoun in the literature (cf. Evans 1980). The second reading is what I call an *indefinite* reading, in which Ken also kicked balls (irrespective of the number of



It is important to note that, even though some theoretical proposals on the indefinite pronoun *one* involve ellipsis, they are different from AE in that ellipsis is applied to the exclusion of number specification. AE, on the other hand, elides a whole argument including number specification. This difference is crucial; it is predicted that AE makes it possible to have a quantificational reading (see discussion below), while indefinite pronouns does not. See also Culicover and Jackendoff (2005) for data against the deletion approach of anaphoric *one* and the analysis of the anaphoric *one* on a par with *do so* anaphora.

the balls that he kicked) (cf. Hoji 1998). In addition to these readings, (22b) has a third reading called the *quantificational* reading, where Ken also kicked three balls (and the set of the balls that Ken kicked is different from the set of balls that Masa kicked). The difference between the indefinite reading and the quantificational reading becomes clearer in a negative context.

- (23) a. Masa-wa [san-ko-no booru]-o ket-ta.
 Masa-TOP 3-CL-GEN ball-ACC kick-PAST
 ‘Masa kicked three balls.’
 b. Demo, Ken-wa [e] kera-na-katta.
 but Ken-also kick-NEG-PAST
 Lit. ‘But, Ken did not kick [e].’

The sentence in (23b) can be true in the situation where Ken only kicked two balls that are different from the balls that Masa kicked. On the other hand, the indefinite reading makes (23b) false: if the null object in (23b) is interpreted as an indefinite NP ‘a ball,’ the sentence means that ‘but, Ken did not kick any ball,’ which is not consistent with the given situation.¹⁶

Although the E-type reading and the indefinite reading can be obtained by *pro*_{def} and *pro*_{indef}, respectively, neither of the null pronouns can explain the availability of the quantificational reading. Shinohara (2004) and Takahashi (2008) argue that the quantificational reading results from AE, as illustrated in (24).

- (24) a. Masa-wa [san-ko-no booru]-o ket-ta.
 Masa-TOP 3-CL-GEN ball-ACC kick-PAST
 ‘Masa kicked three balls.’
 b. Ken-mo [~~san-ko-no booru~~]-o ket-ta.
 Ken-also 3-CL-GEN ball-ACC kick-PAST

¹⁶ There is another interpretation in which the NP takes wider scope over negation (meaning that ‘it is a ball/some balls that Ken did not kick’) (cf. Goro 2007). The point here is that the ‘exactly three, but maybe different’ reading can be obtained only by the quantificational reading.

The representation in (24b) indicates that the full-fledged object, which is anteceded by the object in (24a), is present in narrow syntax, but it is not pronounced due to AE. Since the quantificational expression *san-ko* ‘three’ is available at the interpretive component, this approach naturally explains the availability of the quantificational reading.

Another problem for the pronoun-oriented approach is that categories other than NPs can be elliptical. For example, (25a) is a cleft construction in which the presupposition CP includes the anaphor *zibun*. (25b) shows that the presupposition CP can be elided. Saito (2004) argues that a presupposition CP in a cleft construction can be elided by AE, on the ground that the elided presupposition allows the sloppy reading.

- (25) a. Masa-wa [[*zibun-no musuko-ga kayotteiru-no*]-wa MIT-da]-to it-ta.
 Masa-TOP self-GEN son-NOM attend-COMP-TOP MIT-COP-COMP say-PAST
 ‘Masa said that it was MIT that his son was attending.’
 b. Ken-wa [[e] Harvard-da]-to it-ta.
 Ken-TOP Harvard-COP-COMP say-PAST
 Lit. ‘Ken said that it was Harvard that [e].’
 c. Ken-wa [[sore]-wa Harvard-da]-to it-ta.
 Ken-TOP it-TOP Harvard-COP-COMP say-PAST

(25b) can mean that ‘Ken said that it was Harvard that Ken’s son was attending,’ whereas (25c), which has an overt pronoun instead of the elided presupposition CP, only allows the strict reading meaning ‘Ken said that it was Harvard that Masa’s son was attending.’ Importantly, neither *pro*_{def} nor *pro*_{indef} can account for the availability of the sloppy reading in (25b). As shown in (25c), *pro*_{def} predicts that (25b) only allows for the strict reading, contrary to the fact. Also, the elided presupposition CP cannot be replaced with *pro*_{indef}, because generally presuppositions take the form of propositions, and it is hard to believe that English *one*, for example, functions as a proposition.^{17,18}

¹⁷ I am not arguing that there are no pro-propositions. For example, *so* in English can replace CPs/propositions, as shown below.

(i) a. Mary said her son goes to Yale, and Liz said so too.

b. Michelle thinks that her husband will win, and Ann thinks so too. (Jonathan Bobaljik, p.c.)

Japanese also has *soo*, which, just like English *so*, is considered to replace CPs/propositions.

(ii) a. Hanako-wa [_{CP} [zibun-no musuko]-ga Yale-ni kayotteiru-to] it-ta.
 Hanako-TOP self-GEN son-NOM Yale-DAT attend-COMP say-PAST
 Lit. 'Hanako said that self's son goes to Yale.'

b. Toshiko-mo soo it-ta.
 Toshiko-also so say-PAST
 'Toshiko said so, too.'

Importantly, a sloppy reading is available in these examples. Given those facts, one might claim that the null CPs discussed here are a phonologically null version of the pro-propositions.

However, some null CPs can occur in the positions where pro-propositions are not allowed. Consider the examples below:

(iii) a. Masa-wa [_{CP} [zibun-no ronbun]-o syuppansuru-kadooka] mayotteiru.
 Masa-TOP self-GEN paper-ACC publish-whether wonder
 'Masa is wondering whether he should publish his paper.'

b. Demo, Ken-wa moo [_{CP} [zibun-no ronbun]-o syuppansuru-kadooka] kime-ta.
 but Ken-TOP already self-GEN paper-ACC publish-whether decide-PAST
 'But, Ken already decided whether he should publish his paper.' Sloppy possible

c. Demo, Ken-wa moo [e] kime-ta.
 but Ken-TOP already decide-PAST
 Lit. 'But, Ken has already decided [e].' Sloppy possible

d.*Demo, Ken-wa moo soo kime-ta.
 but Ken-TOP already so decide-PAST
 'But, Ken has already decided so.'

In (iiic) it is possible to elide *whether*-clauses in Japanese. However, if *soo* is used in place of the null CP, the sentence becomes ungrammatical, as in (iiid). These facts suggest that the phonologically null version of the pro-propositions is still insufficient to explain the distribution of null CPs, and we need a mechanism to elide CPs to explain sentences such as (iiic).

¹⁸ Also relevant is the fact that infinitives in German can be replaced with the pronoun *es* 'it' (Wurmbrand 2001:257-258). Interestingly, Wurmbrand (2001:258) observes that, unlike the Japanese pro-proposition *sore* 'it' in (25c), the sloppy reading is generally possible with the pro-proposition *es*, while the strict reading is rather restricted - it is unavailable with obligatory control predicates, as shown in (ib). (Wurmbrand (2001) also reports that the strict reading is still unavailable even when obligatory control predicates are used in the antecedent.)

To sum up, I showed that the pronoun-oriented approach that assumes *pro*_{def} or *pro*_{indef}, or both, is still insufficient to account for the wide range of interpretations arising from null arguments. The AE approach, on the other hand, naturally explains the problems of the Condition B effect, the quantificational reading, and ellipsis of non-NP categories, which are considered to be serious problems for the pronoun-oriented approach.

2.2.3. Not VP-ellipsis

This section takes up another confounding factor for the existence of AE. Otani and Whitman (1991) claim that the null object construction in Japanese can be analyzed on a par with English VP-ellipsis, as in (26).

(26) John threw out his letters. Mary did [_{VP} *e*] too.

(Otani and Whitman 1991:348)

The sentence in (26) has both a strict and a sloppy reading: it can mean that Mary threw out

(i) a. *Antecedent: Non-obligatory control, 'it': Non-obligatory control*

Hans beschloß/plante/bot an zu heiraten nachdem Peter es angekündigt hatte.

John decided/planned/offered to get married after Peter it announced had

‘John decided/planned/offered to get married after Peter had announced that he, Peter, would get married.’

‘John decided/planned/offered to get married after Peter had announced that John would get married.’

b. *Antecedent: Non-obligatory control, 'it': Obligatory control*

Hans beschloß/plante/bot an zu heiraten nachdem Peter es gewagt hatte.

John decided/planned/offered to get married after Peter it dared had

‘John decided/planned/offered to get married after Peter had dared that he, Peter, would get married.’

* ‘John decided/planned/offered to get married after Peter had dared that John would get married.’

John's letters, or that Mary threw out Mary's letters. The fact that the null object construction in Japanese shows the same ambiguity as the English VP-ellipsis construction leads Otani and Whitman (1991) to conclude that VP-ellipsis should be involved in the Japanese null object construction in (27b), as illustrated in (28).

- (27) a. John-wa zubun-no tegami-o sute-ta.
John-TOP self-GEN letter-ACC discard-PAST
Lit. 'John threw out self's letters.'
- b. Mary-mo [e] sute-ta.
Mary-also discard-PAST
Lit. 'Mary also threw out [e].'

- (28) Mary-mo [_{NP} [_{NP} zibun-no tegami-o] _{t_M}] [_V sute]-[_I ta].

In (28) the verb *sute* ‘discard’ moves overtly to the higher functional head I, and then the remnant VP gets elided. If all of the data concerning the null object construction could be accounted for by VP-ellipsis, there would be no need to assume AE independently.

However, there are at least three cases where the VP-ellipsis analysis fails. First, Oku (1998) observes that the Japanese sentence in (29b) has a different interpretation than the English VP-ellipsis sentence in (30b): although the preferred interpretation in (30b) is ‘John did wash the car but not in a careful manner,’ it is quite difficult to get such an interpretation in the Japanese null object construction in (29b): the most natural interpretation is ‘John did not wash the car at all.’¹⁹

¹⁹ The difference between Japanese and English in terms of adverbial interpretation is also supported by Monou's (2010) behavioral experiment. Using the picture judgment task, Monou (2010) investigated how adult speakers of English and Japanese interpret sentences such as (i).


(i) a. Taro-wa hon-o sizukani yon-da ga
Taro-TOP book-ACC quietly read-PAST but

- (29) a. Bill-wa kuruma-o teineini aratita.
 Bill-TOP car-ACC carefully wash-PAST
 ‘Bill washed the car carefully.’
 b. John-wa [e] arawa-nakat-ta.
 John-TOP wash-NEG-PAST
 Lit. ‘John didn’t wash [e].’

- (30) a. Bill washed the car carefully, but
 b. John didn’t.

(Oku 1998:304)

Suppose that (29b) results from VP-ellipsis with the structure in (31).

- (31) [TP John-wa [_{VP} [_{NP} kuruma-o] [_{ADV} teineini] ~~t_v~~] arawa-nakat-ta]
- 

If the null object construction in Japanese is similar to the VP-ellipsis construction in English, the Japanese sentence in (29b) should have the same interpretation as the English sentence in (30b), because the adverb *teineini* ‘carefully’ must be included within the elided VP. Based on the fact that (29b) and (30b) have different interpretations, Oku (1998) concludes that the null object construction in Japanese has a different grammatical basis from English VP-ellipsis: it is better analyzed as AE.

Suzuki-san-wa [e] yoma-na-katta.
 Suzuki-TOP read-NEG-PAST
 Lit. ‘Taro read the book quietly, but Mr. Suzuki didn’t read [e].’

- b. Taro read the book quietly, but Mr. Suzuki didn’t.

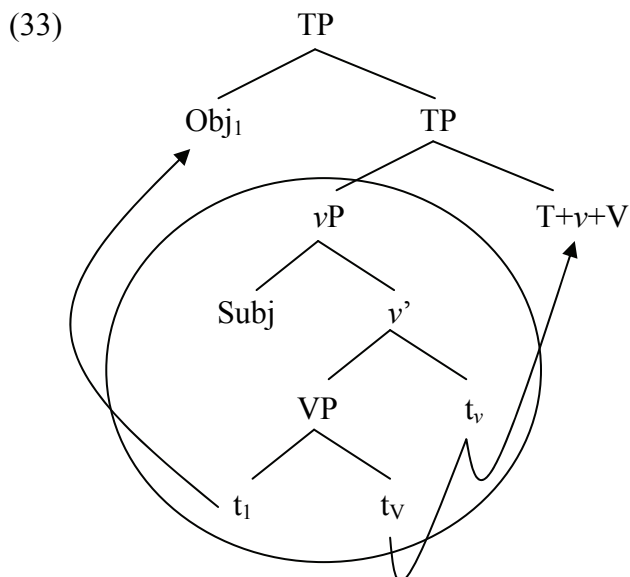
She found that, while adult native speakers of English, when given the sentence in (ib), accepted a picture in which Mr. Suzuki is reading a book not in a quiet manner 100% of the time (40/40), adult native speakers of Japanese, when given the sentence in (ia), accepted the same picture only 7.5% of the time (3/40). These results suggest that there is a sharp contrast between English and Japanese speakers in terms of adverbial interpretations, and that there should be some grammatical basis that is responsible for the difference.

The second argument against the VP-ellipsis analysis comes from the fact that not only null objects but also null subjects can be elided in Japanese. Oku (1998) reports the following sentences involving null subjects.

- (32) a. Mary-wa [zibun-no ronbun-ga saiyo-sare-ru-to] omotteiru
 Mary-TOP self-GEN paper-NOM accept-PASS-PRES-COMP think
 ‘Mary_i thinks that her_i paper will be accepted’
- b. John-mo [[e] saiyo-sare-ru-to] omotteiru
 John-also accept-PASS-PRES-COMP think
 Lit. ‘John also thinks that [e] will be accepted’
- (Oku 1998:305)

Importantly, (32b) can have both the strict and sloppy interpretation. Given that VP-ellipsis normally targets VP to the exclusion of subjects, it is questionable to assume that the null subject in (32b) is the result of VP-ellipsis.

However, given Kuroda’s (1988) assumption that subjects in Japanese can stay within VP due to the absence of obligatory agreement between T and subject NPs, it is technically possible to derive the effect of subject ellipsis by means of VP-ellipsis. Let us consider the following configuration:



In (33) everything except the subject moves out of ν P by object scrambling and head movement. The application of ν P-ellipsis thus yields the effect of apparent subject ellipsis exactly in the same manner as V-stranding VP-ellipsis.

This line of account, treating subject ellipsis as ν P-Ellipsis, is pursued by Shimamura (2013). Shimamura (2013) argues that subject ellipsis does not exist, and that apparent subject ellipsis effects should result from the derivation in (33). Consider the examples in (34) from Shimamura (2013):

- (34) a. [Iti-kumi-no dansi]₁-ga sannin-ijoo [[soitu₁-no tomodati]-ga
 1-class-GEN boy-NOM three-more.than he-GEN friend-NOM
 umaku eigo-o hanaseru to] itta.
 well English-ACC can.speak that said
 Lit. ‘[More than three boys in class 1]₁ said that his₁ friend could speak English well.’
- b. Ni-kumi-no dansi-mo sannin-ijoo [[e]
 2-class-GEN boy-also three-more.than
 umaku eigo-o hanaseru to] itta.
 well English-ACC can.speak that said
 Lit. ‘More than three boys in class 2 also said that [e] could speak English well.’ (*pro* / ?*Bound variable)

Shimamura (2013) predicts that subject ellipsis should be disallowed if an object stays inside the ν P, because object scrambling out of the ν P is a necessary condition for the derivation in (33). In the sentences in (34), the adverb *umaku* ‘well,’ which is standardly taken to demarcate the left edge of the ν P, is placed in front of the object *eigo-o* ‘English-ACC’ to ensure that the object stays inside the ν P. Interestingly, Shimamura (2013) observes that the sentence in (34b), where the embedded subject is unpronounced, does not allow the bound variable interpretation. Given that the antecedent of the null subject contains the bound pronoun *soitu* ‘he,’ the AE approach cannot explain why the bound variable interpretation is not available in (34b). On the other hand, lack of the bound variable interpretation in (34b) is expected under the ν P-ellipsis approach: since the

object stays within the ν P, the derivation in (33) is not applicable, resulting in the absence of the subject ellipsis effect.

I agree with Shimamura (2013) that it is hard to obtain the bound variable interpretation in (34b). I think, however, that there is a confounding factor with respect to the lack of the bound variable interpretation, and it is too early to conclude that subject ellipsis does not exist on the basis of these facts. Note that even when the adjunct is not placed in front of the object, as shown in (35), the bound variable interpretation is still impossible.

- (35) a. [Iti-kumi-no dansi]₁-ga sannin-ijoo [[soitu₁-no tomodati]-ga
 1-class-GEN boy-NOM three-more.than he-GEN friend-NOM
 eigo-o hanaseru to] itta.
 English-ACC can.speak that said
 Lit. ‘[More than three boys in class 1]₁ said that his₁ friend could speak English well.’
- b. Ni-kumi-no dansi-mo sannin-ijoo [[e]
 2-class-GEN boy-also three-more.than
 eigo-o hanaseru to] itta.
 English-ACC can.speak that said
 Lit. ‘More than three boys in class 2 also said that [e] could speak English well.’ (*pro* / ?*Bound variable)

The only difference between (35) and Shimamura’s (2013) examples is that there is no ν P adverb in front of the embedded object in (35). The absence of the bound variable interpretation in (35b) is not expected by Shimamura (2013), because the derivation in which the object moves out of the ν P and the remnant ν P including the subject is elided should be available in (35b). It seems that the source of the absence of the bound variable interpretation does not lie in the unavailability of subject ellipsis, but in the use of the bound variable itself. For example, it is not difficult to construct a sentence in which the quantificational reading is available in the same situation as Shimamura’s (2013) example.

- (36) (Context: English is the most popular foreign language in University A and French is the most popular foreign language in University B.)
- a. A-daigaku-de-wa [hyaku-nin ijoo-no gakusei-ga eigo-o
 A-university-in-TOP 100-CL more.than-GEN student-NOM English-ACC
 umaku hanasu to] iwareteiru.
 well speak that it.is.said
 ‘It is said that in University A more than 100 students speak English well.’
- b. B-daigaku-de-wa [[e] umaku furansugo-o
 B-university-in-TOP well French-ACC
 hanasu to] iwareteiru.
 speak that it.is.said
 Lit. ‘It is said that in University B [e] speak French well.’

It is not difficult to obtain the quantificational reading in (36b), even though the embedded object *furansugo-o* ‘French-ACC’ follows the *vP* adverb *umaku* ‘well.’ This is not expected under Shimamura (2013), as the presence of the *vP* internal object should exclude the possibility of deriving the effect of subject ellipsis through the derivation in (33). Thus, I think that Shimamura’s (2013) argument against subject ellipsis is still inconclusive, and that if there exists a case where the effect of subject ellipsis cannot be derived via *vP*-ellipsis, the approach that assumes AE should be preferred.

Sakamoto (2013) provides an elegant argument that there are examples of subject ellipsis that cannot be obtained via the derivation in (33). Specifically, he looks at cases where null arguments are anteceded by disjunctive elements.

- (37) a. Yamada sensei-wa [[Kanako ka Ayaka]-ga eigo-o
 Yamada teacher-TOP Kanako or Ayaka-NOM English-ACC
 hanasa-nai to] omotteiru.
 speak-NEG COMP think
 ‘Prof. Yamada thinks that Kanako or Ayaka does not speak English.’
 [subj > neg / *neg > subj]

- b. Tanaka sensei-wa [[e] furansugo-o
 Tanaka teacher-TOP French-ACC
 hanasa-nai to] omotteiru.
 speak-NEG COMP think
 Lit. ‘Prof. Tanaka thinks that [e] does not speak French.’
 [subj > neg / *neg > subj]

Note that the disjunction *-ka* in Japanese is a positive polarity item in that it is always interpreted outside the scope of negation (cf. Goro 2007). The disjunctive subject *Kanako ka Ayaka* ‘Kanako or Ayaka’ thus takes scope over negation in (37a), meaning that Prof. Yamada thinks that either Kanako or Ayaka does not speak English. Given the standard assumption that negation is located above *vP*, the fact indicates that the disjunctive subject occupies a position outside of *vP*, (presumably Spec TP).

Sakamoto (2013) observes that the null argument in (37b) can have a disjunctive interpretation, and argues that the availability of the disjunctive interpretation cannot be explained by simply positing a null pronoun, on the basis of the fact that pronouns cannot be interpreted disjunctively, as shown in (38).²⁰

- (38) a. Prof. Yamada thinks that **Kanako or Ayaka** speaks English.
 b. Prof. Tanaka thinks that **she** speaks French. (*disjunctive reading)
 (Sakamoto 2013)

The pronoun *she* is only interpreted as the person Prof. Yamada thinks speaks English (the disjunctive E-type reading, cf. Simons 1996, 2001).²¹ The availability of the disjunctive

²⁰ There remains the possibility that the disjunctive reading found in the Japanese example (37b) results from a null indefinite expression such as *one of them*. In fact, if we change the definite pronoun *she* in (38b) into the indefinite expression *one of them*, the disjunctive reading then becomes available (Jonathan Bobaljik, p.c.).

(i) Prof. Tanaka thinks that **one of them** speaks French. (OK disjunctive reading)

²¹ The Japanese counterpart of (38b) also makes the same point: the pronoun *kanojo* ‘she’ in (ib) below cannot be interpreted disjunctively.

interpretation in (37b) thus indicates that some sort of ellipsis is involved.

Sakamoto (2013) further observes that the disjunctive null subject in (37b) obligatorily takes scope over negation. This means that the null subject occupies a position outside of *vP*, excluding the possibility that it is obtained by means of V-stranding VP-ellipsis as illustrated in (33) above. Therefore, Sakamoto's (2013) examples of null disjunctive arguments provide strong support for the claim that V-stranding VP-ellipsis cannot explain a whole range of data concerning the interpretations of null arguments in Japanese, and that a mechanism that elides just arguments (AE) is indispensable.

Lastly, as Goldberg (2005) discusses at length, V-stranding VP-ellipsis obeys the Verbal Identity Requirement, which states that verbs used in an antecedent and a target clause of V-stranding VP-ellipsis must be isomorphic. For example, the Hebrew sentence in (39) is ungrammatical, because the verb used in the antecedent clause (*hevi'a* 'bring') and the one used in the target clause (*lakza* 'take') are different.

-
- (i) a. Yamada sensei-wa [[**Kanako** **ka** **Ayaka**]-ga eigo-o
 Yamada teacher-TOP Kanako or Ayaka-NOM English-ACC
 hanasu to] omotteiru.
 speak COMP think
 'Prof. Yamada thinks that **Kanako or Ayaka** speaks English.'
- b. Tanaka sensei-wa [**kanojo**-ga furansugo-o
 Tanaka teacher-TOP she-NOM French-ACC
 hanasu to] omotteiru.
 speak COMP think
 'Prof. Tanaka thinks that **she** speaks French. (*disjunctive reading)

- (39) a. (Ha'im) Miryam hevi'a et Dvora la-xanut?
 Q Miryam bring[PAST.3F.SG] ACC Dvora to.the-store
 ' (Did) Miryam bring Dvora to the store?'
- b. Ken, hi hevi'a.
 yes she bring[PAST.3F.SG]
 Lit. 'Yes, she brought [~~Dvora to the store~~].'
- c. * Ken, hi lakxa.
 yes she take[PAST.3F.SG]
 Lit. 'Yes, she took [~~Dvora to the store~~].'

(Goldberg 2005:160)

If the null object construction in Japanese results exclusively from V-stranding VP-ellipsis, it is predicted that it will also show the Verbal Identity Requirement. However, the prediction is not borne out.

- (40) a. Masa-wa zibun-no musuko-o home-ta.
 Masa-TOP self-GEN son-ACC praise-PAST
 Lit. 'Masa praised self's son.'
- b. Ken-wa [e] sikat-ta.
 Ken-TOP scold-PAST
 Lit. 'Ken scolded [e].'

Even though different verbs are used in the antecedent sentence (40a) and the target sentence (40b), the latter sentence can still have the sloppy reading meaning 'Ken scolded Ken's son.' The interpretation of quantificational null objects makes the same point.

- (41) A-sya-wa (kotosi) [juu-nin-no syain]-o saiyoosi-ta ga,
 A-company-TOP this.year 10-CL-GEN employee-ACC employ-PAST but
 B-sya-wa [e] kaikosi-ta.
 B-company-TOP fire-PAST
 Lit. 'A-company employed 10 company staff this year, but B-company fired [e].'

The availability of the sloppy/quantificational reading in (40b) and (41) would be unexpected, if

VP-ellipsis were the unique source for the sloppy/quantificational reading in the null object construction. One reasonable possibility to account for the availability of the sloppy/quantificational reading in (40b) and (41) is to elide only the object by means of AE, as illustrated in (42).²²

(42) Ken-wa [~~zibun-no musuko~~]-o sikat-ta.

The data from the adverbial interpretation, the availability of subject ellipsis, and the lack of Verbal Identity Requirement all indicate that the VP-ellipsis analysis is insufficient, and AE is necessary to account for these problematic cases. Having established that AE is an indispensable property of the grammar (at least in some languages such as Japanese), we now turn to specific theoretical proposals of AE in the next section.

2.3. Previous Proposals for the Parameter of Argument Ellipsis

It has been shown in the previous sections that AE is an indispensable operation to account for the whole range of data arising from null arguments in Japanese. However, it is not the case that all natural languages have an option of AE: apparently, languages like English do not allow this option. The next question to be asked is, what kind of language allows AE? Previous studies claim that it is not an accident that languages like Japanese have an option of AE, and languages

²² Another possibility to obtain the effect of AE is to assume that the combination of N'-ellipsis and possessor drop (pro-drop) in effect yields AE. For example, English has N'-ellipsis, as in (i).

(i) Masa praised his son, but Ken scolded his [*e*].

If a language also allows the possessive pronoun *his* to be null, we can obtain the effect of AE without postulating the mechanism of eliding whole arguments.

However, it seems that the possibility mentioned above cannot explain the quantificational reading. Even though quantifiers in English license N'-ellipsis, as in (ii), it is not clear how quantifiers can be null without appealing to ellipsis.

(ii) Masa ate three cakes, but Ken ate five [*e*].

like English do not. More specifically, they argue that AE arises as a result of a parameter setting, and the effect of setting the parameter in one way or another is not confined to AE, but has multiple consequences for the grammar of particular languages. This section briefly reviews two previous studies regarding the parameter of AE.

2.3.1. Oku (1998)

Oku (1998) puts forth an analysis in which the object position in (43b) is empty in the overt syntax, and the object of the preceding clause is copied into the object position at LF by an operation called LF Copy.


- | | | | | |
|---------|-------------------------------|---|-----------|--------------|
| (43) a. | Ken-wa | [zibun-no kuruma]-o | arat-ta. | |
| | Ken-NOM | [self-GEN car]-ACC | wash-PAST | |
| | Lit. 'Ken washed self's car.' | | | |
| b. | Masa-mo | [e] | arat-ta. | Overt syntax |
| | Masa-also | | wash-PAST | |
| c. | Masa-mo | [zibun-no kuruma]-o | arat-ta. | LF |
| | Masa-also | [self-GEN car]-ACC | wash-PAST | |
-

What makes Oku's (1998) analysis interesting in terms of language acquisition is the claim that the availability of AE in a language is strongly connected to the availability of scrambling. Specifically, Oku (1998) follows Bošković and Takahashi's (1998) analysis of scrambling, which argues that scrambled phrases are base-generated in their surface positions, and subsequently undergo movement (lowering) into the positions where they receive θ -roles at LF, as illustrated below.

(44) a. Overt syntax

[_{IP} Sono hon-o [_{IP} John-ga [_{CP} [_{IP} Mary-ga [_{VP} [_V kat-ta]]] to] omotteiru]]
 that book-ACC John-NOM Mary-NOM buy-PAST COMP thinks
 ‘John thinks that Mary bought that book.’

b. LF

[_{IP} [_{IP} John-ga [_{CP} [_{IP} Mary-ga [_{VP} sono hon-o [_V kat-ta]]] to] omotteiru]]


(Bošković and Takahashi 1998:350)

In (44a) the scrambled phrase *sono hon* ‘that book’ is base-generated in the surface position, and, as illustrated in (44b), undergoes movement into the position where it receives its θ -role at LF. Bošković and Takahashi (1998) further claim that the difference between languages exhibiting scrambling and languages without it comes from the difference in timing when their θ -features are checked. More specifically, languages like Japanese allow such derivations as in (44) because their θ -features are ‘weak’: since weak features are tolerated at PF, they do not have to be checked off before Spell-Out; checking of these features can therefore be postponed until the derivation reaches LF. Languages like English, on the other hand, do not allow such derivations, because their θ -features are ‘strong’: since strong features cause a PF crash, they must be removed before Spell-Out (cf. Chomsky 1993, 1995a). Extending their analysis, Oku (1998) argues that languages like Japanese allow AE because, even if argument positions are empty in the overt syntax, V’s weak features are tolerated at PF, and checking of θ -features can be deferred until LF. Languages like English, on the other hand, do not allow AE, because empty argument positions in overt syntax result in unchecked strong features at PF. Therefore, under Oku’s (1998) analysis, the parameter in (45) governs both the availability of scrambling and the availability of AE.

(45) The parameter of θ -feature strength: θ -features are [weak/strong].

Since free word order phenomena are considered to be easily detectable by children, and it has been reported that Japanese-speaking children acquire scrambling at relatively early ages (cf. Otsu

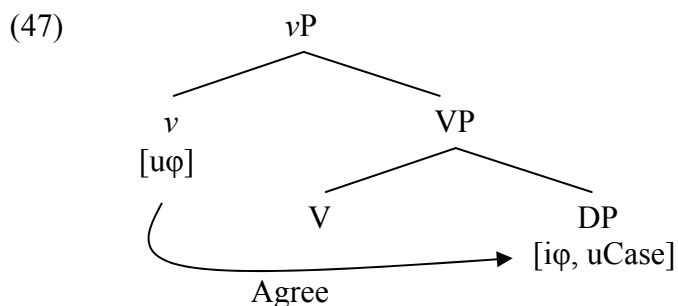
1994, Murasugi and Kawamura 2005), Oku's (1998) analysis looks successful in accounting for the acquisition of AE as well as the cross-linguistic distribution of AE.²³

2.3.2. Saito (2007)

Building on Kuroda's (1988) insight that the main differences between English and Japanese are due to the presence vs. absence of obligatory agreement, Saito (2007) argues that the availability of AE in a language is connected to the absence of obligatory agreement. First, let us see how Saito's (2007) analysis excludes AE in English (46b).

- (46) a. John brought [_{DP} his friend].
 b. * but Bill did not bring [_e].

(47) illustrates Chomsky's (2000) mechanism of object agreement that Saito (2007) adopts.



The uninterpretable ϕ -feature on v probes and agrees with the interpretable ϕ -feature on the goal DP. The uninterpretable Case feature on DP, which makes the DP syntactically active in the derivation, is also checked off as a result of this Agree operation. Suppose that LF Copy is a universal option. Even if the object DP in (46a) is copied into the empty object position of (46b), the uninterpretable feature on v cannot be deleted, because the Case feature of the copied DP is already deleted in the previous derivation and hence the DP is no longer active in the derivation (cf.

²³ See Section 2.4.2 for potential learnability problems of the Scrambling Approach.

Activation Condition: Chomsky 2000). This is illustrated in (48) below.

- (48) a. John [_{VP} v_[uPF] [_{VP} brought [_{DP} [_{iPF}, uCase] his friend]]], but
 ↓ LF Copy
 b. Bill did not [_{VP} v_[uPF] [_{VP} bring [_{DP} [_{iPF}, uCase] his friend]]]

Since the uninterpretable ϕ -feature on *v* remains unchecked, the derivation of (48b) crashes at LF. On the other hand, as has been discussed in the previous sections, Japanese allows the null object construction as in (49).

- (49) a. Masa-wa [zibun-no tomodachi]-o tureteki-ta.
Masa-TOP self-GEN friend-ACC bring-PAST
Lit. ‘Masa brought self’s friend.’
b. Ken-wa [e] tureteko-na-katta.
Ken-TOP bring-NEG-PAST
Lit. ‘Ken did not bring [e].’

The sentence in (49b) allows the sloppy reading, meaning that ‘Ken did not bring Ken’s friend.’ The availability of the sloppy reading in (49b) in turn indicates that AE (and presumably the operation LF Copy) is involved in the sentence. To account for the difference between English and Japanese in terms of the availability of null objects, Saito (2007) proposes that *v* in sentences such as (49b) lacks an uninterpretable ϕ -feature to begin with. Since *v* in (49b) does not bear an uninterpretable ϕ -feature, which is problematic for the English case, copying of the antecedent object does not cause any problem. Put differently, Saito’s (2007) analysis says that object agreement is not obligatory in Japanese. Assuming that this analysis can be extended to subject ellipsis (i.e., ϕ -features on T), the parameter in (50) governs both the presence/absence of obligatory agreement and the availability of AE.

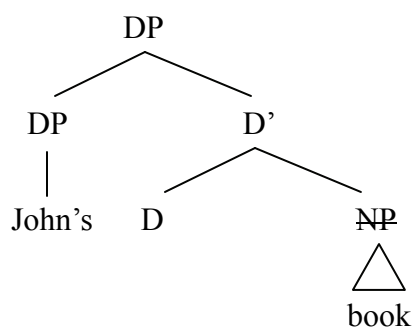
- (50) The parameter of ϕ -features: ϕ -features on T and v are [obligatory/optional]

2.4. Problems with the Previous Analyses

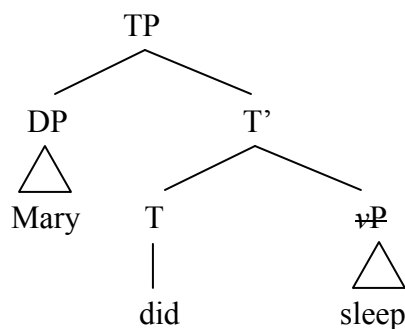
2.4.1. Conceptual Problems

Let us first consider in what context phrasal deletion other than AE is licensed. (51), (52), and (53) illustrate the processes of NP-ellipsis (known as N'-ellipsis, cf. Lobeck 1990, Saito and Murasugi 1990, Saito et al. 2008), *v*/VP-ellipsis and TP-ellipsis (known as Sluicing), respectively.

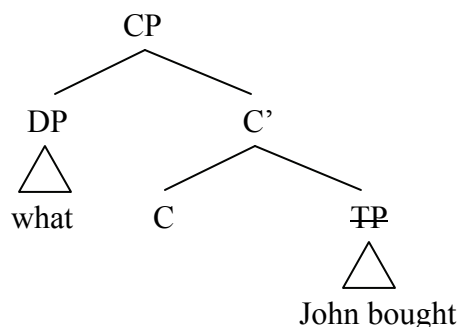
- (51) I have read Bill's book, but I haven't read John's.



- (52) John slept, and Mary did, too.



(53) John bought something, but I don't know what.



These deletion phenomena share the following property.

(54) A functional head H licenses deletion of XP in its complement.²⁴

More specifically, following Takahashi (2002), Gengel (2007), Gallego (2009), and Takahashi (2011), I assume that only phase heads can be a licenser of ellipsis. This assumption readily explains NP-ellipsis and TP-ellipsis, because it has been argued in the literature that DPs and CPs constitute a phase. But what about ν P-ellipsis? Following Merchant (2008), I assume that what is actually deleted is VP, instead of ν P, as illustrated in (55).^{25,26}

²⁴ I do not assume that agreement between Spec and H is necessary for deletion of H's complement, as Kadowaki (2005) and Takahashi (2011) convincingly show that NP(N')-ellipsis is licensed by adjuncts in Japanese, as shown in (i).

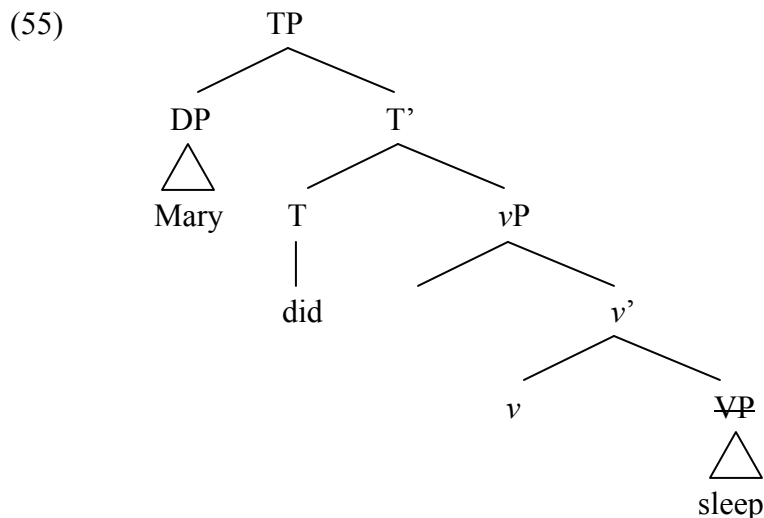
(i) Sin-no sinnen-wa kawar-anai-ga, nise-no ~~sinnen~~-wa sugu kawa-ru.
 true-GEN conviction-TOP change-NEG-though fake-GEN conviction-TOP easily change-PRES
 'The true conviction never changes, but the fake (one) easily changes.' (Kadowaki 2005:194)

The genitive phrase left in the second conjunct *nise-no* 'fake' is a property type modifier, which is syntactically an adjunct. The fact the adjuncts can license NP-ellipsis casts doubt on the assumption that Spec is necessary to license deletion of H's complement.

²⁵ Support for VP-ellipsis, instead of ν P-ellipsis, comes from the observation that VP-ellipsis allows voice mismatches, as in (i).

(i) a. This problem was to have been looked into, but obviously nobody did.
 b. The janitor must remove the trash whenever it is apparent that it should be.

(Merchant 2008:169)



Here v , which has been argued to be a phase head (Chomsky 2000, 2001, 2004, 2008), licenses deletion of the complement VP. Thus, all the major phrasal deletion phenomena discussed above meet the following condition.

(56) Only a phase head can license deletion of its complement.

However, the process of AE, illustrated in (57), does not fit into this picture in that deletion

Merchant (2008) argues that this falls out naturally if deletion targets VP to the exclusion of v , which is responsible for voice.

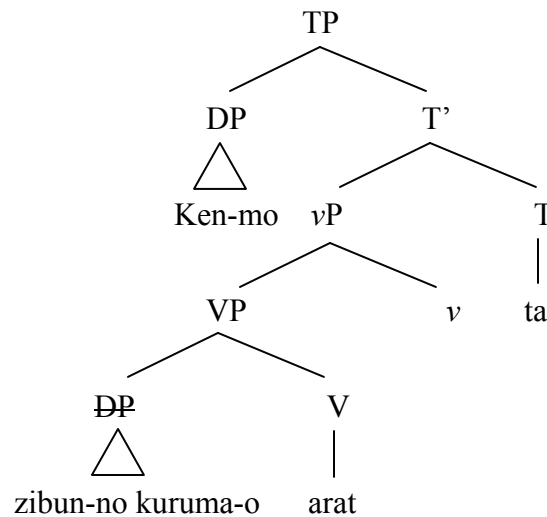
Wurmbrand (2012) also argues that phase heads license elision of their complement. Contrary to Chomsky (2000, 2001), she adopts the dynamic phasehood approach (cf. Bobaljik and Wurmbrand 2005, Takahashi 2011, Bošković 2014), which claims that no phase is inherently a phase and phasehood is determined contextually. Specifically, based on the data concerning the availability of voice mismatch in English VP-ellipsis, it is argued that the highest projection of a cyclic domain constitutes a phase, and that a functional category responsible for aspect (Asp) can be a phase head when it is present on top of vP . Wurmbrand's (2012) proposal would be more consistent with the approach pursued in this dissertation, considering that I will adopt the dynamic phasehood approach in the nominal domain (see Section 2.5.2).

²⁶ In fact, there are some speakers who would not accept sentences involving voice mismatches such as (i) in fn.25. See also Nakamura (2013) for an argument against Merchant's (2008) analysis of voice mismatches. In the rest of this dissertation, I simply assume, without further discussion, that what is elided by VP-ellipsis is VP, not vP , for the purpose of exposition, and leave the problems arising from voice mismatches for future research.

applies to the complement of a lexical head V.

- (57) a. Masa-wa [zibun-no kuruma]-o arat-ta.
 Masa-TOP self-GEN car-ACC wash-PAST
 Lit. 'Masa washed self's car.'
- b. Ken-mo [e] arat-ta.
 Ken-also wash-PAST
 Lit. 'Ken also washed [e].'

c.



It might be the case that AE is special, and AE involves a mechanism that is totally different from other deletion phenomena. However, such an approach makes the grammar rather complex, and if AE and other deletion phenomena could be treated in the same manner, that would definitely be preferable.

2.4.2. Empirical Problems

Although Oku's (1998) Scrambling Analysis is quite attractive, there are some languages that are inconsistent with its predictions. For instance, it is reported that Serbo-Croatian has Japanese-style scrambling (JSS) (cf. Stjepanović 1999, Bošković 2009). In Japanese, the long-scrambled QP

daremo ‘everyone’ in (58) cannot be interpreted in the surface position, as shown in the fact that it cannot take scope over the QP *dareka* ‘someone.’

- (58) *Daremo*₁-ni *dareka*-ga [*Mary*-ga *t*₁ *at-ta* *to*] *omotteiru*.
 everyone-DAT someone-NOM Mary-NOM meet-PAST COMP think
 = For some *x*, *x* a person, *x* thinks that for every *y*, *y* a person, Mary met *y*.
 ≠ For every *y*, *y* a person, there is some *x*, *x* a person, such that *x* thinks that Mary met *y*.
 (Bošković and Takahashi 1998:354)

According to Stjepanović (1999), the same holds for the Serbo-Croatian sentence in (59): the long-scrambled QP *nekog* ‘someone’ cannot take scope over the matrix subject QP *svako* ‘everyone.’

- (59) *Nekog* *svako* *misli* *da* *je* *Marija* *srela*.
 someone (ACC) everyone (NOM) think COMP is Marija (NOM) met
 ‘Someone, everyone thinks that Mary met.’
 (Stjepanović 1999:315)

It has been argued in the literature (cf. Saito 1989, 1992, Bošković and Takahashi 1998) that this ‘must be undone’ property is one of the major characteristics of JSS, distinguishing it from German-style scrambling.²⁷ Thus, Stjepanović’s (1999) observation ensures that Serbo-Croatian has JSS.

Given that Japanese and Serbo-Croatian share the properties of JSS, it is predicted under Oku’s (1998) analysis that Serbo-Croatian should also allow AE. However, the prediction is not borne out, as shown in (60):

²⁷ Note that the term ‘radical reconstruction’ is actually a misnomer: to borrow Bobaljik and Wurmbrand’s (2012) phrase, ‘the more accurate generalization appears to be that a long scrambled DP cannot be interpreted in the highest clause; but it may reconstruct only part-way down, being interpreted in any of the intermediate positions it moves through’ (Bobaljik and Wurmbrand 2012:373). Also, Otaki (2007) argues against the late θ -checking approach, on the grounds that Japanese long-distance scrambling shows ‘partial’ reconstruction.

(60) a. Jovan_i je video svoju_i majku, međutim
 John is saw self's mother however

b. Milan_j nije video *(svoju_j) ____ .
 Milan isn't saw self's

Lit. 'John saw self's mother, but Milan didn't see [*e*].'

(Miloje Despić, p.c.)

To get a sloppy reading in (60b), the object position cannot be completely empty (leaving the possessor *svoju* unpronounced). This suggests that Serbo-Croatian disallows elision of an entire argument.

In addition, the other direction of the implication does not hold either. It is often noted that Mandarin Chinese does not have JSS. See the examples taken from Cheng (2013):

(61) a. Zhangsan zhidao [shei mai-le shei-de zhaopian]
 Zhangsan know who buy-ASP who-GEN picture

'Zhangsan knows who bought some pictures of who.'

b. * [shei-de zhaopian]₁ Zhangsan zhidao [shei mai-le *t*₁]
 who-GEN picture Zhangsan know who buy-ASP

(Cheng 2013:38)

Cheng (2013) reports that Mandarin Chinese does not allow *wh*-elements to move out of the scope of its licensor (presumably the embedded interrogative C): the long-scrambled *wh*-phrase *shei-de zhaopian* 'who-GEN picture' makes the sentence (61b) ungrammatical. The Japanese counterpart in (62), on the other hand, is totally acceptable.

(62) a. John-ga [dare-ga dare-no syasin-o katta ka] sitteiru.
 John-NOM who-NOM who-GEN picture-ACC bought Q know
 'John knows who bought some pictures of who.'

b. [dare-no syasin-o]₁ John-ga [dare-ga *t*₁ katta ka] sitteiru.
 who-GEN picture-ACC John-NOM who-NOM bought Q know

(Oku 1998:154)

The contrast between Mandarin Chinese and Japanese suggests that Mandarin Chinese lacks JSS, hence the absence of reconstruction into the base-generated position. Interestingly, Cheng (2013) reports that Mandarin Chinese has AE, whereas it does not allow JSS.

- (63) a. Zhangsan *henkuaide* *du-wan-le* *san-ben* *shu*.
 Zhangsan quickly read-finish-ASP 3-CL book
 ‘Zhangsan finished reading 3 books quickly.’
 b. Lisi *ye* *du-wan-le* [*e*].
 Lisi also read-finish-ASP
 Lit. ‘Lisi also finished reading [*e*].’

(Cheng 2013:132)

In (63b) the direct object of the verb *du-wan-le* ‘finish reading’ is missing. Importantly, the null object in (63b) has the quantificational reading, its VP meaning ‘finished reading three books.’ Furthermore, according to Cheng (2013), the interpretation of the adverb *henkuaide* ‘quickly’ is not necessarily included in the interpretation of (63b): it can mean ‘Lisi also finished reading three books, but not in a quick manner.’ This confirms that what is involved in (63b) is AE, not VP-ellipsis. Since the scrambling analysis predicts a strong correlation between the availability of scrambling and the availability of AE, the data from these two languages (i.e., Serbo-Croatian and Mandarin Chinese) pose a problem for Oku’s (1998) analysis.

In addition, the existence of German-style scrambling obscures scrambling as a potential trigger for AE. Although German has scrambling, it disallows AE. To distinguish between German and Japanese, Oku (1998) needs to say that only JSS can trigger AE. However, evidence for JSS involves highly complex phenomena such as long distance scrambling and reconstruction effects (see e.g., Saito 1992, 2003, Bošković and Takahashi 1998), and it is quite unlikely that children utilize such complex sentences as a direct trigger. Of course, JSS is somehow acquired by speakers of Japanese and Serbo-Croatian ultimately. Yet the point here is that scrambling itself cannot count as a clear-cut trigger for AE, and this weakens the advantage of the Scrambling Analysis in terms of language acquisition.

Saito's (2007) analysis also makes wrong predictions. Let us consider how English-speaking children learn the absence of AE in object positions. In terms of the overt morphology on the verb, English and Japanese pattern together in completely lacking object agreement, and the Anti-agreement Analysis needs to say something about why English and Japanese behave differently in terms of object AE. One reasonable solution is to assume that, if a language has overt agreement with some argument, then both T and *v* in the language bear uninterpretable ϕ -features. However, there exist a certain number of languages that completely lack morphological verbal agreement but still disallow AE. For example, Swedish and Afrikaans do not exhibit ϕ -agreement on verbs at all, as shown in Table 2.1 and Table 2.2, respectively, but still lack AE, according to Neeleman and Szendrői (2007).

Table 2.1: Swedish: 'to taste' (based on Bobaljik 1995:45)

SG. PERSON	PRESENT	PAST	PL. PERSON	PRESENT	PAST
1 SG	smaka-r	smaka-de	1 PL	smaka-r	smaka-de
2 SG	smaka-r	smaka-de	2 PL	smaka-r	smaka-de
3 SG	smaka-r	smaka-de	3 PL	smaka-r	smaka-de

Table 2.2: Afrikaans: 'to work' (Donaldson 1993, cited in Bobaljik 1995)²⁸

SG. PERSON	PRESENT	PL. PERSON	PRESENT
1 SG	werk	1 PL	werk
2 SG	werk	2 PL	werk
3 SG	werk	3 PL	werk

If the presence/absence of obligatory agreement serves as a trigger for the acquisition of AE, it is not clear under this analysis how children distinguish between Japanese and Swedish/Afrikaans in

²⁸ Non-present tenses are auxiliary constructions in Afrikaans.

terms of the availability of AE.²⁹

2.5. Argument Ellipsis Arising from Non-fusional Case Morphology

In the previous sections, we saw that the previous studies on the parameter of AE are insufficient: the Scrambling Analysis by Oku (1998) and the Anti-agreement Analysis by Saito (2007) each involve both conceptual and empirical problems. In this section, building on Neeleman and Szendrői's (2007) analysis of the cross-linguistic distribution of null arguments, I propose a novel analysis of AE that crucially refers to morphological properties of case, and show that the proposal resolves the problems discussed in the previous sections.

2.5.1. *Neeleman and Szendrői (2007)*

Neeleman and Szendrői (2007, 2008) argue that the generalization in (64) holds cross-linguistically.

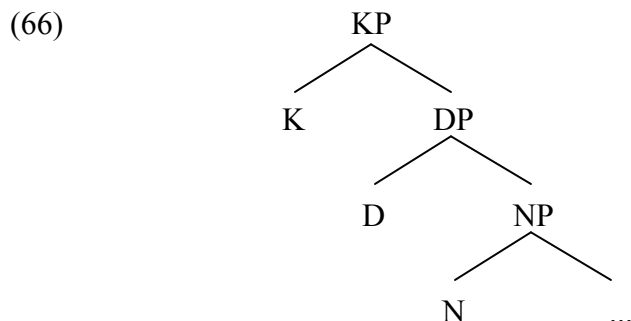
(64) Radical Pro Drop (RPD) requires non-fusional morphology on pronouns.

(65) Definition of RPD (cf. Neeleman and Szendrői 2007)

In RPD languages, any pronominal argument can be omitted. RPD differs from Italian-type pro drop in that Italian, for example, does not allow possessors or referential objects to be omitted.

To explain the generalization, they assume the phrase structure in (66), along with the spell-out rules for null arguments and English pronouns in (67) and (68).

²⁹ In Chapter 3, it is shown that the other direction of the implication does not hold, either: that is, there exists certain number of languages that have both morphological agreement and AE.



(67) RPD rule:
 $[\text{KP } +\text{p}, -\text{a}]^{30} \leftrightarrow \emptyset$

(68) Spell-Out rules for pronouns (e.g., *him* in English):
 $[\text{KP } +\text{p}, -\text{a}, 3, \text{sg}, \text{m}, \text{acc}] \leftrightarrow /him/$

In (66) they assume that K, which is responsible for case, is universally represented in nominal projections (cf. Bittner and Hale 1996). The rules in (67) and (68) are based on the assumption of ‘late insertion’ (cf. Halle and Marantz 1993, among many others), which makes it possible for Vocabulary Insertion (VI) to target non-terminal nodes. They argue that both the RPD rule and the spell-out rule for *him* target the same node, KP: since realization of case in English, which is a language exhibiting fusional case morphology on pronouns, is dependent on other functional elements such as number and gender, spell-out rules for pronouns in the language must target the maximal projection that includes K. This means that the RPD rule and the spell-out rule for pronouns always compete in languages with fusional case morphology. Neeleman and Szendrői (2007, 2008) claim that the RPD rule is blocked by the spell-out rules for pronouns due to the Elsewhere Condition in (69).³¹

³⁰ ‘± p’ refers to ‘± pronominal,’ and ‘± a’ refers to ‘± anaphoric.’

³¹ Note that the Elsewhere Condition presented in (69a) (adopted from Neeleman and Szendrői 2007) could have a different implication from the classical Elsewhere Condition (cf. Kiparsky 1973) in (i).

(i) Elsewhere Condition (Adopted from Bobaljik 2012:9)

If two (incompatible) rules R1, R2 may apply to a given structure, and the context for application of R2 is contained in that of R1, then R1 applies and R2 does not.

(69) The Elsewhere Condition (Neeleman and Szendrői 2007:687, cf. Kiparsky 1973)

- a. All else being equal, a phonological realization of a category C takes priority over a phonological realization of the categories contained in C.
- b. All else being equal, a phonological realization of a category C that spells out more of C's features takes priority over a phonological realization that spells out fewer features.

Specifically, (69b) blocks the application of the RPD rule in English because the spell-out rule for *him* is more specific than the RPD rule. The combination of the spell-out rules in (67)/(68) and the Elsewhere Condition in (69) therefore accounts for one side of the generalization in (64): RPD is not allowed in languages with fusional case morphology on pronouns.

Generally speaking, the Elsewhere Condition ensures that more highly specified forms will block the insertion of less-specified forms. What makes (69a) different from the classical Elsewhere Condition is that it allows the situation where less-specified forms can take precedence over more highly specified forms. For example, as mentioned below, the less-specified form \emptyset takes precedence over more specified forms /kare/ (he) and /-o/ (ACC) in terms of (69a), and the presence of (69a) is crucial for Neeleman and Szendrői (2007) to make RPD happen in languages like Japanese.

It seems true that in most cases a phonological realization of a category C takes priority over a phonological realization of the categories contained in C (= (69a)), because generally categories containing larger structure are more specified in terms of their feature make-up. However, it seems that it is not necessary to stipulate (69a) as an independent elsewhere condition, because this falls out naturally from the classical Elsewhere Condition in (i).

Neeleman and Szendrői (2007) argue that (69a) rules out the regular past tense of *go*, /go-ed/, because in the structure in (iii), the domain of application of the rule in (iic) properly includes the domain of application of the rule in (iia) or (iib).

- (ii) a. GO \leftrightarrow /go/
 - b. PAST \leftrightarrow /-ed/
 - c. GO+PAST \leftrightarrow /went/
- (Neeleman and Szendrői 2007:685)



However, it is not necessary to stipulate (69a) to explain the fact that irregular forms take precedence over regular ones: it suffices to say that (iic) blocks (iia) and (iib) because the context for application of (iia) and (iib) is contained in that of (iic).

The next question to be asked is, why is RPD allowed in languages with non-fusional case morphology on pronouns? Since Japanese, for example, has agglutinating case morphology, pronouns and case-markers have independent spell-out rules, as shown in (70).

- (70) Spell-out rules for *kare-o* ‘him’
- a. $[\text{NP } +\text{p}, -\text{a}, 3, \text{sg}, \text{m}] \leftrightarrow /kare/$
 - b. $[\text{K acc}] \leftrightarrow /o/$

In terms of (69a), the RPD rule (67) takes priority over the rules in (70) because it spells out a larger chunk of structure. On the other hand, the rules in (70) are more specific than the RPD rule in that they mention features that the RPD rule is insensitive to. More specifically, a realization of KP as */kare + o/* is more specific than a zero realization of KP (by the RPD rule) because the former mentions ϕ -features and case features that the latter does not. Hence, neither rule blocks the other, making RPD possible in languages like Japanese.

Neeleman and Szendrői’s (2007, 2008) analysis predicts that there will be no language that has both RPD and fusional case morphology on pronouns. To test this prediction, they checked the languages in *The World Atlas of Language Structures* (WALS) (Haspelmath et al. 2005), and found no real counter-example to the prediction.³² (71) is a brief summery of their cross-linguistic survey.

- (71)
- a. *Fusional pronouns, no RPD*
Afrikaans, Dutch, English, Greek, Haida, Italian, Kayah Li, Pashto, Swedish, Yoruba
 - b. *Agglutinative for case, RPD*
Assamese, Burmese, Epena Padee, Garo, Guugu Yimidhirr, Hindi/Urdu, Japanese, Korean, Lezgian, Turkish, Yidip
 - c. *Invariant for case, RPD*
Cheke Holo, Chinese, Kokota, Maybrat, Thai

³² But see Sato (2011) for a possible counter-example to the generalization in (64).

d. *Invariant for case, no RPD*³³

Jamaican Creole, Papiamentu, Tok Pisin

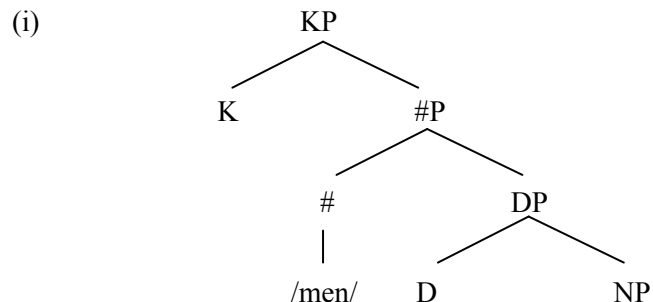
e. *Fusional pronouns, RPD*

<Empty>

(Neeleman and Szendrői 2008:346)

I think Neeleman and Szendrői's (2007, 2008) analysis is successful in explaining the cross-linguistic distribution of RPD, but it is still inadequate. As they mention in the paper, their analysis needs to deal with AE separately. More specifically, they worry about the availability of a sloppy reading in examples like in (72).

³³ Neeleman and Szendrői (2007) argue that the difference between (71c) and (71d) falls out if children hypothesize that spell-out rules target the highest category compatible with their feature specification. Without evidence to the contrary, this acquisition strategy gives children a language with no RPD. The languages in (71c) are acquired only when children encounter positive evidence which shows that there is some KP-internal material that possesses its own exponent. For example, Chinese has the plural marker *-men*, which can be attached to pronouns, and is clearly independent of case morphology. This means that spell-out rules for Chinese pronouns must target a category lower than number, and by transitivity, lower than K, as illustrated below.



However, this system might expect, contrary to the fact, that children acquiring Chinese go through stages in which they consistently produce overt pronouns due to the default status of the no RPD option. I argue in Section 2.5.3 that both (71c) and (71d) should be acquired by positive evidence, and the analysis circumvents the undesirable consequence discussed above.

- (72) a. Mary-wa zibun-no kuruma-o aratta.
Mary-TOP self-GEN car-ACC washed
'Mary washed her car.'
- b. John-mo [e] aratta.
John-also washed

(Neeleman and Szendrői 2007:684)

As we have discussed so far, the Japanese null object construction like in (72b) is ambiguous between the strict and sloppy reading. The fact that the sloppy reading is available in (72b) is problematic for Neeleman and Szendrői (2007), because they assume that RPD results from the RPD rule in (67), which does not specify internal structure of KP (including its feature makeup). Neeleman and Szendrői (2007) argue that pro drop and ellipsis must be treated differently. They observe that the sentence in (73), when it follows (72a), is unambiguous: the sloppy reading is excluded when the elided material and its antecedent occupy different structural positions.

- (73) Atode John-wa [e] notta.
afterward John-TOP rode
'Afterward, John rode in Mary's car.' (strict)
'* Afterward, John rode in John's car.' (sloppy)

(Neeleman and Szendrői 2007:684)

Based on the observation, Neeleman and Szendrői (2007) claim that the sloppy reading in (72b) does not put their analysis at stake: because the parallelism constraint is one of the defining properties of ellipsis, their analysis, which aims to account for the distribution of null pronouns, does not have to cover the data concerning the sloppy reading. However, I contend that it is not desirable to assume the parameter of RPD and the parameter of AE independently, because the data these two deal with are quite close, and assuming two different parameters results in huge theoretical redundancy.³⁴ In the next section, I propose, building on Neeleman and Szendrői's

³⁴ Note that the fact that there are two types of empty arguments (e.g., *pro* and elided arguments) does not necessarily mean that there exist two independent parameters: it could be the case that these two result

(2007, 2008) analysis, that the availability of AE is also constrained by case morphology, and pursue the possibility of unifying RPD and AE.

2.5.2. *The Proposal*

Extending Neeleman and Szendrői's (2007) analysis of the cross-linguistic distribution of null pronouns, I propose that the availability of AE is restricted to languages with non-fusional case morphology. Note that this is a one-way implication. The system to be laid out in this section rules out the option of AE in languages with fusional case morphology. On the other hand, it is not the case that every language that has non-fusional case morphology allows AE. As discussed in detail in Section 3.3, AE could be blocked by various factors. For example, Mandarin Chinese does not exhibit any morphological case, hence being classified as a language with non-fusional case morphology. As we saw in Section 2.4.2, Chinese allows AE in object positions, as predicted. However, it is also reported that subjects resist AE in Chinese.

- (74) a. Zhangsan renwei [you san-ge xuesheng hui qu taibei]
 Zhangsan think have 3-CL student will to Taipei
 ‘Zhangsan thinks that three students will go to Taipei.’
 b. Lisi zeshi renwei [[e] hui qu tainan]
 Lisi whereas think will go Tainan
 Lit. ‘whereas Lisi thinks that [e] will go to Tainan.’
(Cheng 2013:156)

Cheng (2013) reports that the embedded null subject in (74b) cannot be interpreted quantificationally. This sharply contrasts with the Japanese sentence in (75b) where the quantificational reading can be obtained easily.

from the same source (e.g., agglutinating nominal morphology). See Section 5.2 for more discussion regarding the possibility of the unification of RPD and AE.

- (75) a. Masa-wa [[san-nin-no gakusei]-ga Boston-ni iku]-to
 Masa-TOP three-CL-GEN student-NOM Boston-DAT go-COMP
 omotteiru.
 think
 ‘Masa thinks that three students will go to Boston.’
 b. Demo, Ken-wa [[e] London-ni iku]-to
 but Ken-TOP London-DAT go-COMP
 omotteiru.
 think
 Lit. ‘But, Ken thinks that [e] will go to London.’

Based on the Chinese example, one might say that the parametric proposal of this dissertation goes wrong. This is not necessarily the case, however. Since the parameter only has a one-way implication, it is not surprising if a language with non-fusional case morphology disallows AE. What we need to do in such a case is not to dismiss the current proposal, but to find out the reason why AE is disallowed in the language.

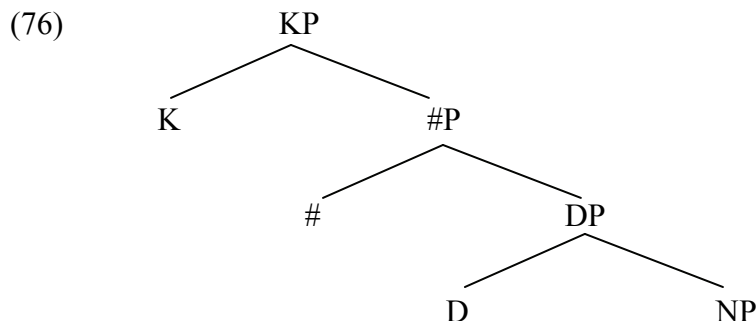
Going back to the specific mechanism of AE, I assume that KP (or Case Phrase) is represented in nominal projections (cf. Bittner and Hale 1996).³⁵ I also assume a number phrase #P, and a determiner phrase DP. (Just like KP, I am neutral on whether these projections are present in every language).³⁶ The nominal structure I assume in this dissertation is illustrated in (76).³⁷

³⁵ Contrary to Neeleman and Szendrői (2007), I do not assume that KP is universally represented. Specifically, I suppose that languages with invariant case (e.g., Chinese) do not represent a KP layer due to the absence of morphological case. See Section 2.5.3 for details.

³⁶ As for other ϕ -related features, I assume that person is encoded in D (cf. Longobardi 2008), and that gender does not head its own functional projection and presumably it is encoded on number or noun (cf. Ritter 1993, De Vincenzi 1999).

³⁷ The theory put forth in this section forces me to stipulate that Number is represented above D, although this might run counter to Greenberg’s Universal 20 (Greenberg 1963:87) in (i).

(i) When any or all of the items (demonstrative, numeral, and descriptive adjective) precede the noun, they are always found in that order. If they follow, the order is either the same or its exact opposite.



In languages with fusional case morphology, K must be combined with another head to create a single node for VI (cf. Halle and Marantz 1993). German determiners, for example, have the spell-out rules in (77) for definite/masculine.

- (77)
- | | | | |
|----|---------------|---|------|
| a. | [+definite] | ↔ | /d/ |
| b. | [m, SG, NOM] | ↔ | /er/ |
| c. | [m, SG, ACC] | ↔ | /en/ |
| d. | [PL, NOM/ACC] | ↔ | /ie/ |

Since German determiners have fusional morphology in terms of case and number (as evidenced

There are at least two reasons why the current proposal requires the K-#-D order, instead of the K-D-# order. First, I propose that in languages with fusional case/number morphology, K and # are combined into one head K/#, and this process is crucial to explain the fact that AE is disallowed in these languages. However, if D is intervened between K and #, D also needs to be combined with K and #, creating the complex K/D/# head, and this runs counter to the fact that in some languages with fusional case/number morphology (German, for example), D has its own exponent and there is no reason to assume that D is combined with K/# (see the explanation below). Second, in languages such as German, case and number, but not D, also appear on nouns. To explain the fact, I adopt AGR node insertion (cf. Noyer 1997, Embick and Noyer 2007), which adds an AGR node to a category in accordance with a morphological requirement, and Feature Copying (cf. Norris 2012) in (ii) (see Section 2.6.2 for more details).

(ii) Feature Copying

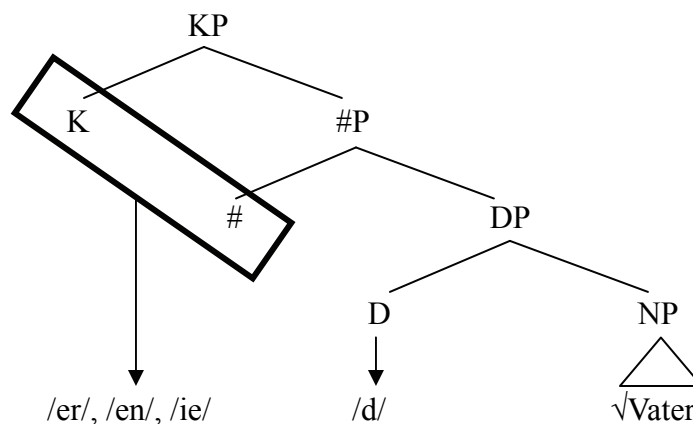
The features on the closest agreeing category to any particular AGR node are copied onto it. If it is assumed that functional categories in nominal phrases have the K-D-# order and that K/# are always combined with D in languages with fusional case/# morphology, we lose the explanation that only case and number, but not D, appear on the noun. Thus, acknowledging that the K-#-D order is not a standard assumption, I stipulate it in the rest of this dissertation.

by the German definite determiner paradigm in Table 2.3), K and # must be combined into a single node, as illustrated in (78).³⁸

Table 2.3: Definite determiner paradigm in German

	masculine	neuter	feminine	plural
NOM	der	das	die	die
ACC	den	das	die	die
GEN	des	des	der	der
DAT	dem	dem	der	den

(78) German: *der Vater* / *den Vater* / *die Väter* ‘the father(s) (NOM/ACC)’



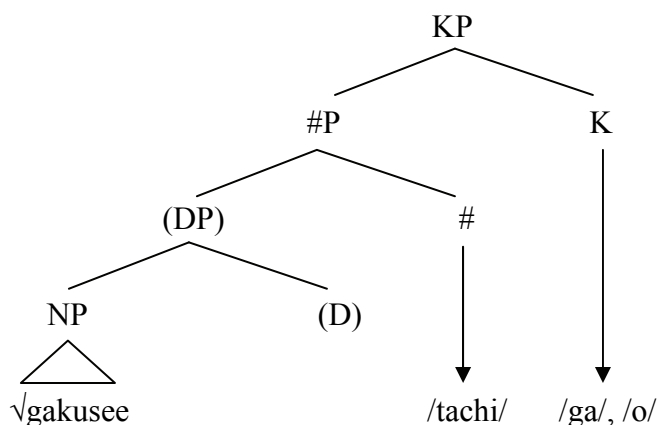
Here K and # serve as a single node, which is spelled-out as /er/ (masculine, singular, nominative), /en/ (masculine, singular, accusative), or /ie/ (plural, nominative/accusative). D itself has its own

³⁸ I refrain from calling the relevant operation here ‘fusion,’ because in Distributed Morphology, fusion is, by definition, restricted to sister nodes (Halle and Marantz 1993:116). The operation relevant here is much more similar to the operations of ‘m-merger’ discussed in Matushansky (2006) and ‘morphological merger under adjacency’ discussed in Bobaljik (1994). Similar effects can also be obtained by ‘spanning’ in the nanosyntax framework, which assumes that a single morpheme can lexicalize a ‘span’ of heads rather than a single head (cf. Caha 2009, Starke 2009, Svenonius 2011). Note that the analysis put forth in this paper might conflict with Radkevich (2009), who specifically argues that a portmanteau, which is presumably derived by fusion, is not allowed in contexts where two heads do not form a constituent. I leave it open how to reconcile the two.

exponent, /d/ (+definite), and undergoes morphological merger with /er/, /en/, and /ie/.³⁹

In languages with non-fusional case/number morphology, on the other hand, K and # do not need to be combined, because they have their own exponents. A Japanese example is shown in (79). (*Tachi* is a plural marker for animate objects.)

(79) Japanese: *gakusee tachi ga/o* ‘(the) students (NOM/ACC)’



As for the syntax of ellipsis, I assume the following.

- (80) Assumptions on the syntax of ellipsis
- A functional head bearing a feature [E(llipsis)] licenses ellipsis of its complement (cf. Merchant 2001).
 - Only phase heads can be a licenser of ellipsis (cf. Takahashi 2002, Gengel 2007, Gallego 2009, Takahashi 2011)
 - The highest phrase in the extended projection of all lexical categories, Ns, Ps, As, and Vs, works as a phase (Bošković 2014).

In the structure in (79), KP qualifies as a phase, since it is the highest phrase in the extended projection of the lexical category, N. (Note that it is not the case that KP always constitutes a phase. In languages without case morphology, I assume that the KP layer is absent, and the next

³⁹ The correct order /der/ and /den/ is presumably obtained by a local dislocation rule (cf. Embick and Noyer 2001).

phrase below, being the highest phrase of the extended projection, qualifies as a phase. See Section 2.5.3 for details.) If we use a traditional rule-based formalism, the effect of E on the pronunciation is stated as in (81) (cf. Merchant 2004:671).

$$(81) \quad \delta_{XP} \rightarrow \emptyset / E \text{ } __\text{ }^{40}$$

In essence, (81) says that the post-PF phonological interpretive component should not parse E's complement XP. Since the elliptical part, in this case, #P, is not visible at the PF interface, it creates an opaque domain for morphological processes. More specifically, if K and # are combined into one node in (82), the resulting node K/# gives a conflicting instruction to the PF interface - namely, K must be interpreted at the PF interface, but # must not, which is a clear contradiction.⁴¹

⁴⁰ δ_{XP} is the phonological representation of the material dominated by the XP node.

⁴¹ A question arises as to why VP ellipsis licensed by *v* is possible in English. Some English verbs show transitivity alternations morphologically (e.g., *rise/raise*, *lie/lay*, etc). Given that these forms are inserted to a fused node '*v*-V,' the theory put forth here predicts that elision of the complement of *v* (i.e., VP) should be impossible, contrary to the fact that English generally allows VP-ellipsis (see also Section 2.4.1). It seems that there are at least two ways to circumvent the problem. First, it might be the case that *v*P is not the highest phrase in the extended projection of V, but there could be some functional projections responsible for aspect (cf. Wurmbrand 2012). Given that the highest phrase in the extended projection of lexical categories works as a phase (cf. Bošković 2014), what is elided by 'VP-ellipsis' is actually the complement of Asp (i.e., *v*P), and there is no conflict with the fused '*v*-V' at PF.

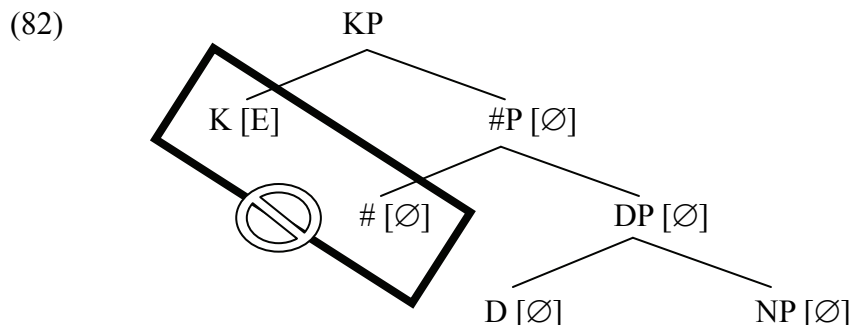
(i) $[_{AspP} \text{ Asp } [_{+P} \text{ } v \text{ } [_{VP} \text{ } V]]]$

However, this solution sacrifices the explanation of voice mismatches under VP-ellipsis (see also fn.25): since the *v*, which is assumed to be responsible for voice, is also elided in (i), voice mismatches are expected to be impossible. (In fact, Wurmbrand (2012) reports that there is a correlation between the presence/absence of Asp and the possibility/impossibility of the voice mismatch under VP-ellipsis.)

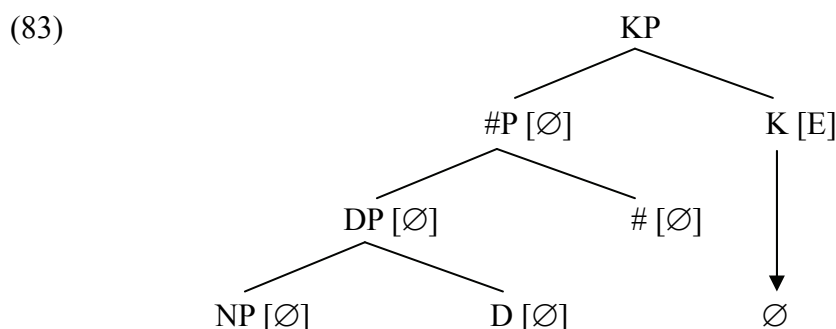
The second possibility is to assume that as far as transitivity is concerned, the *v* stands as the zero morpheme \emptyset , and the transitive forms such as *raise* and *lay* are created by the readjustment rule in (ii) (cf. Halle and Marantz 1993).

(ii) Rime $\rightarrow /et/ / X \text{ } ______ [+ \text{ transitive}]$, where X-Rime = *rise*, *lie*

If we assume the rule in (ii), it is not necessary to combine *v* and V to create a single node for VI, and elision of the complement of *v* does not cause any problems under the current proposal.



In languages with agglutinating case/number morphology, on the other hand, K can in principle stand alone, with zero pronunciation, as illustrated in (83) (see Section 2.5.5 for detailed discussion of zero pronunciation of K).



Support for this analysis comes from the fact that case-stranding is possible in AE (cf. Hattori 1960, Sato and Ginsburg 2007, Sato 2012b, among many others). For example, Sato and Ginsburg (2007) report that the null subject in the last sentence of (84) below leaves the case marker *-ga* stranded.⁴²

⁴² It is worth noting that particle stranding ellipsis (PSE) has some peculiar properties, which are independent of general licensing conditions of ellipsis. First, the distribution of PSE is restricted in sentence initial positions. Second, stranded particles must be pronounced with a strong accent. Third, it seems that among languages with AE, only Japanese allows PSE. Note importantly that the absence of PSE in some environments does not necessarily indicate that AE is impossible: there could be some independent factors that rule out PSE, as noted above.

- (84) A: Asami-wa moo tsuki-masi-ta ka?
 Asami-TOP already arrive-POL-PAST Q
 ‘Has Asami already arrived?’
- B: Hai, moo tsuki-masi-ta.
 yes already arrive-POL-PAST
 ‘Yes, she has already arrived.’
- A: Naomi-mo moo tsuki-masi-ta ka?
 Naomi-also already arrive-POL-PAST Q
 ‘Has Naomi also already arrived?’
- B: [e] **ga** mada tsuki-mase-n.
 NOM yet arrive-POL-NEG
 ‘She has not arrived yet.’ (Sato and Ginsburg 2007:198)

Therefore, it must be possible for K’s complement to undergo ellipsis, in principle. The present approach reduces cross-linguistic variation in AE to the lexical properties of K: if K has its own, independent exponent, then AE is possible; if K needs to be combined with another head before it receives an exponent, then AE is disallowed.⁴³

2.5.3. *The Dividing Line between Fusional and Non-fusional Languages*

This section discusses the following questions, which have not yet been clearly answered in the previous section: a) what is the dividing line between fusional and non-fusional case languages,

⁴³ Koji Sugisaki (p.c.) pointed out to me an interesting consequence of the proposal put forth in this section. Although I argued in Section 2.4.2 that the Scrambling Analysis, which connects Scrambling and AE in a bi-directional way, cannot be maintained, there still remains a possibility that they are connected in a weaker way. For example, Kang (2005) argues that Scrambling is allowed only in languages that have an overt accusative marker. If it is possible to interpret ‘languages that have an overt accusative marker’ as ‘languages that have agglutinating case morphology,’ then it turns out that case morphology determines not only the availability of AE, but also the availability of Scrambling, relating the two in an indirect manner. I leave it for future research to investigate whether the current morphology-related analysis could have further (macro-parametric) consequences beyond AE.

and b) how should we deal with languages with no case morphology?

Although both English and German are classified as having fusional case morphology in this study, it is obvious that English is ‘less fusional’ than German. For example, English (as well as Swedish and Afrikaans) shows fusional case morphology only with pronouns; full DPs, in contrast, do not exhibit any case morphology. German, on the other hand, exhibits robust fusional case/number morphology both in pronouns and in full DPs. The question is, to what extent a language should be fusional to qualify as a fusional case language?

I assume that, if a language has robust, observable cues indicating that both case and number features are expressed by one exponent, then the language is classified as a fusional case language. This proposal has a ‘language-wide’ parametric property, meaning that the effects of parameter setting are not limited to particular constructions, but have broad consequences throughout the language. I suspect that the language-wide property of the parameter comes from the following acquisition strategy: without evidence to the contrary, children maintain the hypothesis that the structure of pronouns and the structure of full DPs are consistent. Put differently, children do not try to hypothesize different structures between pronouns and full DPs, unless there is positive evidence indicating that their structures are different.

Although this acquisition strategy correctly includes English in the group of fusional case languages, we need to say that lack of fusional case morphology in any part of a language does not force it to be a non-fusional case language. In other words, absence of fusional case morphology is uninformative for children; otherwise based on the lack of fusional case morphology on full DPs, children acquiring English would incorrectly hypothesize that their language is a non-fusional case language. I assume that non-fusionality must also be learned through positive evidence – i.e., through the presence of agglutinating case markers. It is not the absence of fusional case morphology that makes Japanese a non-fusional case language; it is the presence of agglutinating case markers such as *-ga* (NOM) and *-o* (ACC) that does so. Summarizing so far, the distinction between fusional and non-fusional languages is determined

by the following mechanisms:

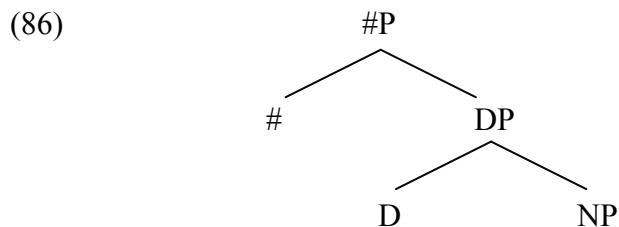
- (85) a. If a language has robust, observable cues indicating that both case and number features are expressed by one exponent, then the language is classified as a fusional case language.⁴⁴
(e.g., English, German, Swedish, Afrikaans, Italian, French, etc.)
- b. If a language has robust, observable cues indicating that case feature is expressed by independent exponent, then the language is classified as a non-fusional case language.⁴⁵
(e.g., Japanese, Korean, Turkish, Mongolian, Hindi, Basque, etc.)

The next question is, how should we deal with languages with no case morphology such as Chinese? Obviously, the mechanism in (85) does not fit into the languages having no case morphology. As it turns out, languages with invariant case are not problematic for the current proposal, but rather provide further support for it.

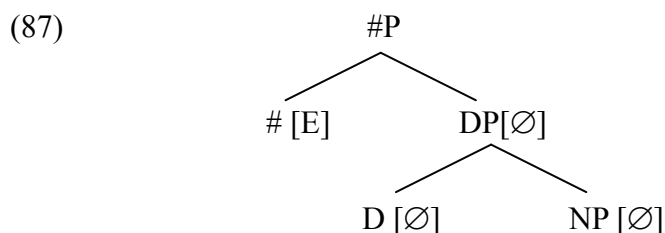
I suppose that languages with invariant case lack K in their nominal structure, as illustrated in (86).

⁴⁴ I leave open the question of how robustness is defined in this case. For example, Lightfoot (1999) argues that the crucial cue for the V2 grammar (e.g., German, Dutch, Norwegian, etc.) is the configuration where a finite verb follows a non-subject XP, which indicates that the finite verb moves to C, and [Spec, CP], which is not associated with subjecthood, is filled by some XPs, resulting in the V2 grammar. Lightfoot (1999) reports that in conversational speech of Dutch, German, and Swedish, 70% of initial XPs are a subject. This in turn suggests that 30% of non-subject initial XPs work as a robust cue for the V2 grammar. I do not believe that the 30% figure is a general, cross-parameter definition of robustness, but there must be some required threshold for the determination of the fusional/non-fusional distinction.

⁴⁵ This might conflict with the cases of some German nouns, which appear to exhibit agglutinating case morphology for dative. There would be two possible solutions to the problem. First, we could say that (85a) takes priority over (85b). Regardless of the presence of agglutinating case morphology in some dative nouns, this correctly put German in the group of languages with fusional case morphology. (I thank William Snyder for suggesting this idea to me.) Second, it might be the case that those dative nouns, contrary to their appearance, have fusional case morphology underlyingly (cf. Alexiadou and Müller 2008). See also Section 2.6.2 where I discuss the second possibility in more detail.



Now, let us consider how AE works in languages with invariant case. If we follow Bošković's (2014) definition of phases, the head of the topmost phrase, #, should qualify as the phase head, which licenses elision of its complement. The representation of AE in languages with invariant case is illustrated in (87).



In (87) the phase head, #, bears the Ellipsis feature, and it gives to the PF interface the instruction not to parse its complement, i.e., DP.

Given that D is the locus of a person feature (cf. Longobardi 2008), the explanation laid out here makes the following predictions:

- (88) In languages with invariant case,
- a. AE is disallowed if person and number are expressed fusionally,
and
 - b. AE is allowed if number and person are expressed agglutinatively.

According to Neeleman and Szendrői (2007), these predictions seem to be borne out. In Jamaican Creole, for example, the same form of pronouns is used for both subjects and objects, which indicates that the language exhibits no case distinction.

Table 2.4: Jamaican Creole personal pronoun paradigm (Patrick 2004)

Person	Singular	Plural
1st	mi, a	wi
2nd	yu	unu
3rd	im, i	dem

- (89) a. Dem en si we.
 them been see we
 ‘They saw us.’
- b. You shudn en tel dem.
 you shouldn’t been tell them
 ‘You shouldn’t have told them.’
- c. Dem ena kos mi.
 them been+are curse me
 ‘They were cursing me.’
- d. Mi waan yu fi sel i.
 me want you for sell it
 ‘I want you to sell it.’

(Bailey 1966, cited in Radford 1997)

In (89a-b) the same form of the third person plural pronoun *dem* is used in both the subject and the object position. Similarly, the first person singular pronoun *mi* does not change its form depending on the environments where it occurs, as shown in (89c-d). These facts suggest that pronouns in Jamaican Creole lack case distinctions, hence the absence of the KP layer in nominal projections.

Importantly, however, person and number are expressed fusionally in this language – it is impossible to single out a morpheme that is exclusively responsible for number. The mechanism in (87) then predicts that Jamaican Creole disallows AE. This prediction is correct, as the following data from Neeleman and Szendrői (2007) show.

- (90) a. *(Mi) a rait.
 I am write
 ‘I’m writing.’
- b. Nobadi neva sii *(im).
 nobody never see he
 ‘Nobody ever saw him.’
- c. Dem so fiesty in *(dem) ways.
 they so feisty in they ways
 ‘They were so feisty in their ways.’

(Neeleman and Szendrői 2007:691)

The personal pronouns used in the subject (*mi*), object (*im*), and possessor (*dem*) positions cannot be dropped, indicating that Jamaican Creole, as predicted, does not allow AE.

Another language supporting the prediction in (88a) is Haitian Creole. According to DeGraff (2005:301), ‘abstracting away from dialectal variation from morphosyntactically conditioned phonological reduction and from a subset of pro-forms that are restricted to certain subject or predicate positions, we find the same pronominal forms occurring in distinct structural positions: as subjects, as objects (of verbs, prepositions, and adjectives) and in the “possessor” position of noun phrases.’ Table 2.5 gives you the personal pronoun paradigm in Haitian Creole, and (91a), (91b) and (91c) the examples of the third person singular pronoun *li* used in subject, object and possessor positions, respectively.

Table 2.5: Haitian Creole personal pronoun paradigm (DeGraff 2005:301)

Person	Singular	Plural
1st	mwen	nou
2nd	ou	nou
3rd	li	yo

- (91) a. Marie wè li.
 Marie saw he/she
 ‘Marie saw him/her.’
 b. Li wè Marie.
 he/she saw Marie
 ‘He/She saw Marie.’
 c. nouvèl li
 news he/she
 ‘news of him (her)’

Though Haitian Creole lacks case distinctions completely, it exhibits fusional morphology with respect to number and person, as we can see in the personal pronoun paradigm in Table 2.5. Thus, it is expected under the current discussion that this language disallows AE.

While subjects of raising, existential and weather predicates can be dropped in Haitian Creole, as shown in (92), referential subjects cannot be null in (93).

- (92) a. [e] genlè Jak damou
 seem Jak in.love
 ‘It seems that Jak is in love.’
 b. [e] gen jwèt sou tab la
 have toys on table the
 ‘There are toys on the table.’
 c. [e] te fè frèt
 ANT make cold
 ‘It was cold.’

(DeGraff 1993:71-72)

- (93) a. *(mwen) achte yon chemiz
 I buy DET shirt
 ‘I bought a shirt.’
 b. *(li) pati
 he/she leaves
 ‘He/she leaves.’

(DeGraff 1993:73)

(Baptista 1995:6)

Although the question of whether Haitian Creole is a pro-drop language is still under debate (e.g., DeGraff 1993, Déprez 1994), it is obvious from the examples in (93) that Haitian Creole is a non-AE/RPD language. This is exactly what is expected under the prediction in (88a).

Chinese, another language with invariant case, contrasts with Jamaican Creole and Haitian Creole in that it exhibits agglutinating morphology in terms of person and number.

Table 2.6: Mandarin Chinese personal pronoun paradigm

Person	Singular	Plural
1st	wǒ	wǒ-men
2nd	nǐ	nǐ-men
3rd	tā	tā-men

Table 2.6 shows that plurality of the personal pronouns is expressed by adding the plural marker *-men*. Importantly, the form of each pronoun remains unchanged, indicating that person and number are expressed agglutinatively in the language.

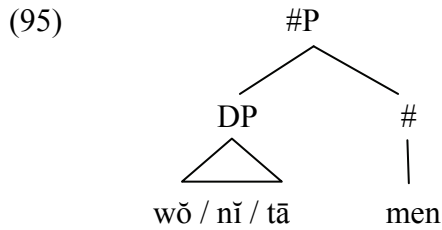
Given that Chinese lacks case distinctions and exhibits agglutinating morphology in terms of person and number, it is expected under (88b) that Chinese should allow AE. This prediction is correct, as we already discussed in Section 2.4.2. The Chinese examples from Cheng (2013) in (63), repeated as (94) below, show that null objects in Chinese allow the quantificational reading.

- (94) a. Zhangsan henkuaide du-wan-le san-ben shu.
 Zhangsan quickly read-finish-ASP 3-CL book
 ‘Zhangsan finished reading 3 books quickly.’
 b. Lisi ye du-wan-le [e].
 Lisi also read-finish-ASP
 Lit. ‘Lisi also finished reading [e].’

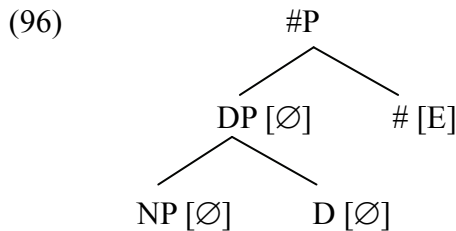
(Cheng 2013:132)

Crucially, the interpretation of the adverb *henkuaide* ‘quickly’ is not obligatory in (94b), which indicates that the source of the empty category in (94b) is not always a VP; it is possible to elide

just objects, hence the optionality of the adverbial interpretation. This is not surprising under the current analysis, because Chinese shows clear agglutinating morphology in terms of number and person, and children acquiring Chinese easily learn through positive evidence that # and D do not combine in the language, as illustrated in (95).



Since # and D do not combine into one head, elision of the complement of # in (96) does not cause any problem in Chinese, as predicted.



Summing up this section, I argued that both fusional and non-fusional need to be acquired through positive evidence, and absence of these properties is uninformative. The dividing line between fusional and non-fusional languages lies in whether there is robust positive evidence indicating that the language has fusional or agglutinating morphology in any part of its nominal structure. In addition, the difference with respect to the availability of AE in languages with no case morphology is also explained in this section. Given that languages with invariant case lack the KP layer in their nominal structure, it is in line with the current proposal that morphology of the next functional head down, i.e., #, determines the availability of AE in these languages. It remains to be seen if the system outlined in this section properly works in languages that have a mixture of fusional and non-fusional case (or number) morphology in their

nominal structure.

2.5.4. *Argument Ellipsis in American Sign Language: Koulidobrova (2012)*

In this section, we look at yet another case-invariant language - American Sign Language (ASL). Koulidobrova (2012) investigates the distribution and interpretation of null arguments in ASL extensively. She first shows that null arguments in ASL are neither (a) pronouns licensed by agreement nor (b) indefinite pronouns. As for (a), Koulidobrova (2012) reports that null arguments in ASL can have a non-strict interpretation, as shown in (97), which is in contrast with the Spanish (a language with agreement-licensed pronouns) case in (98).

(97) A: a-PETER LIKE_{E_{plain}} a-POSS STUDENT

‘Peter likes his students.’

B: b-JEFF HATE_{E_{plain}} [e]

‘Jeff hates Peter’s/Jeff’s students.’

(Koulidobrova 2012:99)

(98) a. María cree [que su propuesta será aceptada] y
María believes that her proposal will-be accepted and
‘María₁ believes that her₁ proposal will be accepted and...’

b. Juan también cree [que [e] será aceptada]
Juan too believes that will-be accepted
‘Juan also believes that Maria’s/*Juan’s will be accepted’

(Oku 1998:305)

In (97) the null argument can be interpreted as either Peter’s students or Jeff’s students in ASL, whereas the null argument in Spanish in (98b) only allows for the strict interpretation. If pronouns licensed by agreement require the strict (definite) interpretation, the null object in (97) need to be analyzed differently from the Spanish case.

Koulidobrova (2012) argues that null arguments in ASL cannot be analyzed as indefinite

pronouns, either. Specifically, she shows that the distribution of ASL null arguments does not completely overlap the distribution of the English indefinite pronoun *one*. For example, given that adjectives are NP-adjoined and *one* in English replaces NPs (i.e., traditional N's), it is expected that (99) can have the interpretation that 'Jeff did not wash his own green car,' as well as the interpretation that 'Jeff did not wash any car.'

(99) *Context: Both John and Jeff own two cars each - a red and a green one.*

John has washed [the/his] green car, but Jeff didn't wash one.

- a. Jeff did not wash any car.
- b. Jeff did not wash his own green car.

(Koulidobrova 2012:109)

In contrast, the ASL null argument in (100) does not allow for such a reading.

(100) *Context: Both John and Jeff own two cars each - a red and a green one.*

_____t _____neg
JOHN FINISH WASH GREEN CAR, JEFF NOT WASH [e] NOT-YET

Lit. 'John washed (his) green car, Jeff hasn't washed [e] yet.'

- a. Jeff has not washed a car.
- b. * Jeff has not washed the green car (but he could have washed the red one).

(Koulidobrova 2012:109)

Although the English *one* in (99) is ambiguous between 'the/his green car,' 'green car,' and 'car,' only the last option is possible in ASL. Koulidobrova (2012) argues that if null arguments in ASL were indefinite pronouns, just like English *one*, such differences between English and ASL would not be expected, and that null arguments in ASL call for a different explanation.

The fact that null arguments in ASL cannot be analyzed as phonologically null pronouns (definite or indefinite) leads Koulidobrova (2012) to claim that they are derived by ellipsis of nominal categories. The reason why I do not refer to the process as AE is that, as Koulidobrova (2012) reports, null arguments in ASL do not allow genuine sloppy/quantificational readings,

which are used as a crucial indicator of ellipsis in this dissertation.⁴⁶

(101) JOHN FINISH READ THREE BOOK, MARY NOT READ [e]

Lit. ‘John has read three books; Mary did not read [e].’

a. Mary did not read any books (although she might have read magazines).

b. * Mary did not read three books (although she might have read one).

(Koulidobrova 2012:135)

(102) JOHN FINISH WASH POSS CAR, JEFF NOT WASH [e] NOT-YET

Lit. ‘John washed his car; Jeff hasn’t yet washed [e].’

a. Jeff has not washed any cars (no car-washing event).

b. * Jeff has not washed his own car.

(Koulidobrova 2012:135)

In (101) the null object, which is embedded in the negative context, cannot have the quantificational reading. Similarly, the sloppy reading is impossible in (102), where the null object is used in a negative context. These facts sharply contrast with the Japanese cases in (103) and (104), where both the quantificational and sloppy reading are perfectly available.

(103) Ken-wa [san-satsu-no hon]-o yomiowat-ta ga,
 Ken-TOP 3-CL-GEN book-ACC finish.reading-PAST but
 Masa-wa [e] yomiowat-te-nai.
 Masa-TOP finish.reading-PAST-NEG

Lit. ‘Ken finished reading three books, but Masa has not finished reading [e].’

(104) Ken-wa [zibun-no kuruma]-o araiowat-ta ga,
 Ken-TOP self-GEN car-ACC finish.washing-PAST but
 Masa-wa [e] araiowat-te-nai.
 Masa-TOP finish.washing-PAST-NEG

Lit. ‘Ken finished washing self’s car, but Masa has not finished washing [e].’

⁴⁶ It appears that the apparent sloppy interpretation in (97) is not a genuine sloppy reading, but it is more like what Hoji (1998) dubs the ‘sloppy-like reading,’ which arises from an indefinite interpretation of elided materials.

To account for the limited distribution of ASL null arguments, Koulidobrova (2012) proposes that what is elided in ASL is non-branching NPs. More specifically, building on Bošković (2012), she argues that ASL is a language that does not project a DP, and that null arguments in ASL have the same distribution as bare singular NPs, which are typically an argument in the language. This proposal correctly explains the difference between ASL and Japanese mentioned above, because ellipsis in ASL targets a bare, non-branching NP to the exclusion of quantifiers and possessors.

Though I think Koulidobrova's (2012) analysis of null arguments in ASL is quite interesting, I would like to consider the facts of ASL from a different perspective, specifically in light of the proposal put forth in this chapter. In particular, it is not clearly explained in Koulidobrova (2012) how the difference between ASL (which only allows ellipsis of non-branching NPs) and Japanese (which allows ellipsis of branching NPs) comes about, and I try to make some speculations regarding the difference in the rest of this section.

Since ASL is a language with no morphological case, what is important is how number and person are expressed morphologically. Lillo-Martin and Meier (2011) report that first and non-first person pronouns in ASL have a different plural marking, as shown in Figure 2.1.

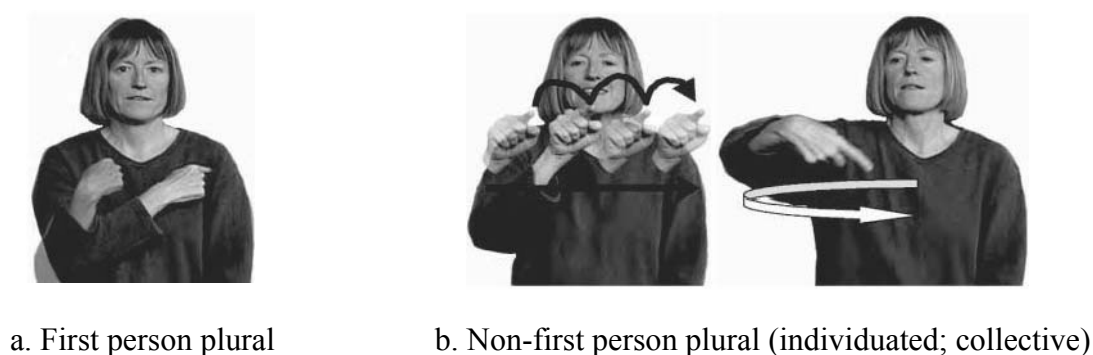


Figure 2.1: Plural pronouns in ASL (Lillo-Martin and Meier 2011:102)

The first person plural form consists of two points on the signer's chest. In contrast, non-first

person plural is expressed either by a series of non-first pronouns or by the singular non-first person form plus an arc. If we consider the different plural marking found in ASL to be the indication of fusional number/person morphology, it is expected under the current analysis that ASL should not allow AE. Although more work needs to be done to draw a strong conclusion, it might be the case that the difference between ASL and Japanese is more substantive than Koulidobrova (2012) thinks – that is, Japanese allows AE, whereas ASL does not. The lack of the sloppy/quantificational reading in (101) and (102) then suggests that ASL just does not have AE. The problem remaining is – where do the indefinite properties of ASL null arguments come from? I speculate that there still remains a possibility to analyze ASL null arguments as null indefinite pronouns. Koulidobrova (2012) argues against this approach on the basis of the fact that the distribution of ASL null arguments and the distribution of the English indefinite pronoun *one* do not completely overlap, as shown in (99) and (100). However, the possibility still remains that ASL null arguments are more like ‘existential’ indefinite pronouns, such as *something* and *anything*. In fact, the sentence in (105) correctly excludes the interpretation in (100b), repeated as (106b) below.

(105) John washed his green car, but Jeff hasn’t washed anything yet.

(106) *Context: Both John and Jeff own two cars each - a red and a green one.*

_____t _____neg

JOHN FINISH WASH GREEN CAR, JEFF NOT WASH [e] NOT-YET

Lit. ‘John washed (his) green car, Jeff hasn’t washed [e] yet.’

a. Jeff has not washed a car.

b. * Jeff has not washed the green car (but he could have washed the red one).

(Koulidobrova 2012:109)

This explanation also accounts for the absence of the sloppy/quantificational reading in (101) and (102), repeated below as (107) and (108), respectively.

- (107) JOHN FINISH READ THREE BOOK, MARY NOT READ [*e*]
 Lit. ‘John has read three books; Mary did not read [*e*].’
 a. Mary did not read any books (although she might have read magazines).
 b. * Mary did not read three books (although she might have read one).
 (Koulidobrova 2012:135)
- (108) JOHN FINISH WASH POSS CAR, JEFF NOT WASH [*e*] NOT-YET
 Lit. ‘John washed his car; Jeff hasn’t yet washed [*e*].’
 a. Jeff has not washed any cars (no car-washing event).
 b. * Jeff has not washed his own car.
 (Koulidobrova 2012:135)
- (109) a. Mary did not read anything.
 b. Jeff has not washed anything.

Given the parallelism between the interpretation of the sentences in (107)/(108) and the interpretation of the English sentences in (109a)/(109b), which involve the existential indefinite pronoun *anything*, it is reasonable to suppose that null arguments are analyzed as a phonologically null version of the existential indefinite pronoun.⁴⁷

To sum up this section, based on Koulidobrova’s (2012) observation, I offered an analysis of null arguments in ASL in light of the current morphology-based analysis of AE. Acknowledging that more work needs to be done to draw a solid conclusion, I suggested the possibility that null arguments in ASL are fundamentally different from AE found in languages

⁴⁷ Recall that ASL null arguments also have the definite (strict) interpretation, as repeated in (i) below.

(i) A: a-PETER LIKE_{plain} a-POSS STUDENT

‘Peter likes his students.’

B: b-JEFF HATE_{plain} [*e*]

‘Jeff hates Peter’s/Jeff’s students.’

(Koulidobrova 2012:99)

This interpretation is not expected by the null (existential) indefinite pronoun. I simply assume that ASL also has definite *pros*, the interpretation of which is identified from context. Note importantly that Koulidobrova (2012) tries to make an unified analysis of null arguments in ASL, deducing various interpretations arising from ASL null arguments from a single source.

such as Japanese – they are considered to be a phonologically null version of the ‘existential’ indefinite pronoun. Given the fact that first and non-first person pronouns have a different plural marking in ASL, suggesting that ASL pronouns exhibit fusional number/person morphology, the current morphology-based analysis of AE offers a straightforward account of the absence of AE in ASL.

2.5.5. A Note on the Zero Pronunciation of K

It is argued in Section 2.5.2 that AE results from the combination of ellipsis of K’s complement and zero pronunciation of K. In this section, I discuss the latter – i.e., zero pronunciation of K – in more detail.

One way to derive the zero pronunciation of K is to assume that it is an instance of case drop, which is observed in languages like Japanese (cf. Kuno 1973, Saito 1985, Kageyama 1993). For example, Japanese allows an option not to pronounce the accusative case marker *-o*, as shown in (110).

- (110) Ken-wa hon(-o) kat-ta.
Ken-TOP book-ACC buy-PAST
‘Ken bought a book/books.’

If the zero-pronunciation of K can be subsumed under case drop, we do not need to assume an independent mechanism for it. However, there are reasons why zero-pronunciation of K should be treated differently from case drop. First, the distribution of AE does not coincide with the distribution of case drop. For example, contrary to the accusative marker *-o*, the dative marker *-ni* is never dropped.

- (111) Ken-wa Masa*(-ni) hon(-o) age-ta.
 Ken-TOP Masa-DAT book-ACC give-PAST
 ‘Ken gave a book/books to Masa.’

If the zero-pronunciation of K is an instance of case drop, it is expected that dative arguments should not be elided by AE. This prediction is not borne out, however. The dative argument in (112b) can have the quantificational reading, indicating that the null dative argument results from AE.

- (112) a. Ken-wa juu-nin-no gakusee-ni hon-o age-ta.
 Ken-TOP ten-CL-GEN student-DAT book-ACC give-PAST
 Lit. ‘Ken gave a book/books to ten students.’
 b. Masa-wa [e] jisyo-o age-ta.
 Masa-top dictionary-ACC give-PAST
 Lit. ‘Masa gave a dictionary/dictionaries [e].’ (Quantificational reading possible)

The second argument against the case drop analysis comes from the fact that AE is possible in languages that do not generally allow case drop. For example, Andrew Simpson (p.c.) points out that Hindi allows AE, as confirmed by the availability of the quantificational reading in (113b), while the language (as well as other South Asian languages) generally prohibits case drop (see Section 3.4.1 for more data regarding the interpretation of null arguments in Hindi.)

- (113) a. John teen adhyapako ki izzat karta hai.
 John three teachers respects is
 ‘John respects three teachers.’
 b. Bill bhi [e] izzat karta hai.
 Bill also respects is
 Lit. ‘Bill also respects [e].’ (Quantificational reading possible)
 (Simpson et al. 2013)

Again, this would not be expected if the zero-pronunciation of K were an instance of case drop.

I claim that languages that allow AE (i.e., languages exhibiting non-fusional case

morphology) have the phonological rule given in (114).

$$(114) \quad K \rightarrow \emptyset / \#P[\emptyset] \text{ ____}$$

This rule stipulates that K goes to phonologically null in the context where its complement, #P, is also phonologically null. One might wonder why this rule applies only in languages with non-fusional case morphology. The application of the rule in (114) in fusional case languages might avoid a phonologically ill-formed combination K-#[\emptyset], by rendering K also phonologically null, and incorrectly rule in the option of AE in these languages. Recall, however, the assumption made in Section 2.5.3 that if a language has a robust cue for fusional case morphology, then the language is classified as a fusional case language. This is supplemented by the acquisition strategy stating that children maintain the hypothesis that, without evidence to the contrary, nominal structures (e.g., whether K is combined with #) are consistent throughout the language. This means that the phase head K and the next head down, #, need to be combined in every nominal structure, once the language is classified as a fusional case language. As a consequence, in fusional case languages, K and # are already combined into one head, K/#, at the PF interface, where the rule (114) applies. Since the existence of the category K is a necessary condition for the rule (114) to apply, it is not applicable to languages with fusional case/number morphology.⁴⁸

⁴⁸ William Snyder (p.c.) points out to me another interesting way to account for lack of AE in fusional case languages using the rule in (114). Suppose that languages vary in whether the head below K, i.e. #, moves up and adjoins to K (and this syntactic head movement is a necessary condition for fusional morphology). Also, if children use the existence of fusional case morphology as a sole trigger for #-to-K movement, then it also becomes a sufficient condition. Given these, we could say that AE is blocked whenever # moves up and adjoins to K (or more generally, whenever something moves up and adjoins to a phase head), because the rule (114) is no longer applicable after the head movement.

I do not try to distinguish between the syntactic head movement approach above and the morphological merger approach put forth in this dissertation, because the problem is closely related to another problem – whether there is strong evidence showing that the head movement relevant here is syntactic. If there is such evidence, the syntactic head movement approach should be preferred. As far as I

Although the rule (114) appears to be a mere stipulation, a similar situation is reported in recent studies by Stjepanović (2008, 2012). She reports that ellipsis feeds the zero pronunciation of a preposition in Serbo-Croatian. More specifically, it is observed that prepositions can be dropped only when TP is elided by sluicing. This is shown in (115) below:

- (115) a. Petar je glasao protiv nečega,
 Petar is voted against something-GEN
 ali ne znam (protiv) čega.
 but not I-know against what-GEN
 ‘Petar voted against something, but I don’t know what.’
 b. *(Protiv) čega je Petar glasao?
 against what-GEN is Petar voted
 ‘What did Petar vote against?’

The preposition *protiv* ‘against’ can be dropped in (115a), a sentence involving sluicing, whereas postpositions must be pronounced in ordinary sentences, as shown in (115b). One might think that the P-drop sentence in (115a) derives from the combination of P-stranding and sluicing, as illustrated in (116).

- (116) Petar je glasao protiv nečega,
 Petar is voted against something-GEN
 ali ne znam [_{CP} čega₁ [_{TP} ~~je Petar glasao protiv t₁~~].
 but not I-know what-GEN is Petar voted against

However, this analysis is difficult to maintain, because Serbo-Croatian generally disallows P-stranding, as shown in (117).

know, however, there is no reason to assume that ‘syntactic’ head movement is involved to create the #/K complex, and I suppose that, without evidence for the existence of such syntactic movement, the morphological approach should be preferred to reduce (and possibly exclude) parametric variations from narrow syntax (see Section 5.1 for relevant discussion).

- (117) * Čega je Petar glasao protiv?
 what-gen is Petar voted against

The fact that P can be omitted in the sluicing construction appears to constitute a counter-example to the P-stranding Generalization proposed by Merchant (2001), which is given in (118).

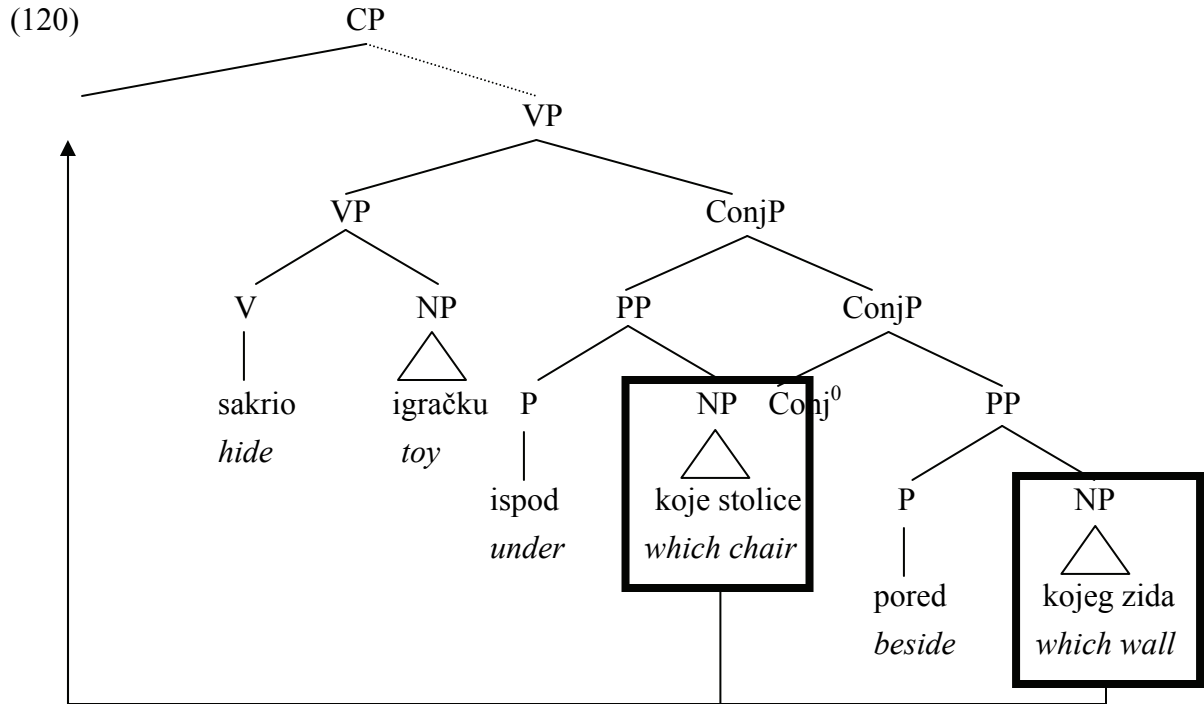
- (118) Form-identity generalization II: P-stranding (Merchant 2001:92)
 A language L will allow preposition stranding under sluicing iff L also allows preposition stranding under wh-movement.

Stjepanović (2008, 2012) shows that the sentence in (115a) does not involve P-stranding, hence not problematic for the P-stranding Generalization. Consider the sentences in (119):

- (119) Petar je sakrio igračku ispod jedne stolice i pored jednog zida,
 Petar is hid toy under one chair-GEN and beside one wall-GEN
 ali ne znam (ispod) koje stolice i (pored) kojeg zida.
 but not I-know under which chair-GEN and beside which wall-GEN
 ‘Peter hid the toy under a chair and next to a wall, but I don’t know which chair and which wall.’

(Stjepanović 2008:183)

Stjepanović (2008, 2012) observes that (119) can have the interpretation that involves one place where Petar hid the toy, as evidenced by the fact that (119) can be followed by the sentence: ‘Eh, I’d really like to know where that place is!’ Importantly, the one place interpretation does not arise from CP-coordination; rather, the underlying structure, if P-stranding were involved, should be something like in (120).



Since the structure in (120) violates the Coordinate Structure Constraint (Ross 1967), it is quite unlikely that P-stranding is involved in the sentence (119).⁴⁹ Stjepanović (2008, 2012) then concludes that UG should involve a mechanism that allows P to be unpronounced under certain (yet unknown) conditions. Although it is not clear why P-drop is allowed only when the sentence involves sluicing, she argues that there are some conditions that constraints the application of P-drop. For instance, it is reported that P-drop is not allowed under sprouting.

⁴⁹ It has been observed that the CSC violation is ameliorated when an identical element in both conjuncts move out in an Across-the-Board (ATB) fashion, as in (i) (cf. Ross 1967).

(i) Who₁ did [_{&P} you like *t*₁ but Mary hate *t*₁] ?

What makes (120) different from (i) is that the different elements (*koje stolice* ‘which chair’ and *kojeg zida* ‘which wall’) are extracted from the conjunct. In fact, Citko (2003) reports that the CSC violation are not ameliorated even in languages with multiple *wh*-movement when multiple elements indicating different entities are extracted from a conjunct, as shown in (ii).

(ii) * Kogo₁ kogo₂ [_{&P} Jan lubi *t*₁ a Maria kocha *t*₂] ?

whom whom Jan likes and Maria loves

(Citko 2003:89)

- (121) Petar je glasao, ali ne znam *(protiv) čega.
 Petar is voted but not I-know against what-GEN
 ‘Petar voted but I don’t know against what.’

This fact suggests that P-drop occurs only if the preposition is recoverable (i.e. if it is present in the antecedent). In fact, AE in Japanese shows a similar restriction. Consider the sentences in (122).

- (122) a. Ken-wa juu-nin-no josee-kara tegami-o morat-ta.
 Ken-TOP ten-CL-GEN woman-from letter-ACC receive-PAST
 ‘Ken received a letter from ten women.’
 b. Masa-wa [e] hankachi-o okut-ta.
 Masa-TOP handkerchief-ACC present-PAST
 Lit. ‘Masa presented a handkerchief [e].’ (??Quantificational reading)
 c. Masa-wa juu-nin-no josee-ni hankachi-o okut-ta.
 Masa-TOP ten-CL-GEN woman-DAT handkerchief-ACC present-PAST
 ‘Masa presented a handkerchief to ten women.’

Note that the verbs in (122a) and (122b) require different particles, *-kara* ‘from’ in (122a) and *-ni* ‘to’ in (122b). Why is it that AE is difficult in (122b) (as evidenced by the marginal availability of the quantificational reading)? The sentence in (123b) sharply contrasts with (122b) in that the quantificational reading is perfect in the sentence.

- (123) a. Ken-wa juu-nin-no josee-kara tegami-o morat-ta.
 Ken-TOP ten-CL-GEN woman-from letter-ACC receive-PAST
 ‘Ken received a letter from ten women.’
 b. Masa-wa [e] hankachi-o morat-ta.
 Masa-TOP handkerchief-ACC receive-PAST
 Lit. ‘Masa received a handkerchief [e].’ (^{OK}Quantificational reading)

I speculate that the zero particle is not recoverable in (122b) because there is no dative marker in the antecedent clause, which contrasts with the acceptable case in (123b). Since K (or possibly P)

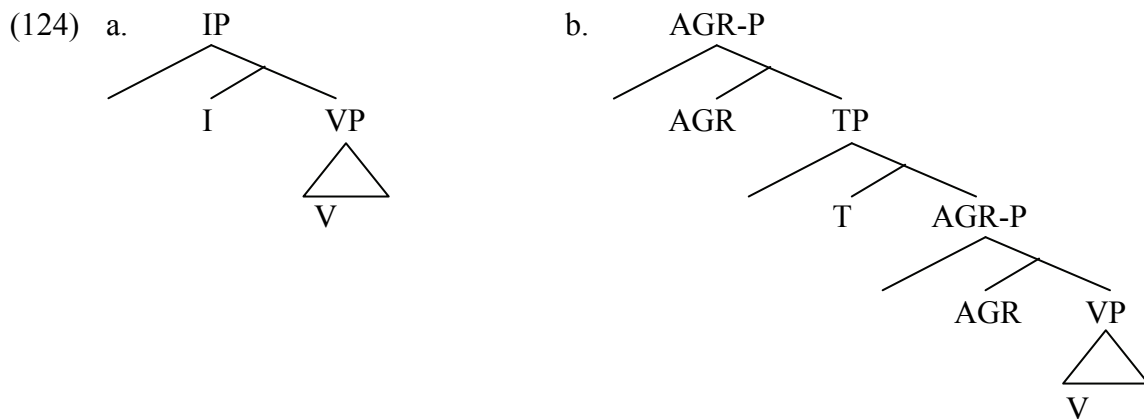
cannot be dropped, AE is not applicable in the sentence.

The similar behavior between AE and P-drop in Serbo-Croatian might suggest that the same mechanism is involved in both situations. In this dissertation, I assume without further discussion that UG allows P/K to be unpronounced only when certain conditions are met, granting that further research is needed to understand the nature of the phenomenon.

2.6. An Alternative: The Bundling Approach

2.6.1. Bobaljik and Thráinsson (1998)

This section explores another way of implementing the idea put forth in this chapter. Bobaljik and Thráinsson (1998), building on Bobaljik (1995) and Thráinsson (1996), propose that the Split IP Parameter (henceforth SIP) determines whether a language has a simple, unsplit IP structure or complex, split functional projections. The difference is illustrated in (124).



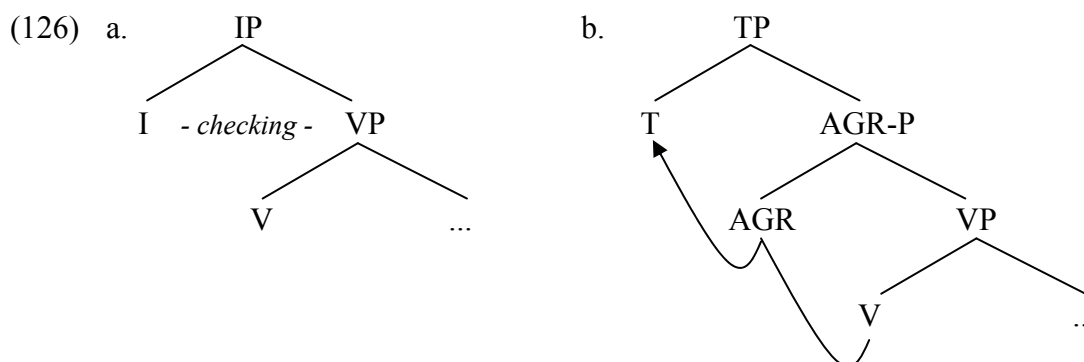
(Bobaljik and Thráinsson 1998: 37)

In languages that have a simple IP structure (124a), ϕ and tense features are ‘bundled’ in a single functional category Infl. By contrast, these features are scattered in different functional projections, AGR and T, in (124b).

Interestingly, Bobaljik and Thráinsson (1998) claim that the difference between (124a) and (124b) has multiple consequences for syntax and morphology. (125) summarizes the properties that are considered to result from the SIP.

- (125)
- a. The requirement that the verb raise out of the VP in non-V2-environments.
 - b. The availability of Object Shift.
 - c. The possibility of Transitive Expletive Constructions.
 - d. The possibility of multiple inflectional morphemes on the verb stem.

(125a) is based on the assumption that features can be checked in a head-complement relation. If a language has the structure in (124a) with the negative value of the SIP, V does not need to raise to I, because the checking relation between I and V is satisfied without movement.⁵⁰ However, the situation changes in the split IP structure in (124b): since a checking relation between T and V cannot be established due to the presence of the intervening head AGR, V raises out of VP to satisfy its feature checking requirement. The difference in V-movement is illustrated in (126).



For example, just like English, Mainland Scandinavian languages such as Swedish are considered to be a [–SIP] language, because in non-V2 environments, verbs follow negation and VP-adverbs, which are assumed to demarcate the left edge of the VP.

⁵⁰ Note that Bobaljik and Thráinsson (1998:39) assume that the features of a projection are those of its head. Hence, the VP in (124a) bears a V-feature and a checking (head-complement) relation is established between I and V.

- (127) a. Jag trivlar på [CP att [IP han [VP verkligen **läste** boken]]]
 I doubt on that he really read book-the
 ‘I doubt that he really read the book.’
 b. * Jag trivlar på [CP att [IP han **läste** [VP verkligen boken]]]
 I doubt on that he read really book-the
 (Bobaljik and Thráinsson 1998: 47)

In (127a) the embedded verb *läste* ‘read’ follows the VP-adverb *verkligen* ‘really.’ In contrast, when the verb is placed in front of the adverb in (127b), the sentence becomes ungrammatical, suggesting that verbs in Swedish must stay within VP.

Data from Icelandic show a completely opposite pattern.

- (128) Ég spurði ...
 I asked
 a. ... [CP af hverju [IP_x Helgi **hefði** [VP oft lesið þessa bók]]]
 why H. had often read this book
 ‘I asked why Helgi had often read this book.’
 b. * ... [CP af hverju [IP_x Helgi [VP oft **hefði** lesið þessa bók]]]
 why H. often had read this book
 (cf. Vikner 1994, Vikner 1995: 139)

The auxiliary verb *hefði* ‘had’ needs to move out of the VP, as indicated by the ungrammaticality of (128b) where the auxiliary verb stays in the VP. The difference in V-movement between Swedish and Icelandic suggests that these languages have different values of the SIP, [–SIP] for Swedish and [+SIP] for Icelandic.

(125b) and (125c) are related to the number of specifiers available. Given that one head provides only one specifier position, the difference between (124a) and (124b) predicts that languages with the [+SIP] value can host more specifier positions than [–SIP] languages. Bobaljik and Thráinsson (1998) test this prediction using Object Shift and the Transitive Expletive Construction (TEC). It is generally assumed that a shifted object in the Object Shift construction occupies a specifier position of a higher functional head, presumably AgrO-P (cf.

Déprez 1989, Vanden Wyngaerd 1989). It is expected that only languages with a [+SIP] value allow Object Shift, because there is no position available to a shifted object in [−SIP] languages. This prediction is borne out. Icelandic, having the [+SIP] value, allows Object Shift, as shown in (129).

- (129) a. Ég las þrjár bækur_i ekki t_i
 I read three book-PL not
 ‘I didn’t read three books.’
 b. Ég las ekki þrjár bækur_i
 I read not three book-PL

(Bobaljik and Thráinsson 1998: 53)

In (129a) the object *þrjár bækur* ‘three books’ is moved leftward across the negation. Even though Icelandic allows the option of shifting objects across elements sitting at a VP edge, Swedish, which is assumed to have a [−SIP] value, does not, as shown in (130).

- (130) a. * Jag läste boken_i inte t_i
 I read book-the not
 ‘I have not read the book.’
 b. Jag läste inte boken_i
 I read not book-the

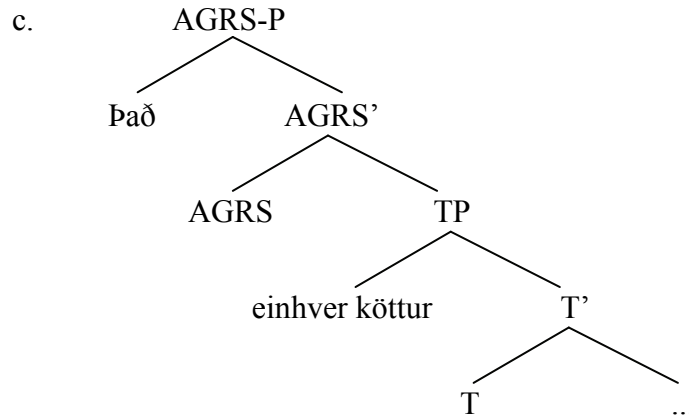
(Bobaljik and Thráinsson 1998: 54)

The object *boken* ‘the book’ is displaced over the negation in (130a), and the sentence becomes ungrammatical, suggesting that Object Shift is not an available option for Swedish.

Likewise, the availability of the TEC in Icelandic, given in (131a), indicates that there are more than one subject positions available, presumably in Spec TP and Spec AGRS-P, as illustrated in (131c).

- (131) a. Það hefur einhver köttur étið mýsnar.
 EXPL has some cat eaten mice-the
 ‘A cat has eaten mice.’
- b. * Það hefur étið einhver köttur mýsnar.
 EXPL has eaten some cat mice-the

(Bobaljik and Thráinsson 1998: 56)



In Icelandic, the expletive *Það* can be used with transitive verbs as long as its associate is out of VP (e.g., (131b)). By contrast, the TEC is not allowed in Norwegian, another Mainland Scandinavian language that is assumed to have a [–SIP] value.

- (132) a. * Det har en katt ete mysene.
 EXPL has a cat eaten mice-the
 * ‘There has a cat eaten the mice.’
- b. * Det har ete en katt mysene.
 EXPL has eaten a cat mice-the

(Bobaljik and Thráinsson 1998: 56)

This is exactly what Bobaljik and Thráinsson (1998) predict: Icelandic, having more than one subject position due to [+SIP], allows the TEC, whereas Norwegian, having just one subject position due to [–SIP], does not.

Lastly, Bobaljik and Thráinsson (1998) argue that the difference between [+SIP] and [–SIP] has a consequence for verbal morphology. More specifically, they argue that verbs in languages

with the [+SIP] value express agreement and tense distinctively. For example, it is impossible to express agreement and tense features using discrete morphemes in English, as indicated by the fact that the past third person singular form of the verb *talk* is ‘talk-ed’, not ‘talk-ed-s.’ Icelandic, on the other hand, can express agreement and tense by discrete morphemes.

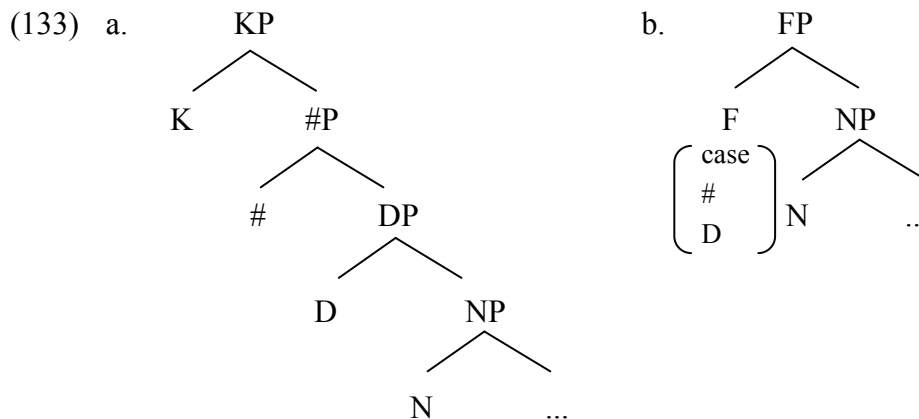
Table 2.7: Icelandic: *kasta* ‘to throw’ (Bobaljik and Thráinsson 1998: 59)

	Present	Past		Present	Past
1 SG	kasta	kasta -ði	1 PL	köst -um	köstu -ðu -m
2 SG	kasta -r	kasta -ði -r	2 PL	kast -ið	köstu -ðu -ð
3 SG	kasta -r	kasta -ði	3 PL	kast -a	köstu -ðu

According to Bobaljik and Thráinsson (1998), this is possible in Icelandic because it is a [+SIP] language, and has distinct functional heads corresponding to agreement (AGR) and tense (T). In contrast, this is impossible in languages with the [–SIP] value, because there is only one slot (I) in which a morpheme can be inserted.

2.6.2. The Level of Representation at which Merger Applies

Having laid out Bobaljik and Thráinsson’s (1998) ‘bundling’ approach in the previous section, let us next consider whether it is possible to extend the bundling approach to the proposal made in this dissertation. It seems reasonable to maintain the idea that not only the number of extended verbal projections such as TP and AGR-P, but the number of extended nominal projections such as KP and #P is also parameterized. Languages with non-fusional case morphology thus have more functional projections than languages with fusional case morphology, as illustrated in (133).



The structure in (133a) is the structure for non-fusional case languages, which is identical to the one I assumed in this chapter. The difference between (133a) and (133b) is that, although K, #, and D are separated in (133a), relevant features are bundled in one functional head F in (133b).^{51,52}

⁵¹ Note that whether the functional category D, in addition to K and #, is bundled is subject to language variation. In the German cases we discussed above, D does not seem to be bundled, but stands by itself as an independent category.

⁵² If we adopt the bundling approach, a question arises why AE is disallowed in the structure in (133b) - if the ellipsis feature is put on F, the combination of the elision of NP and zero-pronunciation of F should yield the effect of AE. This question is closely related to the mechanism of NP(N')-ellipsis. In fact, elision of NP (NP-ellipsis) is considered to be possible in English, as in (i).

(i) I have read Bill's book, but I haven't read [John's ~~NP-book~~]. (Saito et al. 2008:252)

Given the structure in (133b), the sentence in (i) can be analyzed that F bears the ellipsis feature and its complement, the NP *book*, is elided. However, as discussed extensively in Saito and Murasugi (1990), NP(N')-ellipsis (at least in English) is licensed only when there is a specifier that enters into Spec-Head agreement (see also fn.24, which shows that this requirement does not seem to hold in Japanese). Hence, the sentence involving NP(N')-ellipsis in (ii) is ungrammatical because of the absence of a specifier.

(ii) * I have seen the book, but I haven't had a chance to read [the ~~NP-book~~]. (Saito et al. 2008:252)

The bundling approach might be able to explain the absence of AE in languages with fusional case morphology as follows. Since K, #, and D are combined into a single category F, elision of the complement of F results in NP(N')-ellipsis. Since NP(N')-ellipsis requires a specifier of FP, AE (elision of whole arguments) is disallowed.

I proposed that the locus of parametric variation concerning AE is whether a language has an independent exponent of K. If K has its own exponent, K need not combine with other functional heads, resulting in a non-fusional case morphology language. On the other hand, if K does not have an independent exponent, K must combine with other functional heads for the purpose of externalization. Since K must be expressed with other features such as number and person, such languages exhibit fusional case morphology.

It seems that the proposal made in Section 2.5.2 and the bundling approach share the idea that whether K has its own exponent or not is the locus of parametric variation, the difference being the level of representations at which concatenation occurs in languages with fusional case morphology. While the present proposal claims that the concatenation happens in the morphological component, specifically after Spell-out, the bundling approach argues that all of the relevant features are bundled before Spell-out, (presumably in the syntax or lexicon). What is important for the purpose of current discussion is to see whether these two approaches are just technical variants, or they are making substantially different claims.

One area that the bundling approach and the current proposal may bring about different consequences is German noun declensions. As we have seen before, pronouns, determiners and strong adjectives in German exhibit robust fusional morphology in terms of case and number. However, some dative plural nouns express case and number agglutinatively, as shown in the paradigm below.

Note, however, that the explanation above goes through only when K, #, and D are all bundled into one category. I have no explanation for why DP-ellipsis (with zero-pronunciation of F[K,#]) is impossible when only K and # are bundled but D itself has its own category, as in the German case.

Table 2.8: German nouns showing agglutinating case and number

	Hund _m ⁵³ (‘dog’)	Schaf _n (‘sheep’)	Buch _n (‘book’)	Drangsal _f (‘distress’)
NOM/SG	Hund-Ø	Schaf-Ø	Buch-Ø	Drangsal-Ø
ACC/SG	Hund-Ø	Schaf-Ø	Buch-Ø	Drangsal-Ø
DAT/SG	Hund-Ø	Schaf-Ø	Buch-Ø	Drangsal-Ø
GEN/SG	Hund-es	Schaf-es	Buch-es	Drangsal-Ø
NOM/PL	Hund-e	Schaf-e	Büch-er	Drangsal-e
ACC/PL	Hund-e	Schaf-e	Büch-er	Drangsal-e
DAT/PL	Hund-e-n	Schaf-e-n	Büch-er-n	Drangsal-e-n
GEN/PL	Hund-e	Schaf-e	Büch-er	Drangsal-e

Of importance here are dative plural forms that express number and case with distinct morphemes (e.g., *Hund-e* (plural) -> *Hund-e-n* (plural and dative)).

Recall that Bobaljik and Thráinsson (1998) argue that expressing agreement and tense with distinctive morphemes entails that the language has a [-SIP] value. A simple extension of Bobaljik and Thráinsson’s (1998) claim may incorrectly lead us to the conclusion that German has separate K and number heads due to the presence of the dative plural nouns. Although the facts from German declensions constitute a *prima facie* problem for extending Bobaljik and Thráinsson’s (1998) proposal to nominal domains, I think it is still maintainable. According to Alexiadou and Müller (2008), there are some good reasons to doubt that some German nouns have genuine agglutinating morphology:

Still, in our views, there is reason to doubt an agglutinative marking of plural and dative in German. First, agglutination does not show up anywhere else in the system of German declensions. Second, it is unclear why it should be just dative plural contexts that are affected by agglutination. Third, it has not yet been shown convincingly that there is a good reason why an alleged agglutinative /n/ dative marker does not attach to other plural markers, like /s/ ... and, in particular, /n/ ... and /Ø/ ... Fourth and finally, it seems that the /n/

⁵³ The subscripts attached to the nouns show their gender: *m* (masculine), *f* (feminine), and *n* (neuter).

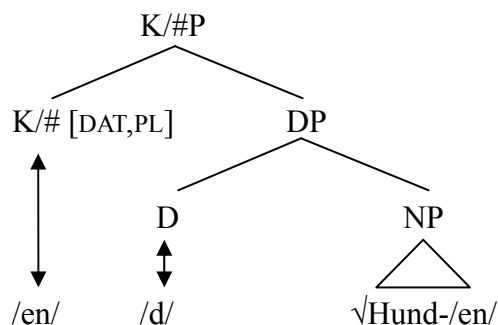
in dative plural contexts is about to disappear in colloquial varieties of German, especially in PP-internal contexts, thereby unifying marking in the four plural contexts; see Gallmann (1998). This would seem to imply a radical shift from agglutination to fusion in dative plural contexts in the standard approach, but can be analyzed in terms of simplification and assimilation of a single marker in the present analysis.

(Alexiadou and Müller 2008: 130)

I assume, following Alexiadou and Müller (2008), that the alleged agglutinating dative plural forms are indeed fusional, just like other forms of German noun declensions.⁵⁴

I think this direction of regarding German plural datives as having (underlying) fusional case/number morphology should be preferred, because we do not need to postulate both fusional and agglutinating morphology simultaneously in the same nominal domain. Specifically, I assume the following structure for the DP *den Hunden* ‘the dogs (dative).’

(134) *den Hunden* ‘the dogs (dative)’



The concatenated K/# head, which is specified as dative/plural, is spelled out as /en/, resulting in the dative plural form of the determiner *den*. In addition, I assume, building on Norris’s (2012) analysis of nominal concord, that the noun *Hund* acquires the suffix /en/ as the result of the combination of AGR node insertion (cf. Noyer 1997, Embick and Noyer 2007) and feature

⁵⁴ Jonathan Bobaljik (p.c.) points out that a more straightforward reason to consider German plural datives to be fusional is that the *-n* suffix is not a pure dative marker, but it marks dative only when there is a plural feature. It might be agglutinative, but requires a further assumption that dative shows allomorphy for number (cf. Noyer’s (1992) theory of Fission and primary/secondary exponence).

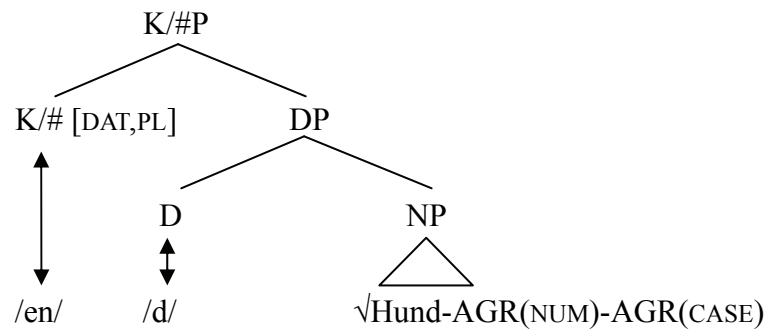
copying. More specifically, AGR node insertion is a process occurring in the morphological component that adds an AGR node to a category in accordance with a morphological requirement. After the AGR node is inserted, the features on K/# are copied onto the AGR node by the rule of Feature Copying in (135).

(135) Feature Copying (cf. Norris 2012)

The features on the closest agreeing category to any particular AGR node are copied onto it.

Importantly, under this analysis, the concatenated head K/# is responsible for both the realization of the determiner and the realization of the noun suffix. On the other hand, it seems that the unified analysis needs to be given up, if case and number on German noun inflection are truly agglutinating. Suppose the following structure, which has two AGR nodes for case and number due to agglutination.

(136)



Since there are two AGR nodes, this configuration should involve two instances of agreement and feature copying. Furthermore, features of K/# and those of each AGR do not match completely: each AGR only has a subset of the features of K/#. I suppose that, if two structures are possible with respect to the data obtained from a language, the structure that involves fewer steps of agreement and complete feature matching should be preferred unless there is evidence to the contrary.

If the assumption that German nominal phrases have robust fusional morphology in terms of case and number can be maintained, the German data discussed above are no longer problematic for extending the bundling approach to nominal domains. In this dissertation, I do not try to compare the two approaches, namely the bundling approach and the morphological merger approach, any further, and simply assume the latter for the sake of exposition, granting that the former is also a potential way of implementing the idea put forth in this dissertation.

2.7. Summary of Chapter 2

In this chapter, I have first defended the position that AE is an indispensable operation in the grammar (at least for some languages such as Japanese, Korean and Turkish). Specifically, it has been shown that a whole range of interpretations arising from null arguments in Japanese cannot be explained by means of phonologically null pronouns or other types of ellipsis (such as VP-ellipsis), and that the operation that elides just arguments is necessary.

After having established that AE is indispensable, I proposed that the possibility of AE in a language is constrained by its case morphology: if a language has fusional case morphology, elision of the complement of K is disallowed, resulting in the absence of AE in the language. This approach makes correct cross-linguistic predictions on the availability of AE. Serbo-Croatian, Afrikaans, and Swedish, which are problematic for the previous analyses, are correctly predicted to be non-AE languages, because they all exhibit fusional case morphology. Chinese, on the other hand, is predicted to allow AE, because it does not express case morphology at all and shows agglutinating number/person morphology. Furthermore, the current proposal is able to solve the problems of language acquisition: although it is not clear how children could use scrambling and (absence of) agreement to determine the availability of AE, case morphology is much more easily detectable by children.

An alternative way of implementing the idea – namely, the bundling approach – has also

been discussed, and we have reached the conclusion that the bundling approach and the morphological approach are just technical variants: they only differ in timing at which concatenation applies.

CHAPTER 3: ARGUMENT ELLIPSIS IN OBJECT AGREEMENT LANGUAGES

3.1. Introduction

In Chapter 2, we have seen that there exist languages that have neither morphological agreement nor AE (e.g., Swedish and Afrikaans), which is unexpected under the Anti-agreement Analysis. The current morphology-related approach to AE, on the other hand, correctly predicts that these languages, exhibiting fusional case morphology, disallow AE. The question to be asked in this chapter is whether the other direction of the implication also holds – that is, are there languages that have both morphological agreement and AE? If there are such languages, it will be more difficult to maintain the Anti-agreement Analysis. We start in the next section with the data from Turkish reported by Şener and Takahashi (2010), which appear to suggest that morphological agreement blocks AE, in conformity with the Anti-agreement Analysis. Then, I point out a confounding factor related to the lack of a sloppy reading in subject positions in Turkish, and argue that we need to look at languages with object agreement to better understand the relation between the presence/absence of agreement and the availability of AE. It is shown at the end that agreement does not always block AE, and that what is crucial for the availability of AE is not the presence/absence of agreement, but the morphology of nominal phrases.

3.2. Argument Ellipsis in Turkish: Şener and Takahashi (2010)

Şener and Takahashi (2010) provide convincing support for the Anti-agreement Analysis by

observing that the availability/absence of a sloppy reading correlates with the presence/absence of morphological agreement in Turkish. Turkish is quite similar to Japanese in that it allows both scrambling and extensive null arguments. For example, as shown in (137) and (138), dative and accusative arguments can freely alternate with temporal adjuncts.

- (137) a. Can her hafta sinema-ya gid-er.
 John every week movies-DAT go-AOR
 ‘John goes to the movies every week.’
 b. Can sinema-ya her hafta gid-er.
 John movies-DAT every week go-AOR
- (138) a. Mete dün sabah ders-i ek-miş.
 Mete yesterday morning class-ACC skip-EVID.PAST
 b. Mete ders-i dün sabah ek-miş.
 Mete class-ACC yesterday morning skip-EVID.PAST
 (Şener and Takahashi 2010:330)

Also, under appropriate contexts, both subjects and objects can remain silent, as in (139).

- (139) [e] [e] at-tı-m
 throw-PAST-1SG
 Lit. ‘I threw [e].’ (Şener and Takahashi 2010:330)

However, there is one crucial difference between Turkish and Japanese: Turkish exhibits morphological agreement between subjects and predicates, whereas Japanese does not at all.

- (140) a. (Ben) bu makale-yi yavaşyavaş oku-yacağ-ım
 I this article-ACC slowly read-FUT-1SG
 ‘I will read this article slowly.’
 b. (Biz) her hafta sinema-ya gid-er-iz
 we every week movies-DAT go-AOR-1PL
 ‘We go to the movies every week.’
 (Şener and Takahashi 2010:330)

The predicates in (140a-b) change their forms in accordance with the number of the subjects, indicating that Turkish has subject-predicate agreement. Put differently, T obligatorily bears uninterpretable ϕ -features in Turkish, and therefore it is predicted under the Anti-agreement Analysis that subject AE is not allowed in this language (while object AE may be because of the lack of morphological object agreement). The Scrambling Analysis, on the other hand, makes a different prediction: given that Turkish is similar to Japanese in that it allows flexible word order, it is predicted that Turkish allows subject AE.

Let us look at object AE in Turkish first. Şener and Takahashi (2010) observe that null objects in Turkish can be elliptical, as shown in (141).

- (141) a. Can [*pro* anne-si]-ni eleştir-di.
 John his mother-3SG-ACC criticize-PAST
 ‘John criticized his mother.’
 b. Mete-yse [e] öv-dü.
 Mete-however praise-PAST
 Lit. ‘Mete, however, praised [e].’

(Şener and Takahashi 2010:331)

(141b) is ambiguous between a strict and a sloppy interpretation. The fact that (141b) can have the sloppy interpretation (i.e. ‘Mete, however, praised Mete’s mother’) indicates that object AE is possible in Turkish.⁵⁵ In contrast, subject AE exhibits a completely different pattern, according to Şener and Takahashi (2010).

- (142) a. Can [[*pro* oğl-u] İngilizce öğren-iyor diye] bil-iyor.
 John his son-3SG English learn-PRES COMP know-PRES
 ‘John knows that his son learns English.’

⁵⁵ Note that the sloppy reading in (141b) cannot be the result of verb-stranding VP-ellipsis (cf. Otani and Whitman 1991, Goldberg 2005), as illustrated in (i) below, because the verbs used in the antecedent and target clause are not identical (see Section 2.2.3).

(i) Mete-yse $\{_{VP} \{_{NP} \text{ } \cancel{pro} \text{ anne-si } \} \text{ } \cancel{ni} \text{ } \cancel{t_V} \}$ $\{_V \text{ } \cancel{öv} \} \text{ } \cancel{[I \text{ } dü]} \}$ = (141b)

- b. Mete-yse [[e] Fransızca öğren-iyor diye] bil-iyor.
 Mete-however French learn-PRES COMP know-PRES
 Lit. ‘Mete, however, knows that [e] learns French’

(Şener and Takahashi 2010:332)

In contrast with the Japanese null subject, which is ambiguous between the strict and the sloppy reading, the embedded null subject in (142b) is unambiguous – it only allows the strict reading.

It is reported in Takahashi (in press) that similar pattern also holds for quantificational null arguments.

- (143) a. Can üç hırsız yakala-dı.
 John three burglars catch-PAST
 ‘John caught three burglars.’
 b. Filiz-se [e] sorgula-dı.
 Phylis-however interrogate-PAST
 Lit. ‘Phylis, however, interrogated [e].’

(Takahashi, in press)

The sentence in (143b), which involves a null object, allows the quantificational reading, meaning that ‘Phylis, however, interrogated three burglars, the set of which is different from the set of the three burglars who John caught.’ The null subject in (144b), on the other hand, does not have such an interpretation.

- (144) a. Üç öğretmen Can-ı eleştir-di.
 three teacher John-ACC criticize-PAST
 ‘Three teachers criticized John.’
 b. [e] Filiz-i-yse öv-dü.
 Phylis-ACC-however praise-PAST
 Lit. ‘[e] praised Phylis.’

(Takahashi, in press)

Even though the null subject in (144b) is anteceded by the quantificational element *üç öğretmen*

‘three teachers,’ the quantificational reading is unavailable.

To conclude this section, the interpretive contrast between null subjects and null objects suggests that Turkish allows AE in object positions, but not in subject positions, as predicted by the Anti-agreement Analysis.

3.3. A Confounding Factor Related to the Lack of the Sloppy Reading in Subject Positions

Though Şener and Takahashi’s (2010) argument is fairly convincing, there still remains a confounding factor regarding the lack of the sloppy reading in subject positions. It has been observed by Cheng (2011) and Sato (2012a) that the same subject-object asymmetry is also found in languages such as Chinese and Javanese, even though these languages completely lack morphological agreement. For example, null objects in Javanese allow both a strict and a sloppy interpretation, as in (145b), while the null subject in (146b) only allows the strict reading.

- (145) a. Esti seneng guru-ne.
Esti like teacher-her
‘Esti likes her teacher.’
b. Budi ya seneng [e].
Budi also like
Lit. ‘Budi also likes [e].’
√ Strict reading, √ Sloppy reading

- (146) a. Esti ngomong [guru-ne isa basa Prancis].
Esti say teacher-her can language French
‘Esti said that her teacher can speak French.’
b. Budi ngomong [[e] isa basa Jepang].
Budi say can language Japanese
Lit. ‘Budi said that [e] can speak Japanese.’
√ Strict reading, * Sloppy reading (Sato 2012a)

Since Javanese, just like Japanese, does not exhibit subject-verb agreement at all, these data suggest that the absence of AE in subject positions cannot be explained solely in terms of agreement.^{56,57} To exclude this kind of confounding factors, it is more appropriate to look into languages that exhibit object agreement, and see if null objects in these languages resist AE. In the next section, we will turn to three languages with object agreement, Hindi, Basque, and Kaqchikel Maya, and see how data from these languages fare with respect to the theories of AE.

3.4. Argument Ellipsis in Object Agreement Languages

3.4.1. *Argument Ellipsis in Hindi: Simpson et al. (2013)*

Hindi is a language with object agreement, though the situation where object agreement occurs is restricted. In clauses with non-perfective tenses, predicates agree only with subjects, as shown in (147).

- (147) a. Raam roTii khaataa thaa.
 Ram (m.) bread (f.) eat (imp.m.) be (pst.m.)
 ‘Ram (habitually) ate bread.’

⁵⁶ We leave open the question of what the proper analysis of the anti-subject property of Javanese and Chinese AE should be. Interested readers are referred to Cheng (2011) and Sato (2012a). My point here is that, whatever the reason is, the absence of the sloppy reading in subject positions could be intervened by various factors.

⁵⁷ It might be possible for the proponents of the Anti-agreement Analysis to claim that Javanese and Chinese have ‘abstract’ subject agreement, just like they do to explain the absence of object AE in English. However, such argumentation conflates real/observable agreement with abstract agreement as a theoretical entity, and it seems to me to have some degree of circularity, without independent evidence for the existence of such agreement. Note, importantly, that what is crucial for the proposal put forth in this dissertation is morphology of nominal phrases (which is observable), and it does not need to rely on abstract agreement.

- b. Siitaa kelaa khaatii thii.
 Sita (f.) banana (m.) eat (imp.f.) be (pst.f.)
 ‘Sita (habitually) ate bread.’

(Mahajan 1990:72)

Note that both (147a) and (147b) have a habitual (non-perfective) interpretation. The predicate in (147a) has the masculine form, agreeing with the masculine subject *Raam*, while the predicate in (147b) shows feminine agreement with the subject *Siitaa*, indicating that Hindi shows subject-predicate agreement with non-perfective tenses. In clauses with perfective tenses, on the other hand, predicates agree with objects, as in (148).

- (148) Raam-ne roTii khaayii thii.
 Ram (m.)-ERG bread (f.) eat (perf.f.) be (pst.f.)
 ‘Ram had eaten bread.’

(Mahajan 1990:73)

(148) has a perfective interpretation and the predicate in turn shows feminine agreement with the feminine object. (In addition, the subject in the perfective construction is marked by the ergative marker *-ne*.)

Another important property of the Hindi grammar is that pronouns in this language have agglutinating case morphology. According to Neeleman and Szendrői (2007), Hindi pronouns have the following case paradigm in Table 3.1, which is clearly non-fusional.⁵⁸

⁵⁸ Note that pronominal stems in Hindi are subject to morphologically conditioned allomorphy. More specifically, the nominative and absolutive take ‘direct’ stems, while the accusative and dative choose ‘oblique’ stems. The ergative basically takes oblique stems, except for the first and second person singular that selects direct stems (see Spencer 2005, Neeleman and Szendrői 2007, for details).

Table 3.1: Hindi personal pronoun paradigm (Neeleman and Szendrői 2007:702)

	NOMINATIVE/ ABSOLUTIVE	ACCUSATIVE/ DATIVE	ERGATIVE	GENITIVE
1 SG	mẽ-Ø	mujh-ko	mẽ-ne	me-ra/ri/re ⁵⁹
2 SG	tu-Ø	tujh-ko	tu-ne	te-ra/ri/re
3 SG	yəh-Ø/vəh-Ø	is-ko/us-ko	is-ne/us-ne	us-ka/ki/ke
1 PL	həm-Ø	həm-ko	həm-ne	həma-ra/ri/re
2 PL	tum-Ø	tum-ko	tum-ne	tumha-ra/ri/re
3 PL	yə-Ø/və-Ø	in-ko/un-ko	inhō-ne/unhō-ne	un-ka/ki/ke

Put differently, since the case morphemes in Hindi are independent of other ϕ -related morphemes, it is possible to identify each case marker in this language – e.g., *ko* = accusative/dative, *ne* = ergative, and *ra/ri/re* = genitive.

Also, as documented by Butt and King (2000), arguments can be easily dropped in Hindi.

- (149) a. Tum-ne yasiin-ko vo aam de di-yaa?
you-ERG Yassin-DAT that mango give give-PF.M.SG
‘Did you give Yassin that mango?’
b. Jii, [e] [e] [e] de di-yaa.
yes give give-PF.M.SG
Lit. ‘Yes, (I) gave (the mango) (to Yassin).’

(cf. Butt and King 2000)

In (149), the subject, indirect object, and direct object are dropped all together. Importantly, these null arguments are different from pro-drop found in Italian and Spanish, which is licensed by rich agreement: the predicate in (149) agrees only with the direct object, but the subject and indirect object, without any agreement, can still remain unpronounced.

⁵⁹ The vowel alternation of genitive case marks gender and number.

A recent study by Simpson et al. (2013) carefully investigates interpretations of Hindi null arguments. Specifically, they check whether object agreement blocks a sloppy reading of null arguments in the context given in (150).

- (150) a. Ram-ne apni gaRi bechi.
 Ram-ERG self's.FEM car sell.PAST.FEM.SG
 'Ram₁ sold his₁ car.'
- b. Raj-ne-bhi [e] bechi.
 Raj-ERG-also sell.PAST.FEM.SG
 Lit. 'Raj₂ also sold (his₂ car).' (Sloppy reading possible.)

(Simpson et al. 2013:115)

Simpson et al. (2013) observe that the null object in (150b) can have the sloppy reading, despite the fact that the predicate agrees with the object in terms of number and gender. Based on this, they conclude that agreement does not block AE in Hindi, arguing against the Anti-agreement Analysis.

Though Simpson et al.'s (2013) observation is quite interesting, there still remains the possibility that the sloppy reading in (150) results from V-stranding VP-ellipsis, as the same verb *bechi* 'sell.PAST.FEM.SG' is used in both the antecedent and target sentence (cf. Goldberg 2005). Andrew Simpson (p.c.) provided me with the following data to exclude such a possibility.⁶⁰

- (151) a. Ram-ne apni saikil bechi.
 Ram-ERG self's-FEM bicycle sell.PAST.FEM.SG
 'Ram₁ sold his₁ bicycle.'
- b. Raj-ne [e] thiik kii.
 Raj-ERG repair do.PAST.FEM.SG
 Lit. 'Raj repaired [e].' (Sloppy reading possible)

Unlike the sentences in (150), different verbs are used in the antecedent sentence in (151a) and

⁶⁰ I thank Andrew Simpson and his Hindi consultants for providing me with the Hindi data.

the target sentence in (151b). Note also that agreement relation is established between the predicates and the objects. Importantly, the sloppy reading is still available in (151b). This ensures that the sloppy reading in (151b) does not result from V-stranding VP-ellipsis.

This conclusion is reinforced by the fact that the quantificational reading is also possible in the same situation (Andrew Simpson, p.c.).

- (152) a. Ram-ne tin kitaabeⁿ kharidi.
 Ram-ERG three books buy.PAST.FEM.PL
 ‘Ram bought three books.’
 b. Raj-ne [e] bechi.
 Raj-ERG sell.PAST.FEM.PL
 Lit. ‘Raj sold [e].’ (Quantificational reading possible)

The use of different verbs in the antecedent sentence (*kharidi* ‘buy.PAST.FEM.PL’) and the target sentence (*bechi* ‘sell.PAST.FEM.PL’) exclude the possibility that the null object is derived by V-stranding VP-ellipsis. Furthermore, agreement between the predicates and the quantificational objects are established. Nevertheless, the quantificational reading is available to the null object in (152b), which convincingly suggests that agreement does not necessarily block AE.⁶¹

⁶¹ This conclusion is in contradiction to the observation made by Şener and Takahashi (2010). Simpson et al. (2013:118) reports that the Turkish patterns reported in Şener and Takahashi (2010) and Takahashi (in press) are actually not so clear-cut among Turkish speakers. The re-examination of the Turkish patterns by Simpson et al. (2013) shows that three of the six speakers they consulted disallowed the sloppy reading in (ib) below.

- (i) a. Can [*pro* oğl-u İngilizce öğren-ince] seven-di.
 John son-3SG English learn-because be.pleased-PRES.PF
 ‘John is pleased because his son has learned English.’
 b. Filiz-se [[e] Fransızca öğren-ince] seven-di.
 Phylis-however French learn-because be.pleased-PRES.PF
 Lit. ‘Phylis, however, is pleased because [e] has learned French.’

This is not expected under the Anti-agreement Analysis, because the embedded verb used in these examples is invariable and non-finite, hence no agreement relation between the embedded verb and the

3.4.2. *Argument Ellipsis in Basque: Duguine (2008, 2012)*

This section discusses AE in Basque reported by Duguine (2008, 2012). Before looking at data regarding Basque AE, let us briefly summarize some basic properties of Basque that are relevant to current discussion. First, predicates in Basque exhibit agreement with absolutive, ergative and dative arguments. For example, (153) shows that the auxiliary verb agrees with all the three arguments in the sentence.

- (153) Nik Joni artikuluak eman d-i-zki-o-t.
 I.ERG Jon.DAT papers(ABS) give PRS-root-3PL.(ABS)-3SG.DAT-1SG.ERG
 ‘I gave the papers to Jon.’ (Duguine 2012)

Second, just like Japanese and Hindi, arguments can be dropped under appropriate contexts. In (154) all of the arguments in (153) are unpronounced, but still grammatical.

- (154) [e] [e] [e] eman d-i-zki-o-t.
 give PRS-root-3PL.(ABS)-3SG.DAT-1SG.ERG
 ‘(I) gave (them) (to him/her/it).’ (Duguine 2012)

embedded subject. Furthermore, they report that three of the six speakers allowed the sloppy reading in (iib).

- (ii) a. Can [*pro* oğl-u İngilizce öğren-iyor diye] bil-iyor.
 John son-3SG English learn-PRES COMP know-PRES
 ‘John knows that his son learns English.’
 b. Filiz-se [[e] Fransızca öğren-iyor diye] bil-iyor.
 Phylis-however French learn-PRES COMP know-PRES
 Lit. ‘Phylis, however, knows that [e] learns French.’

Unlike the sentences in (i), the embedded verbs in (ii) agrees with the embedded subjects. Although the Anti-agreement Analysis predicts that the sloppy reading should be disallowed in (iib), half of the Turkish speakers accepted it, contrary to the prediction. Based on the results from the re-examination, Simpson et al. (2013) conclude that there is considerable speaker variation in judgment of the data concerning Turkish null subjects, and that Şener and Takahashi’s (2010) conclusion that agreement blocks AE is still inconclusive.

Although the example of null arguments above looks similar to Italian-type pro-drop (licensed by rich-agreement), there are cases where null arguments are still possible without morphological agreement. Look at the sentences in (155).

- (155) a. [e] nahi duzu [nik Joni artikuluak ematea] ?
 want AUX I-ERG Jon.DAT papers(ABS) give.NMLZ.DET
 ‘Do you want [me to give the papers to Jon]?’
- b. [e] nahi duzu [[e] [e] [e] ematea] ?
 want AUX give.NMLZ.DET
 ‘Do you want [(me/us/her/him/it/them) to give (me/us/you/her/him/it/them) to (me/us/you/her/him/it/them)]?’
- (Duguine 2012)

In (155a) the complement clause is nominalized (as indicated by the suffix *-te*), and importantly, the predicate in the non-finite clause does not show morphological agreement with any of the arguments.⁶² Nonetheless, all of the arguments in the non-finite clause can be dropped in (155b), suggesting that having agreement is not a necessary condition for Basque null arguments.

Lastly, noun phrases in Basque have agglutinating case morphology, as given in the personal pronoun paradigm in Table 3.2.

⁶² The fact that the Person Case Constraint effect disappears in the nominalized clause in (ib) suggests that it does not even involve syntactic agreement.

- (i) a. * Azpisapoek/[e] etsaiari/[e] ni/[e] saldu n-(a)i-o-te.
 traitors.ERG enemy.DAT me(ABS) sell 1SG.ABS-root-3SG.DAT-3PL.ERG
 ‘The traitors have sold me to the enemy.’
- b. Gaizki iruditzen zait [azpisapoek/[e] ni/[e] etsaiari/[e] saltzea]
 wrong seem aux traitors.ERG me(ABS) enemy.DAT sell.NOM.DET
 ‘Traitors’ selling me to the enemy seems wrong to me.’ (Duguine 2008:314)

Table 3.2: Basque personal pronoun paradigm (Based on Arregi 2001)⁶³

	ABSOLUTIVE	ERGATIVE	DATIVE
1 SG	ni-Ø	ni-k	ni-ri
2 SG	su-Ø	su-k	su-ri
1 PL	gu-Ø	gu-k	gu-ri
2 PL	súe-k	súe-k	súe-i

These properties of Basque again allow us to test the predictions by the Anti-agreement Analysis and the current (morphology-related) analysis. The Anti-agreement Analysis predicts that Basque does not allow AE, exhibiting morphological agreement with all major arguments (i.e., subjects, objects, and datives). The current analysis, on the other hand, predicts that Basque can have AE, because it has non-fusional, agglutinating case morphology.

Duguine (2008, 2012) reports that null arguments in Basque can have a sloppy reading.

- (156) Jonek_i bere_itxakurra parkera eramán ohi du,
 Jon.ERG POSS dog(ABS) park.to take HABIT AUX.3sgABS.3sgERG
 baina Mirenek_j [e]_{ij} mendira eramaten du gehienetan.
 but Miren.ERG mountain-to take AUX.3sgABS.3sgERG mostly
 ‘Jon habitually takes out his dog to the park, but generally Miren takes out his/her
 dog to the mountain.’

(Duguine 2012)

In (156) the null object can have both a strict (Jon’s dog) and a sloppy (Miren’s dog) reading, even though the auxiliary verb agrees with both the subject and the object. Duguine (2012) argues that the sloppy reading in (156) results from elision of a DP, which means that Basque allows AE in object positions. Note that a predicate in a target clause of ellipsis does not have to be identical with the one in an antecedent clause, as in (157).

⁶³ I put local cases aside and only focus on structural cases here. Also, third person pronouns are excluded from Table 3.2, as it has sometimes been argued in the Basque literature that third person pronouns should be analyzed as demonstratives (cf. Laka 1996).

- (157) Jon_{ERG} bere_i burua kritikutzen duelarik,
 Jon.ERG POSS head(ABS) criticize AUX.when
 Mirenek_j [e]_{i/j} goraipatzen du.
 Miren.ERG praise AUX.3sgABS.3sgERG
 ‘When Jon criticizes himself, Miren praises him/herself.’

(Duguine 2008:321)

In this example, the predicate in the target clause of ellipsis (*goraipatzen*) and the one in the antecedent clause (*kritikutzen*) have distinct forms, but still the null object can have the sloppy reading. Importantly, the sloppy reading in (157) cannot be considered to result from verb-stranding VP-ellipsis, because verb-stranding VP-ellipsis is subject to the verb-identity requirement. Furthermore, in addition to absolutive objects, dative objects can also be elliptical, as confirmed by the fact that the null dative argument in (158b) can have the sloppy reading (Maia Duguine, p.c.).

- (158) a. Jon-ek bere irakasle-a-ri Ana aurkeztu dio
 Jon-ERG POSS teacher-DET-DAT Ana.ABS introduce AUX.3sgABS.3sgDAT.3sgERG
 ‘Jon introduced Ana to his teacher.’
 b. Miren-ek [e] Maider aurkeztu dio.
 Miren-ERG Maider.ABS introduce AUX.3sgABS.3sgDAT.3sgERG
 Lit. ‘Miren introduced Maider [e].’ (Sloppy reading possible.)

In addition to the sloppy reading, Basque null arguments can also have the quantificational reading. Duguine (2012) reports that there are cases where the quantificational reading is available in Basque.

- (159) A: (Nik) bi gol sartu ditut denboraldi honetan.
 I.ERG two goal enter AUX.1sgERG.3plABS season this
 ‘I scored two goals this season.’
 B: ?Nik ere [e] sartu ditut.
 I.ERG too enter AUX.1sgERG.3plABS
 Lit. ‘I scored [e], too.’

(Duguine 2012)

The object is missing in B's utterance, and importantly, the null object can be construed quantificationally – that is, B's utterance can mean that 'I scored two goals, too.'⁶⁴

We saw in this section that, just like the case of Hindi, agreement does not necessarily block AE in Basque. The facts from Hindi and Basque pose a serious problem for the Anti-agreement Analysis. The current morphology-related analysis, on the other hand, correctly explains why Hindi and Basque allow AE: since these languages exhibit agglutinating case morphology, elision of K's complement does not cause any problem for the PF interface.

3.4.3. *Argument Ellipsis in Kaqchikel Maya*⁶⁵

In the previous sections, we saw that Hindi and Basque, even though they exhibit object agreement, allows object AE, contrary to the expectation of the Anti-agreement Analysis. In this section, we turn to another object agreement language called Kaqchikel Maya. As we will see below, this language shows a quite different behavior from Hindi and Basque with respect to the interpretation of null objects.

Kaqchikel is a Mayan language of the Kichean branch, spoken in Guatemala. It is estimated that there are approximately 450,000 Kaqchikel speakers, most of whom reside in the highland areas between Guatemala City and Lake Atitlán (cf. Lewis 2009, Preminger 2011). Before going

⁶⁴ Unfortunately, this example leaves the possibility that the quantificational reading stems from V-stranding VP-ellipsis. To exclude such a confounding factor, it is necessary to look at a sentence such as in (ib), where the verb has a different form from the one used in the antecedent sentence, and check if the null object still allows the quantificational reading.

- (i) a. Company A employed ten company members this year.
- b. Company B, however, fired [*e*].

⁶⁵ This section is based on a collaborated work with Koji Sugisaki, Noriaki Yusa and Masatoshi Koizumi, which has been published as Otaki et al. (2013). Unless otherwise noted, the Kaqchikel examples and judgments in this section come from our Kaqchikel-speaking informants: Lolmay Pedro García Matzar, Juan Esteban Ajsivinac Sián, and Filiberto Patal Majzul.

into Kaqchikel data related to the interpretation of null objects, I would like to briefly review three basic characteristics of Kaqchikel grammar: (i) obligatory (ergative-absolutive) agreement with both subjects and objects, (ii) productive null arguments, and (iii) flexible word order.

First, like other Mayan languages, Kaqchikel exhibits obligatory ergative-absolutive agreement with both subjects and objects.

(160) Transitive

- | | | |
|----------------------------|-------------------------------|-----------------|
| a. <i>rat</i> | <i>x-Ø-aw-axa-j</i> | <i>ri achin</i> |
| you (sg.) | PRFV-3SG.ABS-2SG.ERG-hear-ACT | the man |
| 'You (sg.) heard the man.' | | |
| b. <i>ri achin</i> | <i>x-a-r-axa-j</i> | <i>rat</i> |
| the man | PRFV-2SG.ABS-3SG.ERG-hear-ACT | you |
| 'The man heard you (sg).' | | |

(161) Intransitive

- | | |
|----------------------|---------------------|
| a. <i>ri achin</i> | <i>x-Ø-uk'lun</i> |
| the man | PRFV-3SG.ABS-arrive |
| 'The man arrived.' | |
| b. <i>rat</i> | <i>x-at-uk'lun</i> |
| you (sg.) | PRFV-2SG.ABS-arrive |
| 'You (sg.) arrived.' | |

(Preminger 2011:26)

In the transitive sentence in (160b), for example, the verb *axa* 'hear' agrees with both the object *rat* 'you' and the subject *ri achin* 'the man.' It receives the second person singular absolutive marker *-a(t)-* for the object, and the third person singular ergative marker *-r-* for the subject. Note that agreement must take place obligatorily in Kaqchikel: if any of the agreement markers is missing, the sentence turns to be ungrammatical. Importantly, in the intransitive sentence in (161b), the agreement marker of the subject coincides with the one of the transitive object in (160b), confirming that Kaqchikel exhibits an ergative-absolutive agreement pattern.

Second, just like Japanese, Hindi, and Basque, Kaqchikel allows productive null subjects and

null objects.

- (162) a. X-e-ru-tij nimamixku' a Xwan, iwir.
 PEFV-3PL.ABS-3SG.ERG-eat apple CLF Juan yesterday
 'Juan ate apples yesterday.'
- b. Po [e] man x-Ø-u-tij ta [e] wakami.
 but NEG PEFV-3SG.ABS-3SG.ERG-eat NEG now
 Lit. 'but [e] didn't eat [e] today.'

Even though neither the subject nor the object is phonologically expressed in (162b), the sentence is still grammatical, indicating that under appropriate contexts, null arguments are allowed in this language.

Third, even though it is reported that the basic word order of Kaqchikel is VOS, the language also allows a variety of word order possibilities, such as VSO and SVO (cf. England 1991, Tichoc Cumes et al. 2006).⁶⁶

- (163) a. X-Ø-u-b'a ri tz'i' ri me's.
PEFV-3SG.ABS-3SG.ERG-bite the dog the cat
'The cat bit the dog.'
'The dog bit the cat.'
VOS
VSO
- b. Ri tz'i' x-Ø-u-b'a ri me's.
the dog PEFV-3SG.ABS-3SG.ERG-bite the cat
'The dog bit the cat.'
SVO
(cf. Broadwell 2000)

(163a) is ambiguous between the VOS and VSO interpretation (though the VOS interpretation is preferred by most of the speakers). The subject is located in a pre-verbal position in (163b), showing the SVO word order.

⁶⁶ Although the most frequently used word order is SVO, there is some independent evidence that shows that VOS is the canonical word order in Kaqchikel (cf. England 1991, Tichoc Cumes et al. 2006). See also Koizumi et al. (2014) for arguments from sentence processing.

Lastly, as seen in the examples above, Kaqchikel, like other languages in the Mayan family, is a head-marking language: noun phrases and pronouns do not exhibit case morphology at all. This is quite important because case morphology is the key factor of the analysis proposed in this dissertation.

Let us see the interpretations of null arguments in Kaqchikel. The sentences in (164) give you the examples of the null object construction in Kaqchikel.

- (164) a. A Xwan n-Ø-u-na'oj-ij
 CLF Juan IMPF-3SG.ABS-3SG.ERG-know-ACT
 [chi xta Mari'y tikir-el n-Ø-u-chäp ri ru-syan]
 COMP CLF Maria can IMPF-3SG.ABS-3SG.ERG-catch the 3SG.ERG-cat
 'Juan thinks that Maria can catch his cat.'
- b. Chuqa' a Kalux n-Ø-u-na'oj-ij
 also CLF Carlos IMPF-3SG.ABS-3SG.ERG-know-ACT
 [chi ri xta Mari'y tikir-el n-Ø-u-chäp [e]]
 COMP the CLF Maria can IMPF-3SG.ABS-3SG.ERG-catch
 Lit. 'Carlos also thinks that Maria can catch [e].'
 ✓ Strict reading, * Sloppy reading
- c. Chuqa' a Kalux n-Ø-u-na'oj-ij
 also CLF Carlos IMPF-3SG.ABS-3SG.ERG-know-ACT
 [chi ri xta Mari'y tikir-el n-Ø-u-chäp ri ru-syan]
 COMP the CLF Maria can IMPF-3SG.ABS-3SG.ERG-catch the 3SG.ERG-cat
 Lit. 'Carlos also thinks that Maria can catch his/her cat.'
 ✓ Strict reading, ✓ Sloppy reading

What is important here is how the null object in (164b) is interpreted in Kaqchikel. All of our informants agreed that (164b) is unambiguous: only the strict reading (i.e., 'Carlos also thinks that Maria can catch Juan's cat') is available, and it is extremely difficult to get the sloppy reading (i.e., 'Carlos also thinks that Maria can catch Carlos's cat'). The sentence in (164c) ensures that, if the null object in (164c) is replaced with the overt full-fledged NP, then the sentence becomes ambiguous between the strict and the sloppy reading.

Null subjects in Kaqchikel make the same point.

- (165) a. A Xwan n-Ø-u-na'oj-ij
 CLF Juan IMPF-3SG.ABS-3SG.ERG-know-ACT
 [chi ri ru-syan tikir-el y-e-ru-chäp taq ch'oy]
 COMP the 3SG.ERG-cat can IMPF-3PL.ABS-3SG.ERG-catch PL mouse
 'Juan thinks that his cat can catch mice.'
- b. Chuqa' ri a Kalux n-Ø-u-na'oj-ij
 also the CLF Carlos IMPF-3SG.ABS-3SG.ERG-know-ACT
 [chi [e] tikir-el y-e-ru-chäp taq ch'oy]
 COMP can IMPF-3PL.ABS-3SG.ERG-catch PL mouse
 Lit. 'Carlos also thinks that [e] can catch mice.'
 ✓ Strict reading, * Sloppy reading
- c. Chuqa' ri a Kalux n-Ø-u-na'oj-ij
 also the CLF Carlos IMPF-3SG.ABS-3SG.ERG-know-ACT
 [chi ri ru-syan tikir-el y-e-ru-chäp taq ch'oy]
 COMP the 3SG.ERG-cat can IMPF-3PL.ABS-3SG.ERG-catch PL mouse
 'Carlos also thinks that his cat can catch mice.'
 ✓ Strict reading, ✓ Sloppy reading

Even though (165c), which involves an overt NP in the embedded subject position, can have a sloppy interpretation, the embedded null subject in (165b) cannot be interpreted sloppily (i.e., as 'Carlos's cat'): the only interpretation available in (165b) is the strict reading meaning 'Carlos also thinks that Juan's cat can catch mice.'

Now let us turn to quantificational null arguments.

- (166) a. Y-e-ru-kamelaj oxi' tijonela' ri a Xwan.
 IMPF-3PL.ABS-3SG.ERG-respect three teacher the CLF Juan
 'Juan respects three teachers.'
- b. A Kalux chuqa' y-e-ru-kamelaj [e].
 CLF Carlos also IMPF-3PL.ABS-3SG.ERG-respect
 Lit. 'Carlos also respects [e].' (Quantificational reading NOT possible.)

- c. A Kalux chuqa' y-e-ru-kamelaj oxi' tijonela'.
 CLF Carlos also IMPF-3PL.ABS-3SG.ERG-respect three teacher
 'Carlos also respects three teachers.' (Quantificational reading possible.)

The null object in (166b) is anteceded by the NP *oxi' tijonela'* 'three teachers.' Importantly, the sentence cannot receive the quantificational reading, even though it is available in (166c) where the null object is replaced with the full NP containing the quantificational expression. All of the data we have seen in this section converge on the following conclusion: null arguments in Kaqchikel resist the sloppy/quantificational reading, which in turn suggests that the Kaqchikel grammar does not permit AE.

3.4.4. *Why is Kaqchikel Different from Hindi/Basque?*

In the previous sections, we saw that the interpretation of null objects in the object agreement languages varies with respect to the availability of the sloppy reading: while object agreement in Kaqchikel blocks the sloppy/quantificational reading, null objects in Hindi and Basque can have it, despite the fact that they show agreement with their predicates. The facts from Hindi and Basque suggest that agreement does not necessarily block AE, arguing against the Anti-agreement Analysis (but consistent with the present analysis). However, we still need an account for the fact that the sloppy/quantificational reading is unavailable in Kaqchikel. In this section, I suggest three possibilities of why Kaqchikel and Hindi/Basque behave differently in terms of the availability of the sloppy/quantificational reading in object positions, and show that each hypothesis is still consistent with the proposal made in this dissertation.

The hypothesis I would like to pursue first is given in (167).

(167) Hypothesis 1

The sloppy/quantificational reading is unavailable in Kaqchikel because what is considered as object agreement in Kaqchikel is actually object pronominal clitics.

Given that pronominal clitics are derived from pronouns, it is natural to assume that clitics block the sloppy/quantificational reading, just like the overt full pronouns in Japanese.⁶⁷ One piece of evidence for analyzing Kaqchikel object agreement as pronominal clitics comes from the fact that object (absolutive) agreement and personal pronouns have almost the same inflectional paradigms, as given in Table 3.3 and Table 3.4.

Table 3.3: Kaqchikel absolutive agreement (Based on Brown et al. 2006:173)

SG PERSON	Pre-vocalic	Pre-consonantal	PL PERSON	
1 SG	in-	i-	1 PL	oj-
2 SG	at-	a-	2 PL	ix-
3 SG	Ø	Ø	3 PL	e-

Table 3.4: Kaqchikel personal pronoun paradigm (Based on Brown et al. 2006:17)

SG PERSON		PL PERSON	
1 SG	rĭn	1 PL	röj
2 SG	rat	2 PL	rĭx
3 SG	rija'	3 PL	rije'

It is quite obvious that the absolutive agreement markers in Table 3.3 are a reduced form of the personal pronouns in Table 3.4 (except for third person singular, which goes to null).⁶⁸ If absolutive agreement markers in Kaqchikel can be analyzed as pronominal clitics, the absence of the sloppy/quantificational reading in object positions naturally follows. More specifically, the

⁶⁷ Both grammatical agreement and incorporated pronouns could be employed within one language. For example, Bresnan and Mchombo (1987) argue that the Chicheŵa language (Bantu) exhibits grammatical agreement with subjects, while object markers of the language are incorporated pronouns, the latter functioning as non-argument topics.

⁶⁸ It seems that the morpheme *r(i)-* included in Kaqchikel personal pronouns is a determiner. I assume that Kaqchikel personal pronouns are formed by morphologically combining the determiner with each absolutive clitic.

intransitive sentence in (161b), repeated as (168) below, is now analyzed as an instance of ‘clitic doubling,’ where the clitic (*at-*) is realized with the doubled NP (*rat*).

- (168) **rat** x-**at**-uk’lun
 you (sg.) PRFV-2SG.ABS-arrive
 ‘You (sg.) arrived.’

(Preminger 2011:26)

The second possibility I would like to pursue next is given in (169).

- (169) Hypothesis 2

It is not clitics themselves that block AE in Kaqchikel: what blocks AE in Kaqchikel is its fusional case morphology on clitics.

This hypothesis is important in two respects. First, a recent study by Arregi and Nevins (2012) proposes that ergative, absolutive and dative markers on Basque auxiliary verbs, which have been analyzed as agreement in the previous literature, are in fact pronominal clitics. If agreement in both Kaqchikel and Basque were to be analyzed as an instance of clitic doubling, we would lose the explanation for the contrast between these two languages under Hypothesis 1. Second, as pointed out by Franks (to appear) and Runić (2012), clitics do not necessarily block the sloppy/quantificational reading. For example, Runić (2012) observes that, given an appropriate context such as in (170), the Serbo-Croatian sentence in (171) can have a sloppy reading (i.e. Danilo invited Danilo’s girlfriend).

- (170) Nikola and Danilo are brothers and their family celebrates St. Nicholas, the patron saint’s feast day in Orthodox tradition that is celebrated annually on December 19. It is a common practice among Serbs to invite a boyfriend/girlfriend to a family celebration. Both Nikola and Danilo have a girlfriend (thus, in this context, there are two girlfriends) and they invited their girlfriends to their family celebration.

- (171) Nikola je pozvao (svoju) djevojku na slavu,
 Nikola AUX_{3sg} invited his girlfriend on slava
 a pozvao ju je i Danilo.
 and invited her_{CL.ACC} AUX_{3sg} and Danilo
 ‘Nikola invited his girlfriend to the slava, and Danilo invited his (girlfriend) too.’
 (Runić 2012)

This fact suggests that clitics do not necessarily block the sloppy reading, weakening Hypothesis 1. However, the contrast between Kaqchikel and Basque can still be explained under the current analysis of AE, if we focus on the morphological property of clitics in these languages. Table 3.5 illustrates the paradigm of Kaqchikel ergative agreement (or clitics).⁶⁹

Table 3.5: Kaqchikel ergative agreement (clitics) (Based on Brown et al. 2006:176)

SG PERSON	Pre-V(ocalic)	Pre-C(onsonant)	PL PERSON	Pre-V	Pre-C
1 SG	inw-/w-	in-/nu-	1 PL	q-	qa-
2 SG	aw-	a-	2 PL	iw-	i-
3 SG	r-	ru-/u-	3 PL	k-	ki-

Compared with the absolutive clitic paradigm in Table 3.3, repeated below, it appears that absolutive and ergative clitics in Kaqchikel exhibit fusional ‘case’ morphology.

⁶⁹ A support for analyzing Kaqchikel ergative agreement as clitics comes from the fact that the same morphemes are also used in reflexives. For example, *-ki’* in (i) is a reflexive meaning ‘themselves,’ which, I assume, consists of the third person singular pronoun *k-* and the relational noun *-i’*.

(i) N-Ø-ki-tz’ë ki’.
 IMPF-3SG.ABS-3PL.ERG-see themselves
 ‘They see themselves.’

(Based on Brown et al. 2006:124)

Table 3.3: Kaqchikel absolutive agreement (Based on Brown et al. 2006:173)

SG PERSON	Pre-V	Pre-C	PL PERSON	
1 SG	in-	i-	1 PL	oj-
2 SG	at-	a-	2 PL	ix-
3 SG	Ø	Ø	3 PL	e-

Put differently, even though certain degree of phonological similarities are observed in the first and second person singular forms, it is quite difficult to identify absolutive/ergative case morphemes in these paradigms, suggesting that realization of case is dependent on other ϕ -related morpheme(s) in Kaqchikel.

Basque agreement (or clitics), on the other hand, shows non-fusional morphology in terms of ‘case’ and other ϕ -related morphemes, according to Arregi (2001). He reports that Basque absolutive agreement shows the following pattern.

Table 3.6: Basque absolutive agreement (clitics)⁷⁰ (Arregi 2001:13)

	1 PERSON	2 PERSON
SG	n-V ⁷¹	s-V
PL	g-V	s-V-e

When we compare this with the Basque personal pronoun paradigm in Table 3.2, repeated below, it is evident that Basque absolutive agreement (or clitics) employs the same morphemes as the ones used for personal pronouns, the only difference being the stems that these morphemes attach to.

⁷⁰ The paradigm for third person absolutive agreement is excluded from the chart because Arregi (2001) assumes that third person absolutive agreement is absent in the structure of the verb.

⁷¹ ‘V’ stands for a verbal stem.

Table 3.2: Basque personal pronoun paradigm (Based on Arregi 2001)

	ABSOLUTIVE	ERGATIVE	DATIVE
1 SG	ni-Ø	ni-k	ni-ri
2 SG	su-Ø	su-k	su-ri
1 PL	gu-Ø	gu-k	gu-ri
2 PL	súe-k	súe-k	súe-i

Table 3.7 shows the paradigm of Basque ergative agreement.

Table 3.7: Basque ergative agreement (clitics) (Arregi 2001:17)

	1 PERSON	2 PERSON	3 PERSON
SG	V-t	V-s-u	V-Ø
PL	V-g-u	V-s-u-e	V-e

Notice that the morphemes used in Table 3.7 are strikingly similar to the ones used in personal pronouns and absolutive agreement.⁷² More specifically, in each paradigm, *-s-* is used for second person, *-g-* for first person plural, and *-e* for second and third person plural.⁷³ In other words, as far as absolutive and ergative agreement is concerned, Basque agreement (clitic) morphology is quite analytic, and there is nothing to suggest that ‘case’ is dependent on other ϕ -related morphemes. However, things are not so straightforward if we look at Basque dative agreement paradigm given in Table 3.8.

Table 3.8: Basque dative agreement (clitics) (Arregi 2001:19)

	1 PERSON	2 PERSON	3 PERSON
SG	V-sta	V-tzu	V-tza/ko
PL	V-sku	V-tzue	V-tze/koe

⁷² The only exception is *-t* for the first person singular. I assume, following Arregi (2001), that *s-* and *-t* are contextual allomorphs.

⁷³ *-u* is analyzed as a pronominal stem in Arregi (2001).

At first glance, the dative agreement paradigm looks very different from the other agreement paradigms. However, Arregi (2001) argues that the dative agreement paradigm also shares the same morphemes used in the absolutive and ergative agreement paradigms, the surface differences resulting from the following phonological processes triggered by the dative morphemes *tz* and *ko*.⁷⁴

- (172)
- | | | |
|------------------|------------------------|--|
| a. 1st singular: | $tz + t = sta$ | (affricate simplification, vowel epenthesis) |
| b. 1st plural: | $tz + gu = sku$ | (affricate simplification, stop devoicing) |
| c. 2nd: | $tz + zu(e) = tzu(e)$ | |
| d. 3rd singular: | $tz + \emptyset = tza$ | (vowel epenthesis) |
| | $ko + \emptyset = ko$ | |
| e. 3rd plural: | $tz + e = tze$ | |
| | $ko + e = koe$ | |

(Arregi 2001:20)

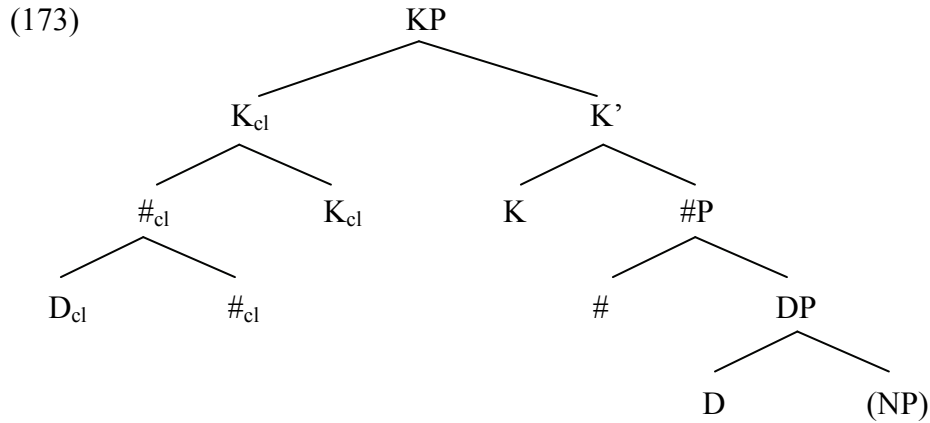
This shows that Basque dative clitics also exhibit non-fusional case morphology.

To explain the relation between the (non-)fusionality of clitics and the availability/absence of AE, I assume a version of the ‘Big-DP’ Hypothesis (cf. Uriagereka 1995, Belletti 2005, Arregi and Nevins 2012), which argues that clitics are initially generated forming a constituent with (doubled) arguments, and the clitics subsequently move to higher functional heads which they attach to. More specifically, I assume the structure below for clitic constructions.⁷⁵

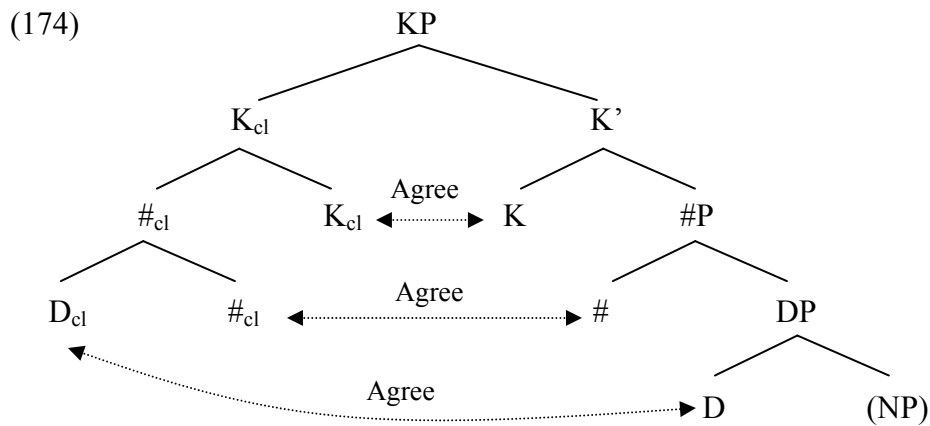
⁷⁴ The determination between *tz* and *ko* as the realization of dative depends on the following factors:

- (i) *ko* is used when dative agreement is third person and there is no ergative agreement.
- (ii) *tz* is used elsewhere.

⁷⁵ The number of the heads involved in a clitic is subject to language variation. For example, Kaqchikel absolutive clitics might lack K due to the absence of overt case morphology. We will come back to this point later in this section.

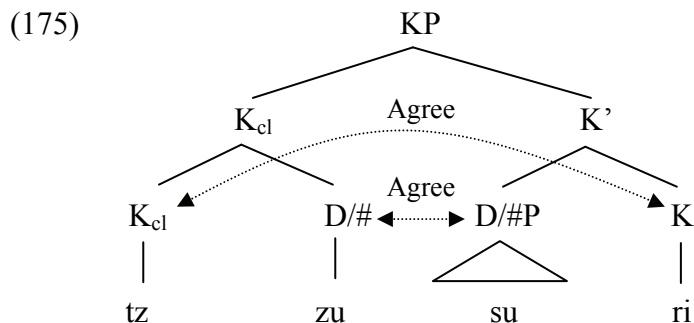


In this structure, the clitic is considered to be a complex of functional heads, each of which agrees with a corresponding non-clitic functional head, as illustrated in (174).⁷⁶



For instance, (175) illustrates the structure of the Basque second person singular dative clitic *tzu* occurring with doubling argument *su-ri* ‘you (SG.DAT)’.

⁷⁶ I assume that the agreement relation relevant here is morphological, the only effect of which is to ensure the morphological coherence between the clitic and its associate double.



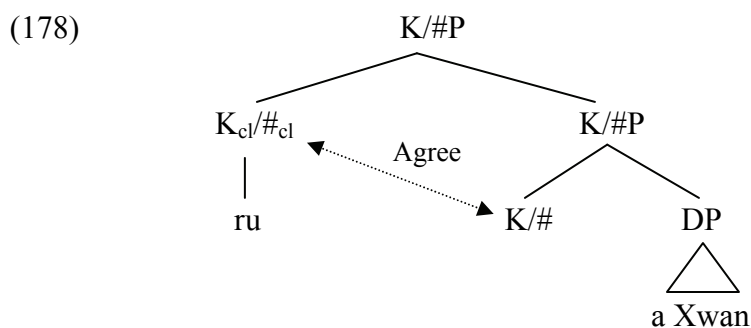
The clitic then moves to a higher functional head and attaches to a predicate, as in (176).

- (176) Su-ri Jon- \emptyset presenta- \emptyset d-o -tzu -e (>tzue)
 you.SG-DAT Jon-ABS introduce-PERF L-PRS.3SG -2SG.DAT -3PL.ERG
 ‘They introduced Jon to you.’

(Arregi and Nevins 2012:70)

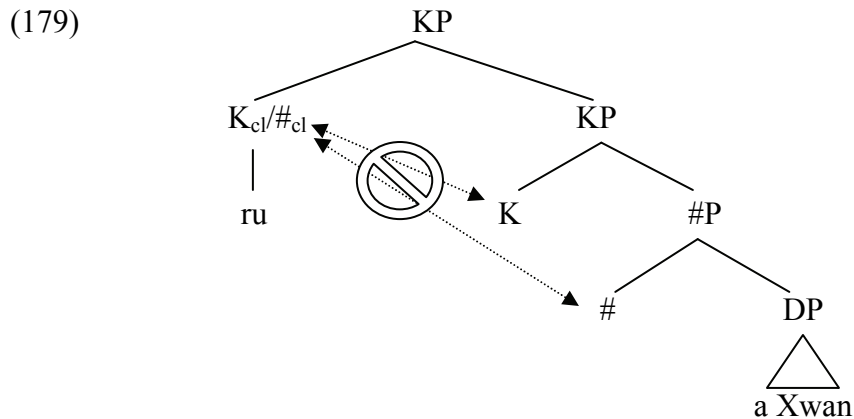
(178) is a representation of the structure for the Kaqchkel third person singular ergative clitic *-ru* appearing with its doubling argument *a Xwan*.

- (177) X-e-ru-tij nimamixku’ a Xwan, iwir.
 PEFV-3PL.ABS-3SG.ERG-eat apple CLF Juan yesterday
 ‘Juan ate apples yesterday.’



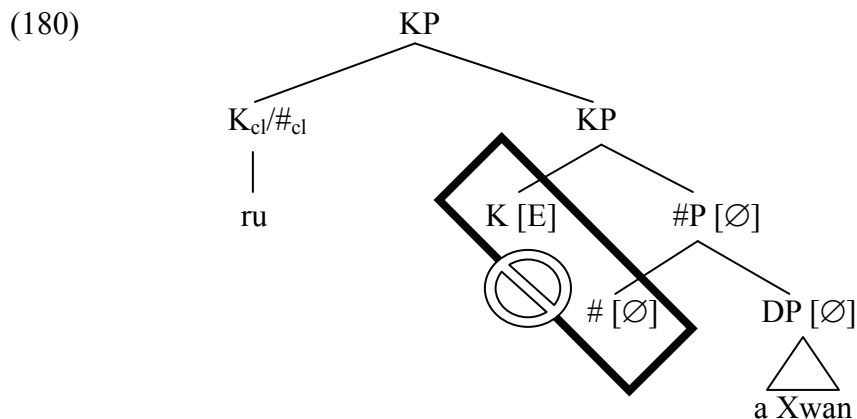
Importantly, K_{cl} and $\#_{cl}$ are fused into a single node in (178). This is because clitics in Kaqchikel exhibit fusional morphology in terms of case and number (see Table 3.3 and Table 3.5). I stipulate that the non-clitic heads must also be combined into one node in this case; if only the clitic heads,

but not non-clitic heads, are combined, as illustrated in (179), the clitic fails to establish agreement relation with K and #, because of lack of complete feature matching between the agreeing elements.⁷⁷



Therefore, the system requires that, if clitics exhibit fusional case morphology, K in the corresponding nominal structure should also be combined with #. This analysis explains the lack of AE in Kaqchikel as follows. If the complement of K is elided in the structure in (180), K and # cannot be combined at the morphological component, because # and K, if combined, give a conflicting instruction to the PF interface.

⁷⁷ I am not sure whether I can defend this agreement requirement on clitics as a general property of agreement. It would be interesting to check if personal pronouns are agglutinating in languages that express person and number separately on verbs. For example, Trommer (2001) reports 58 languages that have separate person/number agreement affixes on verbs (see Appendix D of Trommer (2001:508) for the list of such languages). If the agreement requirement on clitics stipulated in this section holds as a general property of agreement, it is expected that the languages reported in Trommer (2001) should have agglutinative person/number morphology on personal pronouns as well.

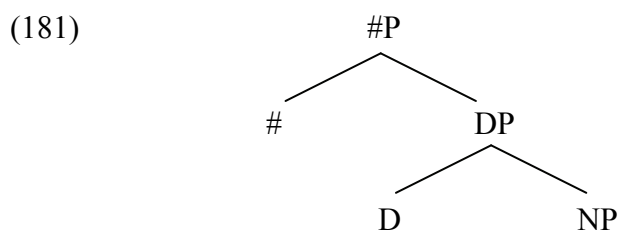


Lastly, even if the alleged agreement markers in Kaqchikel were true agreement markers (i.e., not pronominal clitics), the current morphology-related analysis pursued in this dissertation would still be able to account for the lack of the sloppy/quantificational reading. Recall that Kaqchikel is a head-marking language, and (pro)nouns in argument positions never express case morphology. The paradigm of Kaqchikel personal pronouns are repeated below.

Table 3.4: Kaqchikel personal pronoun paradigm (Based on Brown et al. 2006:17)

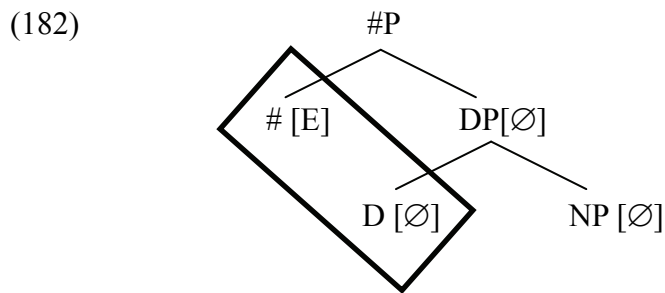
SG PERSON		PL PERSON	
1 SG	rĭn	1 PL	rěj
2 SG	rat	2 PL	rĭx
3 SG	rijaʼ	3 PL	rijeʼ

These pronouns never change their forms depending on their positions or grammatical functions. This implies that Kaqchikel lacks K in its nominal structure, as illustrated in (181).



Remember the discussion from Section 2.5.3 that number morphology is a crucial factor

determining the availability of AE in languages without case morphology. The Kaqchikel personal pronoun paradigm in Table 3.4 tells us that, since it is impossible to single out a morpheme that is responsible exclusively for number, this language has fusional number morphology. The application of AE in Kaqchikel results in the structure in (182), in which the concatenated head $\#/D$ gives a conflicting instruction to the PF interface. Hence, AE is disallowed in Kaqchikel.



Summing up this section, I have taken up the question of why agreement in Kaqchikel blocks AE, and suggested three possibilities for the observed contrast between Kaqchikel and Hindi/Basque. I showed that all of the hypotheses discussed in this section are consistent with the present morphology-related analysis, and I leave it for future research to determine which hypothesis is best to account for the contrast.

3.5. Summary of Chapter 3

This section started with a supporting argument for the Anti-agreement Analysis by Şener and Takahashi (2010), which argues that morphological agreement in Turkish blocks AE. Though interesting, Şener and Takahashi's (2010) claim is not conclusive: the existence of languages such as Japanese and Chinese, which disallow subject AE despite the lack of subject agreement, suggests the possibility that the absence of the sloppy/strict reading in Turkish stems from other factors than agreement.

To exclude such confounding factors related to subject AE, I discussed three languages with object agreement: Hindi, Basque and Kaqchikel Maya, and found the following things. First, agreement does not necessarily block AE. The relevant facts from Hindi and Basque constitute counter-evidence against the Anti-agreement Analysis. Second, in contrast with Hindi and Basque, Kaqchikel disallows AE. However, given that agreement does not block in other languages such as Hindi and Basque, it is probable that AE is blocked by other factors than agreement. Three possibilities are pursued in this chapter and I concluded that each hypothesis is consistent with the current morphology-related analysis.

CHAPTER 4: ARGUMENT ELLIPSIS IN ACQUISITION

4.1. Introduction

To repeat what I mentioned in Chapter 1, this dissertation concerns the acquisition of AE. In Chapter 2 and 3, I pointed out that the previous analyses of AE are not successful in accounting for the acquisition of AE, and this led me to come up with a new, morphology-related theory of AE. It was shown that the morphology-related analysis makes better cross-linguistic predictions for the availability of AE than the previous analyses.

This chapter addresses the question of how Japanese-speaking children acquire AE, by testing the predictions from the theory of AE developed in this dissertation. In fact, there already exist some studies aiming at investigating the acquisition of AE (e.g., Matsuo 2007, Sugisaki 2007). However, these studies are insufficient to conclude that Japanese-speaking children aged four to six have knowledge of AE. In particular, few studies are concerned with the possibility that the sloppy reading obtained from the children could also be derived from the indefinite reading (cf. Hoji 1998). To test whether AE is genuinely available to Japanese-speaking children, it is important to exclude the possibility that the sloppy/quantificational reading obtained from the children comes from the indefinite reading.

Building on the previous studies, I conducted three experiments with Japanese-speaking children, adopting the experimental designs that make it possible to disentangle the genuine sloppy/quantificational reading from the indefinite reading. It will be shown that Japanese-speaking children, despite the lack of direct positive evidence in child-directed speech, have knowledge of AE, and this is consistent with the prediction from the current morphology-related analysis.

4.2. Argument Ellipsis in Child-directed Speech

This section addresses the question of whether AE is acquirable from direct positive evidence.⁷⁸ If parental speech contained abundant evidence that unambiguously requires the AE analysis, it would be unnecessary, at least from the viewpoint of language acquisition, to relate AE to other properties of grammar. However, the data to be reported in this section show that direct observable evidence for AE that Japanese-speaking children can receive from their parents is extremely rare, and it is quite unlikely that they learn through direct positive evidence that Japanese allows an option of AE.

4.2.1. Sugisaki (2009b)

By examining three spontaneous-speech corpora from the CHILDES database (MacWhinney 2000), Sugisaki (2009b) shows that anaphoric uses of *zibun* ‘self,’ which could be a candidate for direct positive evidence for the availability of AE, are extremely rare in child-directed speech. Recall that one of the indicators of ellipsis used in this dissertation is the availability of the sloppy reading. In Japanese, the anaphor *zibun* is used in antecedent clauses to test whether null arguments in subsequent clauses allow for the sloppy reading, as repeated in (183) below.

- (183) a. Ken-wa [zibun-no kuruma]-o arat-ta.
Ken-NOM self-GEN car-ACC wash-PAST
Lit. ‘Ken washed self’s car.’
b. Masa-mo [e] arat-ta.
Masa-also wash-PAST
√ Strict reading: Masa also washed Ken’s car.
√ Sloppy reading: Masa also washed Masa’s car.

⁷⁸ By ‘direct positive evidence,’ I mean the parental utterances that directly indicate the availability of some grammatical properties. For example, direct positive evidence for AE would be the utterances that involve the sloppy or quantificational interpretation of arguments.

One possible situation where children receive reliable direct positive evidence for AE is that Japanese-speaking adults produce plenty of utterances involving anaphoric *zibun*, and they are often followed by a null argument in the context where the sloppy reading is unambiguously required. However, according to Sugisaki (2009a), anaphoric uses of *zibun* is extremely rare in child-directed speech in the first place, and it is unlikely that children are able to receive reliable direct positive evidence for AE. The table below summarizes Sugisaki's (2009a) survey.⁷⁹

Table 4.1: Anaphoric uses of *zibun* in the child-directed speech

	Aki's mother	Ryo's mother	Tai's mother
Corpus	Aki Corpus (Miyata 2004c)	Ryo Corpus (Miyata 2004a)	Tai Corpus (Miyata 2004b)
Child's age span	1;05 - 3;00	1;04 - 3;00	1;05 - 3;01
# of utterances	21063	7357	49237
# of anaphoric uses of <i>zibun</i>	2	0	1

In the three spontaneous-speech corpora, which contain a total of 77,657 child-directed utterances, Sugisaki (2009a) finds only three relevant examples, which are given in (184).

(184) Anaphoric uses of *zibun* in the child-directed speech

a. Aki's mother (aki38.cha)

*AMO: kaeru wa zibun de ikenai mon .
 frog TOP self by can.not.go
 'a frog cannot go by himself'

⁷⁹ I thank Koji Sugisaki for providing me with the detailed numbers on Table 4.1.

b. Aki's mother (aki39.cha)

*AMO: Darumachan wa omocha no manaita o haite
Darumachan TOP toy GEN chopping.block acc put.on
zibun de musubimashita .
self by knotted
'darumachan put on a toy of a chopping block, and knotted (something)
by himself.'

c. Tai's mother (t940714.cha)

*TMO: minna nuide(i)ru yo , chanto zibun de.
everyone taking.off EXCL just self by
'everyone is taking off their clothes by himself.'

Importantly, even though there were three utterances containing the anaphoric *zibun*, none of them was followed by a sentence involving null arguments. These facts suggest that it is unlikely that Japanese-speaking children learn the availability of the sloppy reading for major arguments through direct positive evidence.

4.2.2. Quantificational Null Arguments in Child-directed Speech

As we discussed in Chapter 2, the sloppy reading is not the only indicator for the availability of AE. Takahashi (2008a) argues that the quantificational reading available in (185b) results from AE, as illustrated in (186).

- (185) a. Masa-wa [san-ko-no booru]-o ket-ta.
Masa-TOP 3-CL-GEN ball-ACC kick-PAST
'Masa kicked three balls.'
- b. Ken-mo [e] ket-ta.
Ken-also kick-PAST
Lit. 'Ken also kicked [e].'

- (186) Ken-mo [~~san-ko-no-booru~~]-o ket-ta.
Ken-also 3-CL-GEN ball-ACC kick-PAST

To check if child-directed speech contains sufficient number of utterances involving quantificational null arguments, which are another candidate for the existence of AE, I analyzed the Japanese corpora in Table 4.2 in the CHILDES database.

Table 4.2: Corpora analyzed

	Tomito's mother	Nanami's mother
Corpus	Tomito Corpus (Miyata and Nisisawa 2010)	Nanami Corpus (Nisisawa and Miyata 2009)
Child's age span	2;11 - 5;01	2;11 - 5;00
# of utterances	19462	20851

I first located all of the utterances involving quantificational expressions using the CLAN program Combo.⁸⁰ Then, the output was searched by hand to locate all of mother's utterances containing quantificational null arguments. In a total of 40,313 child-directed utterances, there was only one example of quantificational null arguments. The relevant example is given in (187).

- (187) Tomito's mother (tom19990903.cha)
*TOM: kore nan da ?
this what COPL
'What is this?'
*MOT: kooiu hoiruroodaa motte(i)run desho, Totchan wa .
like.this wheel.loader have COPL Totchan TOP
'You (Totchan) have a wheel loader like this, don't you?'
*MOT: sore wa torakutaarooraabakkuhoo +... [+ threeex]
this top backhoe.loader
'This is a backhoe loader.'

⁸⁰ More specifically, I used the function 'combo +t%trn +snum* +w5 -w5 *.cha'. This allows us to locate all of the numerical expressions specified in morphological tiers, along with five utterances directly before and after a target utterance.

*TOM: tachu [: futatsu] chuitenno [: tsuiteiru no] ?
two attach Q
'Does it have two?'

*MOT: un [e] tsuite(i)ru .
yes attach
Lit. 'Yes, it has [e].'

The last sentence in (187) involves a quantificational null argument, because apparently the sentence means that the backhoe loader has something and its quantity is two. One might say on the basis of this observation that Japanese-speaking children can learn AE through direct positive evidence. However, there are at least three reasons why such an argument is still insufficient. First, even though there exists an utterance that involves quantificational null arguments, the occurrence of such examples is extremely rare. Second, the null argument in (187) can be analyzed as a (null) definite pronoun, as the English sentences such as ‘Yes, they are attached/it attaches them’ can naturally be used in the context. Third, there still remains a possibility that the child analyzed the last sentence in (187) as an instance of verb-stranding VP ellipsis (cf. Goldberg 2005). Given the ambiguities involved in child-directed speech, it is almost impossible for Japanese-speaking children to receive reliable direct positive evidence that unambiguously indicates that AE is possible in Japanese.

To sum up, it is shown in this section that child-directed speech does not contain sufficient information for children to directly learn that AE is possible in Japanese. A plausible possibility then is that the availability/absence of AE is somehow related to another different property of the languages that is easily detectable to children. In Chapter 2, I have proposed that it is case morphology that determines whether AE is possible in a language, and it is shown in Chapter 3 that the case-related analysis makes better predictions than the previous analyses in terms of cross-linguistic distribution of AE. In the rest of this chapter, I will show that Japanese-speaking children acquire AE very early despite the fact that direct observable evidence for AE is virtually non-existent in child-directed speech, and argue that the data from the acquisition of AE further

support the proposal made in Chapter 2.

4.3. Acquisition of Case Markers

It is shown in the previous section that children cannot receive sufficient direct evidence to learn that their language allows AE. The main proposal of this dissertation is that it is case morphology that determines the availability of AE in a language. Put differently, case morphology functions as a trigger for the acquisition of AE. Thus, before going into the experimental studies of the acquisition of AE, this section briefly reviews some previous studies on the acquisition of case markers.

4.3.1. First Clear Use of Case Markers by Children

By investigating three spontaneous speech corpora, Matsuoka (1998) reports that Japanese-speaking children start to produce case markers around their second birthday (before their third birthday at the latest).

Table 4.3: Age of the first clear use of case markers (Japanese)
(Based on Matsuoka 1998:70)

	Aki (Miyata 1995)	Kan (CLESS Project, University of Connecticut)	Sumihare (Noji 1974-77)
NOM (- <i>ga</i>)	2;2	2;2 ⁸¹	1;11+
ACC (- <i>o</i>)	2;9	2;2	2;1
DAT (- <i>ni</i>)	2;4	2;2	2;0

⁸¹ A '+' indicates the first file in the corpus.

Similar facts are also reported for Korean-speaking children. Kim (1997) reports that nominative case markers are acquired between 1;8 and 2;0. Also, it is reported by Chung (1994) that the four children he investigated began to produce the nominative marker between 1;7 and 2;0, and about five months later, they started to use the accusative marker. The general tendency found through the investigation of the spontaneous speech data is that children start to use the nominative marker first, around their second birthday, and later get to supply the accusative marker before their third birthday at the latest.

4.3.2. The Distinction between Case Markers and Postpositions by Children

Sugisaki (2011) offers another piece of evidence that Japanese-speaking children acquire case markers before the age of three. By investigating two spontaneous speech corpora from the CHILDES database (MacWhinney 2000), Sugisaki (2011) shows that Japanese-speaking children distinguish case markers and postpositions quite early. Both case markers and postpositions are attached to noun phrases, as given in (188).

- (188) Ken-ga Tokyo-kara New York-e nimotu-o okut-ta.
 Ken-NOM Tokyo-from New York-to package-ACC send-PAST
 ‘Ken sent a package from Tokyo to New York.’

(Sugisaki 2011:1)

Here the nominative and accusative marker, as well as the postpositions *-kara* ‘from’ and *-e* ‘to,’ are all attached to noun phrases. Since case markers and postpositions show similar distributions, it is quite difficult to distinguish between these two on a superficial level. However, there are some cases where the distinction shows up. Consider the following examples:

- (189) a. Ken-ga New York-e nimotu-o okut-ta.
 Ken-NOM New York-to package-ACC send-PAST
 ‘Ken sent a package to New York.’

- b. * Ken-ga-wa New York-e nimotu-o okut-ta.
 Ken-NOM-TOP New York-to package-ACC send-PAST
- c. * Ken-ga New York-e nimotu-o-wa okut-ta.
 Ken-NOM New York-to package-ACC-TOP send-PAST
- d. Ken-ga New York-e-wa nimotu-o okut-ta.
 Ken-NOM New York-to-TOP package-ACC send-PAST
- (Sugisaki 2011:3)

The ungrammatical sentences in (189b-c) indicate that case markers cannot be followed by the topic marker *-wa*. When the topic marker needs to be used in such situations, it must replace the case markers, as shown in (190).

- (190) a. Ken-wa New York-e nimotu-o okut-ta.
 Ken-TOP New York-to package-ACC send-PAST
- b. Ken-ga New York-e nimotu-wa okut-ta.
 Ken-NOM New York-to package-TOP send-PAST

The sentence in (189d), on the other hand, shows that postpositions do not have such a constraint: the topic marker can directly follow the postposition *-e*.⁸²

In order to check whether Japanese-speaking children are sensitive to the distinction between case markers and postpositions, Sugisaki (2011) conducted a transcript analysis using the corpora given in Table 4.4.

Table 4.4: Corpora analyzed (Sugisaki 2011:5)

Child	Aki (Miyata 2004c)	Tai (Miyata 2004b)
Age	2;06:15 - 3;00:00	1;09:03 - 3;01:29
# of child utterances	12,415	29,980

⁸² The focus particle *-mo* ‘also’ shows the same distribution as the topic marker *-wa* with respect to case markers and postpositions.

The results are summarized in Table 4.5.

Table 4.5: The number of utterances in children's speech (Sugisaki 2011:6)

	noun + case marker		noun + postposition	
	case marker only	case marker + <i>wa/mo</i>	postposition only	postposition + <i>wa/mo</i>
Aki	310	0	573	11
Tai	707	1	891	19
Total	1017	1	1464	30

The children produced a number of the 'noun + case marker/postposition' combination. However, even though they produced certain number of the 'postposition + *wa/mo*' sequence, the 'case marker + *wa/mo*' combination was almost nonexistent.⁸³ The results by Sugisaki's (2011) study convincingly show that Japanese-speaking children before the age of three already know the distinction between case markers and postpositions.

4.4. Predictions for the Acquisition of Argument Ellipsis

Given the case-related analysis of AE proposed in Chapter 2 and the acquisitional fact that children acquire case markers before the age of three, it is possible to make a clear prediction for the acquisition of AE with respect to Snyder's (2007) 'Prediction of Earliness,' given in (191).

(191) A Prediction of Earliness (Snyder 2007:174)

- a. Child-directed speech contains insufficient evidence for the child to learn, directly, that construction A is grammatically possible in the target language.
- b. Yet, every language that permits construction B also permits construction A.
- c. Moreover, evidence for construction B is robustly present in child-directed speech.

⁸³ The contrast is statistically significant ($p < .05$ by two-tailed Fisher Exact Test).

- d. Hence, if UG actually links construction A and construction B, we should find that children know about the possibility of construction A just as early as they know about construction B.⁸⁴

Suppose that construction A is AE and construction B is a construction that contains a trigger for AE. As discussed in Chapter 2, the previous studies on the parametric proposals for AE do not make a clear prediction with respect to (191). For example, the Scrambling Analysis does not meet (191b) or (191c). It is not the case that every language that permits scrambling also permits AE, as shown in the fact that Serbo-Croatian allows Japanese-style scrambling, but still disallows AE (see Section 2.4.2 for details).⁸⁵ Also, the mere existence of free word order cannot qualify as a trigger for AE, because children need to distinguish between Japanese-style scrambling and German-style scrambling. Since scrambling cannot serve as a clear-cut trigger for AE, the Scrambling Analysis does not meet (191c), either. The same logic also applies to the Anti-agreement Analysis. Cross-linguistically, it is not the case that AE is permitted in every situation where there is no agreement between predicates and arguments. Swedish and Afrikaans, which have neither morphological agreement nor AE, are the relevant cases. Furthermore, it is not clear how children distinguish between English and Turkish in terms of object AE. At least on the surface, English and Turkish are similar: both languages only exhibit subject agreement. However, English disallows AE in object positions, whereas Turkish does. It is unlikely that children acquiring English and Turkish can receive robust positive evidence for the availability/absence of AE in object positions, which makes the Anti-agreement Analysis

⁸⁴ In cases where construction A requires, in addition to construction B, some other knowledge that is acquired after construction B, the acquisition of construction A could be delayed. Therefore, it would be more accurate to state that ‘... children know about the possibility of construction A at least as early as they know about construction B.’

⁸⁵ Note, however, that as we saw in Section 3.4.4, Runić (2012) reports that clitics in Serbo-Croatian do not block sloppy/quantificational readings, and the question still remains whether these readings result from AE.

questionable with respect to (191c).⁸⁶

The current morphology-related analysis, on the other hand, makes a clearer prediction for the acquisition of AE. The survey of child-directed speech presented in Section 4.2 shows that child-directed speech contains insufficient evidence for the child to learn, directly, that AE is grammatically possible in the target language, confirming (191a). Yet, as shown in Chapter 2 and 3, there is a strong connection between the availability/absence of AE and morphology of noun phrases. Put differently, as far as known, every language that permits case markers also permits AE (cf. (191b)). Moreover, as Matsuoka (1998) reports that parents frequently use case markers in child-directed speech, evidence for the availability of case markers is robustly present in child-directed speech (cf. (191c)). Hence, if UG actually links AE and case morphology, we should find that children know about the possibility of AE as early as they know about case morphology of the target language (cf. (191c)). More specifically, I will test the prediction given in (192).

(192) A prediction for the acquisition of AE by Japanese-speaking children

Given that Japanese-speaking children acquire case markers before their third birthday, it is predicted that they should know that AE is possible in Japanese as early as the age of three, despite the lack of direct positive evidence for the construction.

In the next section, I will review the previous studies of the acquisition of AE, and point out their problems. Then, I will report in the rest of the chapter the series of experiments I conducted with Japanese-speaking children to test the prediction in (192).

⁸⁶ In addition, as we discussed in Chapter 3, the data from Hindi and Basque make the Anti-agreement Analysis more dubious.

4.5. Previous Studies on the Acquisition of Argument Ellipsis

4.5.1. Sugisaki (2007)

Sugisaki (2007) examines the validity of the parameter proposed by Oku (1998) in (45), repeated as (193) below, from the viewpoint of language acquisition.

(193) The parameter of θ -feature strength: θ -features are [weak/strong].

Recall that the parameter in (193) regulates both the availability of scrambling and the availability of AE. It has been reported that Japanese-speaking children acquire scrambling by around the age of three (Otsu 1994, Murasugi and Kawamura 2005). Based on this, Sugisaki (2007) predicts that if Oku's (1998) theory is correct, Japanese-speaking children should have knowledge of AE by around three or four years of age. Using the Truth-Value Judgment Task (Crain and Thornton 1998), Sugisaki (2007) shows that Japanese-speaking children have access to the sloppy reading in ellipsis contexts, and concludes that children have clear knowledge of AE. Specifically, he investigates whether Japanese-speaking children (mean age 4;05) can distinguish between the two types of sentences indicated in (195b) (one with an overt pronoun and the other with an elliptical argument), following a story like the one in (194).

(194) A sample story (Sugisaki 2007:607)

Today, a panda and a pig enjoyed riding on their favorite tricycles. Now they decided to wash them. The panda said, "Oh! My tricycle is very dirty." The pig said, "Shall I help you wash your tricycle?" The panda replied, "No, thanks. I will try to do it by myself, so you can work on your own." They started washing their favorite tricycles.

(195) Sample test sentences (Sugisaki 2007:607)

- | | | | | | |
|----|--|------------|--------------|----------|------|
| a. | Panda san-ga | [zibun-no | sanrinsya-o] | aratteru | yo. |
| | panda-NOM | self-GEN | tricycle-ACC | washing | EXCL |
| | ‘A panda ₁ is washing his ₁ tricycle.’ | | | | |
| b. | Buta san-mo | [e]/sore-o | | aratteru | yo. |
| | pig-also | it-ACC | | washing | EXCL |
| | Lit. ‘A pig is also washing [e]/it.’ | | | | |

Just like Japanese-speaking adults, the children *correctly* accepted sentences with an elliptical argument 90% of the time (18/20), and *correctly* rejected sentences with an overt pronoun 85% of the time (17/20). Based on these results, Sugisaki (2007) concludes that AE is available to young Japanese-speaking children, and that the findings are consistent with Oku’s (1998) parametric proposal.⁸⁷

4.5.2. Matsuo (2007)

Matsuo (2007) investigates how English and Japanese children interpret the null object construction in light of Hoji’s (1998) analysis of Japanese null object constructions. Following Hoji (1998), Matsuo (2007) assumes that Japanese null object constructions are different from English VP-ellipsis constructions in that Japanese null object constructions do not result from ellipsis; they are actually null indefinite NPs (see Section 2.2.2 for details). To test whether Japanese-speaking children are sensitive to such differences, she conducted the Truth Value Judgment Task using the following four conditions.

In the first two conditions given in (196) and (197), Matsuo (2007) tested whether children can get both the sloppy and the strict reading.

⁸⁷ Sugisaki (2009a) reports that Japanese-speaking children have access to the sloppy reading for null subjects as well. This supports his view that children make use of AE, not VP-ellipsis, to get the sloppy reading.

(196) Condition 1: Sloppy reading

Situation

Both Cookie monster and Mike ate their own cookie.

Test Sentence

[English] Cookie monster ate his cookie and Mike did [e], too.
[Japanese] Kukkaa-monstaa-ga zibun-no kukkaa-o tabe-masita.
Cookie monster-NOM self-GEN cookie-ACC eat-PAST
Sosite, Maiku-san-mo [e] tabe-masita.
and Mike-also eat-PAST
Lit. 'Cookie Monster ate his cookie and Mike ate [e], also.'

(197) Condition 2: Strict reading

Situation

Both the mother and the girl hid behind mother's tree.

Test Sentence

[English] The mother hid behind her tree and the girl did [e], too.
[Japanese] Okaasan-ga zibun-no ki-no ushiro-ni kakure-masita.
mother-NOM self-GEN tree-GEN behind-LOC hide-PAST
Sosite, onnanoko-mo [e] kakure-masita.
and girl-also hide-PAST
'The mother hid behind her tree and the girl hid, also.'

Since the VP-ellipsis analysis and the indefinite NP analysis make the same prediction for Condition 1 and 2, it is expected that English-speaking children and Japanese-speaking children should behave similarly for these conditions. The two analyses, however, make different predictions for Condition 3 and 4.

(198) Condition 3: Color mismatch

Situation

The bear found a blue fish and the tiger found a pink fish.

Test Sentence

[English] The bear found a blue fish and the tiger did [*e*], too.

[Japanese] Kuma-san-ga aoi osakana-o mituke-masita.

bear-NOM blue fish-ACC find-PAST

Sosite, tora-san-mo [*e*] mituke-masita.

and tiger-also find-PAST

‘Mr. Bear found a blue fish and Mr. Tiger found [*e*], also.’

In Condition 3, the antecedent NP (a blue fish) and the null NP (a pink fish) have different colors. The English sentence, which involves VP-ellipsis, is false because the entire VP *find a blue fish* should be the target of ellipsis, resulting in a color mismatch. On the other hand, the Japanese sentence can be true because Japanese allows the option of null indefinite NPs, and the interpretation ‘the tiger found fish (irrespective of its color)’ is possible.⁸⁸ Similarly, the VP-ellipsis analysis and the indefinite NP analysis make distinct predictions for Condition 4 as well.

⁸⁸ In fact, the English sentence in (i), which involves an indefinite pronoun *one*, can have the color mismatch interpretation (Jonathan Bobaljik, p.c.).

(i) A bear and a tiger went fishing. After an hour, the bear caught a blue fish, and then the tiger caught one too, but the tiger’s was pink.

(199) Condition 4: Object mismatch

Situation

The cow ate the asparagus and the elephant ate the carrot.

Test Sentence

[English] The cow ate some asparagus and the elephant did [*e*], too.

[Japanese] Ushi-san-ga asupara-o tabe-masita.

cow-NOM asparagus-ACC eat-PAST

Sosite, zoo-san-mo [*e*] tabe-masita.

and elephant-also eat-PAST

Lit. ‘The cow ate asparagus and the elephant ate [*e*], also.’

In Condition 4, the antecedent NP (asparagus) and the null NP (carrot) have different referents. The English sentence should be false because the whole VP *eat some asparagus* should be the target of the ellipsis.⁸⁹ In contrast, the Japanese sentence tolerates such an interpretation: while the English sentence must be interpreted as ‘the elephant ate the asparagus too,’ the Japanese sentence can have the interpretation ‘the elephant ate something,’ due to the availability of null indefinite NPs. The predictions of Matsuo’s experiment are summarized in Table 4.6.

Table 4.6: Predictions for acquisition (Matsuo 2007:13)

Condition	Reading	Expected answer in English	Expected answer in Japanese
1	Sloppy	Yes	Yes
2	Strict	Yes	Yes
3	Color mismatch	No	Possibly yes
4	Object mismatch	No	Possibly yes

In the experiment, she tested 14 English-speaking children (mean age: 5;8) and 19 Japanese-speaking children (mean age: 5;4). The results of the experiment are summarized in

⁸⁹ If the English sentence in Condition 4 is changed to (i), in which the intransitive verb *ate* is used instead of VP-ellipsis, the sentence becomes true even in English (Jonathan Bobaljik, p.c.).

(i) The cow ate some asparagus and the elephant ate, too.

Figure 4.1.

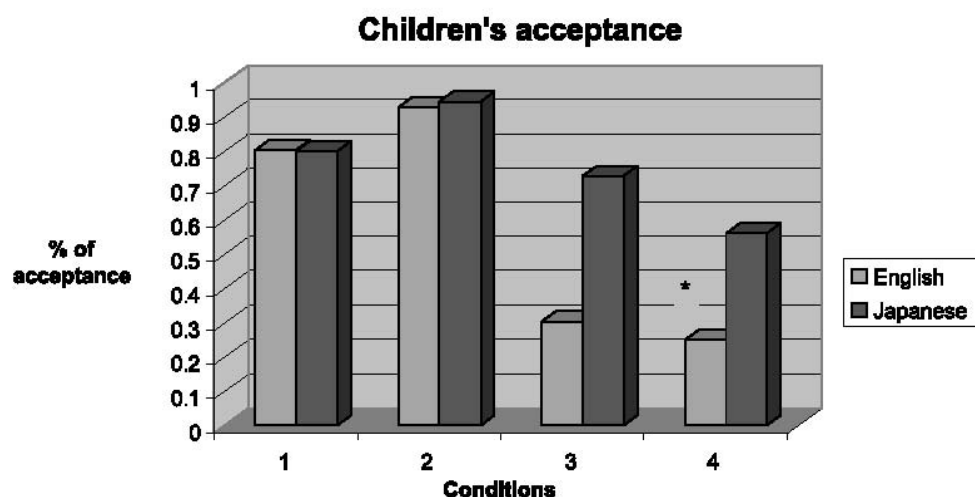


Figure 4.1: Results of Matsuo's experiment (Matsuo 2007:20)

As Matsuo (2007) predicts, Japanese-speaking children had a tendency to accept sentences in Condition 4 more often than English-speaking children.⁹⁰ Based on these results, Matsuo (2007) concludes that English-speaking children and Japanese-speaking children use a different grammatical basis when interpreting the superficially similar sentences involving unpronounced objects, supporting Hoji's (1998) analysis of the null object construction in Japanese.

4.5.3. Potential Problems with the Previous Studies

A potential problem in Sugisaki's (2007) study is that the children in his study could have gotten the sloppy reading through null indefinite NPs. As discussed in Section 2.2.2, Hoji (1998) reports that (200b) can be followed by (200c), which indicates that the null object in (200b) can be interpreted as a phonologically empty indefinite NP.

⁹⁰ The difference between English-speaking children and Japanese-speaking children was not statistically significant in Condition 3. Matsuo (2007) speculates that the difference between Condition 3 and Condition 4 lies in whether there is a linguistically expressed antecedent in the scenarios.

- (200) a. Masa-wa [zibun-no kuruma]-o arat-ta.
Masa-TOP self-GEN car-ACC wash-PAST
Lit. 'Masa washed self's car.'
- b. Ken-mo [e] arat-ta.
Ken-also wash-PAST
Lit. 'Ken also washed [e].'
- c. Dare-no kuruma(da)-ka siranai kedo.
who-gen car(copula)-Q not.know but
'But I don't know whose car (he washed).'
- (Hoji 1998:143)

In fact, Matsuo's (2007) study convincingly shows that some of the Japanese-speaking children she studied indeed exercised this option, accepting the Color Mismatch Condition and the Object Mismatch Condition in (198) and (199). Since the sloppy reading in Sugisaki's (2007) study could be obtained either by a null indefinite NP or AE, we cannot draw a strong conclusion, based on the results from Sugisaki's (2007) experiment, that Japanese-speaking children have knowledge of AE.

Matsuo's (2007) study is also inconclusive to show whether Japanese-speaking children have knowledge of AE. She shows in her experiment that Japanese-speaking children and English-speaking children employ different grammatical bases when interpreting null object constructions. Indeed, this study shows that Japanese-speaking children have knowledge of indefinite NPs. However, it is still not clear whether they have knowledge of AE, because just like Sugisaki's (2007) experiment, every situation where the AE analysis was possible was also compatible with an indefinite NP analysis.

In order to check whether AE is genuinely available to Japanese-speaking children, it is necessary to set up an experiment in which the use of AE and the use of a null indefinite NP yield distinct interpretations. In the following three sections, I present the three experiments I conducted with Japanese-speaking children. Importantly, these experiments employed the test sentences that make distinct interpretations between AE and indefinite NPs.

4.6. Experiment 1: The Sloppy Reading in Negative Contexts⁹¹

4.6.1. Saito (2007)

Saito (2007) observes that Argument Ellipsis and null indefinite NPs yield different interpretations in negative sentences. Consider the sentences in (201).

- (201) a. Sensei-wa subete-no itinensei-ni zibun-no booru-o kasetta.
teacher-TOP all-GEN first.grader-DAT self-GEN ball-ACC kick.made
'The teacher let all first-graders kick their own balls.'
- b. Demo, ninensei-ni-wa [e] kerasenakatta.
but second.grader-DAT-TOP kick.made.did.not
Lit. 'But she/he did not let the second-graders kick [e].'
- c. Demo, ninensei-ni-wa booru-o kerasenakatta.
but second.grader-DAT-TOP ball-ACC kick.made.did.not
'But she/he did not let the second-graders kick balls.'

(Saito 2007:207)

Importantly, the missing object in (201b) can have the sloppy reading, meaning 'but the teacher did not let the second-graders kick their own balls.' This is unexpected if the object position is occupied by a null indefinite NP: (201c), which has an overt indefinite NP in place of the empty object, only means that 'but the teacher did not let the second-graders kick *any* balls'.⁹² Thus, the availability of the sloppy reading in (201b) indicates that the relevant reading results from AE, not from a null indefinite NP.

⁹¹ This section is based on a collaborated work with Noriaki Yusa, which has been published as Otaki and Yusa (2009).

⁹² An indefinite 'pronoun' could have a different interpretation, according to Jonathan Bobaljik (p.c.).

(i) (After their holiday, on Facebook):

Nora posted a picture of herself (at the beach), but Vicki didn't post one/*a picture – she only posted pictures of the sunset.

Hence, the possibility remains that the null argument in (201b), with the sloppy interpretation, results from a null indefinite 'pronoun,' not from AE.

Building on Saito's (2007) observation, I investigate whether Japanese-speaking children have access to the sloppy reading in negative contexts.

4.6.2. Participants

19 Japanese-speaking children between 4;04 and 5;11 (mean age: 5;03) participated in the study. They were recruited and tested at Miyagi Gakuin Kindergarten, Sendai. Besides the children, 7 adult Japanese speakers were also tested. They participated in the experiment at their private homes.

4.6.3. Methods

The experiment employed the Truth Value Judgment Task (Crain and Thornton 1998). In this study, one experimenter acted out various stories using props and toy animals, and the other experimenter played the role of a puppet. After each story, the puppet reported on what had happened. The child's task was to judge whether the puppet's report was a correct description of the story. Children were asked to reward the puppet with a gold medal if they thought he was right, but to give him a green pepper (to make him smarter) if they thought he was mistaken.

The test sentences consisted of (i) the Practice Condition: one sentence with the anaphor *zibun*, and another with a possessive noun; (ii) the Control Condition: two false statements with null objects; and (iii) the Target Condition: two true statements with null objects. All were negative sentences. The test sentences used in the experiment are given in (202).

- (202) a. Practice 1: A negative sentence with the anaphor *zibun*

Situation

The bear kicked the panda's ball and the panda kicked the bear's ball.

Sentence

Kuma-san-wa [zibun-no booru]-o kera-na-katta yo.
bear-TOP self-GEN ball-ACC kick-NEG-PAST EXCL
'The bear did not kick self's ball.' (Expected answer: True)

- b. Practice 2: A negative sentence with a possessive noun

Situation

The cow took the raccoon's picture and the raccoon took the cow's picture.

Sentence

Ushi-san-wa [tanuki-san-no syashin]-o tora-na-katta yo.
cow-TOP raccoon-GEN picture-ACC take-NEG-PAST EXCL
'The cow did not take the raccoon's picture.' (Expected answer: False)

- c. Control: Negative sentences with null objects ('False' on the sloppy reading)

Situation

The bear and the panda each kicked their own ball, and the gorilla and the fox also kicked their own ball.

Sentence

[Kuma-san to panda-san]-wa [zibun-no booru]-o ket-ta kedo,
bear and panda-TOP [self-GEN ball-ACC kick-PASTbut
[kitsune-san to gorira-san]-wa [e] kera-na-katta yo.
fox and gorilla-TOP kick-NEG-PAST EXCL
Lit. 'The bear and the panda each kicked their own ball, but the fox and the gorilla didn't kick [e].' (Expected answer: False)⁹³

⁹³ Note that I am not saying that the sentence is always truth-conditionally false. Since the strict reading is also available, the sentence could be true, in principle. However, adult native speakers have a strong preference for the sloppy reading in the context (see the results of adult controls), and if the children have both knowledge of AE and the adult-like preference for the sloppy reading, it is 'expected' that they will judge the sentence as false. See also the discussion below.

d. Target: Negative sentences with null objects ('True' on the sloppy reading)

Situation

The cow and the raccoon each took their own picture, but the pig took the sheep's picture and the sheep took the pig's picture.⁹⁴

Sentence

[Ushi-san to tanuki-san]-wa [zibun-no syashin]-o tot-ta kedo,
cow and raccoon-TOP self-GEN picture-ACC take-PAST but
[buta-san to hitsuji-san]-wa [e] tora-na-katta yo.
pig and sheep-top take-NEG-PAST EXCL

Lit. 'The cow and the raccoon each took their own picture, but the pig and the sheep didn't take [e].' (Expected answer: True)

The test sentences in the Control and the Target Condition have at least three interpretations. The possible interpretations of (202c) are given in (203), for example.

⁹⁴ One of the stories used in the Target Condition is given below.

(i) Experimenter: One day, a bear and a panda were playing with balls ...

Bear: Hi Panda, this is my ball. It's cool, isn't it? (The bear kicks his ball.)

Panda: Yeah, your ball is cool, but my ball is also cool, isn't it? (The panda kicks his ball.)

Experimenter: Then, a fox and a gorilla came over ...

Gorilla: Hi Fox, let's play with balls!

Fox: OK, let's do that!

Gorilla: Here is my ball. It's cool, isn't it?

Fox: Yeah, your ball is cool, but my ball is also cool, isn't it?

Gorilla: Yeah, your ball looks cooler than mine. (Talking to himself ...) I really want to play with the Fox's ball, but Fox is my friend and I don't want to fight with him, so I play with my ball. (The gorilla kicks his ball.)

Fox: Your ball is also cool! (Talking to himself ...) I really want to play with the Gorilla's ball, but Gorilla is very strong and I don't want to fight with him, so I play with my ball. (The fox kicks his ball.)

Importantly, the use of the underlined parts in the context satisfies the condition of 'plausible dissent' (cf. Crain et al. 1996), which makes the use of the negative questions felicitous.

(203) a. The strict reading:

The bear and the panda each kicked their own ball, but the fox and the gorilla didn't kick these balls (the fox didn't kick the bear's ball and the gorilla didn't kick the panda's ball).

b. The sloppy reading:

The bear and the panda each kicked their own ball, but the fox and the gorilla didn't kick their own ball.

c. The indefinite NP reading:

The bear and the panda each kicked their own ball, but the fox and the gorilla didn't kick any ball.

Although all the three interpretations are in principle possible in the test sentences, the sloppy reading is strongly preferred by adult Japanese speakers. (This is shown by the results from the adult control group. See the next section for details.) To get the other two readings, it takes special effort in the provided contexts. If AE is available to the children, and if they exhibit the same strong preference for the sloppy reading that is found in adult speakers, they should judge the sentences in the Target Condition (202d) to be true, because the animals in these sentences did not take their own picture. On the other hand, if AE is not available to the children, and they rely on null indefinite NPs, it is expected that they will judge the sentences to be false, because the animals did in fact take pictures.

One might say that even if children judge (202d) as true, it does not necessarily indicate that AE is available to them, because the same judgment would be obtained if they simply relied on the strict reading. To address this concern, we also included the Control Condition in (202c), where each of the four characters kicked his own ball. If children consistently employed the strict reading, they would judge this Control Condition as true. The expected responses under each interpretation are given in the table below.

Table 4.7: Expected responses of Experiment 1

	Sloppy reading	Strict reading	Indefinite reading
Control	False	True	False
Target	True	True	False

4.6.4. Results

The results are summarized in the figure below.

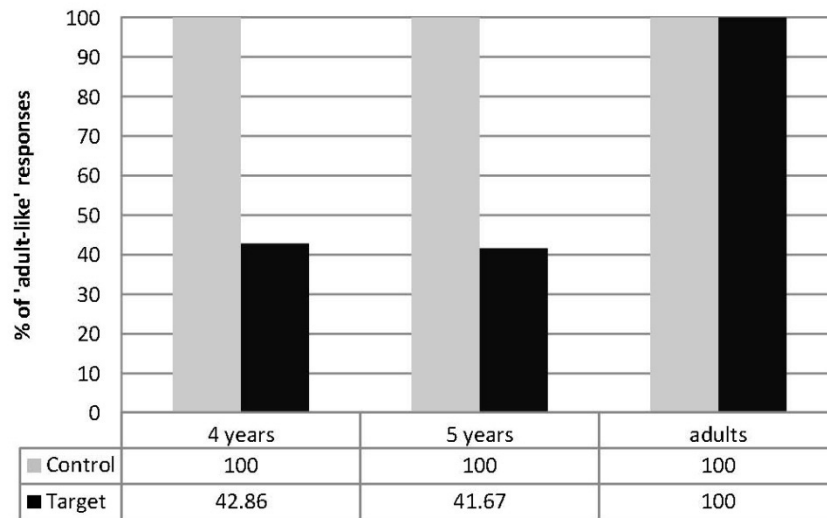


Figure 4.2: Results of Experiment 1

All of the seven adult controls performed as expected: they rejected the sentences in the Control Condition, and accepted the sentences in the Target Condition. In the children, however, a clear contrast was found between the Control Condition and the Target Condition: unlike the adult controls, the children rejected more than half of the sentences in the Target Condition (22/38), whereas they rejected the sentences in the Control Condition 100% of the time (38/38). A paired t -test shows that this difference in accuracy is significant ($t(18)=5.62$, two-tailed $p<.0001$). Importantly, there is nothing to suggest that they had a general ‘no’ bias: all of the children

succeeded on the two practice items (one of which was true) that tested comprehension of simple negative sentences and of the anaphor *zibun*.

4.6.5. Discussion

The results in the previous section show that the Japanese-speaking children and adults behaved differently in the Target Condition. More specifically, all of the Japanese-speaking adults correctly accepted the Target Condition, indicating that they relied on AE instead of a null indefinite NP when interpreting the sentence. Some of the Japanese-speaking children, on the other hand, showed non-adultlike behavior: they incorrectly rejected the Target Condition.⁹⁵

One possible interpretation of the results is that some of Japanese-speaking children aged four to five lack knowledge of AE: since the interpretation of null arguments is diverse and direct audible evidence is extremely limited, it takes long time for children to acquire the adult-like system of the interpretation of null arguments. This also means the breakdown of the connection between AE and case morphology, because it turns out that the acquisition of case markers does not trigger the acquisition of AE.

However, there still remain some confounding factors in this experiment. First, it has been reported in the first-language acquisition literature that children have difficulties giving truth-value judgments to negative statements, unless felicity conditions on the use of negation are satisfied (e.g., Goro 2007). Even though I tried to satisfy the condition of ‘plausible dissent’ as much as possible (see fn.94), it is more preferable to distinguish between the sloppy and the indefinite NP reading without using negation to exclude the possibility that children’s performance is distorted by negative sentences. Second, it might be the case that children

⁹⁵ The whole list of the individual responses is given in Appendix I. As for the individual responses for the Target condition, there were 6 children who made an adult-like ‘true-true’ judgement, 9 children who made a consistent ‘false-false’ judgement, and 4 children who made inconsistent (i.e., ‘true-false’ or ‘false-true’) judgements.

interpreted the plural subject as a group. For example, the children might have interpreted (202d), repeated as (204) below, to be something like ‘the pig and the sheep *as a group* didn’t take their own pictures’.

- (204) [Ushi-san to tanuki-san]-wa [zibun-no syashin]-o tot-ta kedo,
 cow and raccoon-TOP self-GEN picture-ACC take-PAST but
 [buta-san to hitsuji-san]-wa [e] tora-na-katta yo.
 pig and sheep-top take-NEG-PAST EXCL
 Lit. ‘The cow and the raccoon each took their own picture, but the pig and the
 sheep didn’t take [e].’ (Expected answer: True)

Since the pig and the sheep (as a group) *did* take pictures of themselves in (202d), it could be false even under the sloppy reading. Therefore, the results obtained from this experiment is still inconclusive, and we need a follow-up study that is free of these confounding factors in order to distinguish AE from the use of null-indefinite NPs.

4.7. Experiment 2: Quantificational Null Objects⁹⁶

4.7.1. Quantificational Null Objects

As we have seen in Section 2.2.2, the sentence in (205b) has at least three interpretations: the E-type, indefinite-NP, and quantificational readings, each of which is repeated in (206).

⁹⁶ This section is based on a collaborated work with Noriaki Yusa, which has been published as Otaki and Yusa (2012).

- (205) a. Masa-wa [san-ko-no booru]-o ket-ta.
 Masa-TOP 3-CL-GEN ball-ACC kick-PAST
 ‘Masa kicked three balls.’
 b. Ken-mo [e] ket-ta.
 Ken-also kick-PAST
 Lit. ‘Ken also kicked [e].’

- (206) a. The E-type *pro* reading:
 Ken also kicked all three balls that Masa kicked.
 b. The indefinite NP reading:
 Ken also kicked balls (irrespective of the number of the balls he kicked).
 c. The quantificational reading:
 Ken also kicked three balls (and the set of the balls that Ken kicked is different from the set of balls that Masa kicked).

Recall that the quantificational reading cannot be obtained by either *pro*_{def} or *pro*_{indef}. In (207), where the null object in (205b) is replaced with an overt definite pronoun *sorera* ‘them,’ only the E-type reading is possible.

- (207) Ken-mo sorera-o ket-ta.
 Ken-also them-ACC kick-PAST
 ‘Ken also kicked them.’ (Only the E-type reading possible)

Also, if the null object is replaced with an overt indefinite NP, as in (208), the E-type reading and quantificational reading disappear and the only interpretation available is the indefinite NP reading.

- (208) Ken-mo booru-o ket-ta.
 Ken-also ball-acc kick-past
 ‘Ken also kicked balls.’ (Only the indefinite NP reading possible)

Shinohara (2004) and Takahashi (2008) argue that the quantificational reading results from AE, as illustrated in (209).

- (209) a. Masa-wa [san-ko-no booru]-o ket-ta.
 Masa-TOP 3-CL-GEN ball-ACC kick-PAST
 ‘Masa kicked three balls.’
- b. Ken-mo [~~san-ko-no-booru~~]-o ket-ta.
 Ken-also 3-CL-GEN ball-ACC kick-PAST

The representation in (209b) indicates that the full-fledged object, which is anteceded by the object in (209a), is present in narrow syntax, but it is not pronounced due to AE. Since the quantificational expression *san-ko* ‘three’ is available at the interpretive component, this approach naturally explains the availability of the quantificational reading. What is important for the purpose of the experiment is that there is a situation where the quantificational reading, which presumably results from AE, and an indefinite NP make distinct interpretations. In the rest of this section, I report a new set of experimental data supporting the availability of AE in child Japanese, using the quantificational null objects.

4.7.2. *Participants*

19 Japanese-speaking children between 4;03 and 6;02 (mean age: 5;02) participated in the study. They were recruited and tested at Murasaki Kindergarten in Nerima, Tokyo. Besides the children, 10 adult Japanese speakers were also tested.

4.7.3. *Methods*

Experiment 2 basically follows the procedures used in Experiment 1, except for the types of the test sentences. The test sentences used in the experiment are listed in (210). A total of six test sentences were given to a child: two practice sentences in (210a-b), two control sentences in (210c), and two target sentences in (210d). Importantly, the use of the quantificational objects

resolves the two potential problems with Experiment 1: the use of singular subjects and affirmative sentences makes the test sentences much simpler than the ones used in Experiment 1, without losing any theoretical significance.

(210) a. Practice 1: A sentence with numeral quantifiers

Situation

The sheep took two pictures, and the raccoon also took two pictures.

Test sentence

Tanuki-san-wa ni-mai-no syasin-o tot-ta-yo.
raccoon-TOP 2-CL-GEN picture-ACC take-PAST-EXCL
'The raccoon took two pictures.' (Expected answer: True)

b. Practice 2: A sentence with numeral quantifiers

Situation

The rabbit ate two cakes, and the monkey ate two doughnuts.

Test sentence

Osaru-san-wa san-ko-no doonatu-o tabe-ta-yo.
monkey-TOP 3-CL-GEN doughnuts-ACC eat-PAST-EXCL
'The monkey ate three doughnuts.' (Expected answer: False)

c. Control: A sentence with null object ('True' on the quantificational reading)

Situation

The cow washed two cars, and the pig also washed two cars.

Test sentence

Usi-san-wa ni-ko-no kuruma-o arat-ta-yo.
cow-TOP 2-CL-GEN car-ACC wash-PAST-EXCL
Buta-san-mo [e] arat-ta-yo.
pig-also wash-PAST-EXCL
Lit. 'The cow washed two cars. The pig also washed [e].'

- d. Target: A sentence with null object (‘False’ on the quantificational reading)

Situation

The bear kicked three balls, and the fox kicked two balls.

Test sentence

kuma-san-wa san-ko-no booru-o ket-ta-yo.
 bear-TOP 3-CL-GEN ball-ACC kick-PAST-EXCL
 kitune-san-mo [e] ket-ta-yo.
 fox-also kick-PAST-EXCL
 Lit. ‘The bear kicked three balls. The fox also kicked [e].’

The first two conditions are the Practice Conditions in which we checked if the children understood the nature of the task, and the notion of numbers such as ‘two’ and ‘three.’ In (210c) and (210d), sentences involving a quantificational null object were used. Although these sentences are three-ways ambiguous (cf. (206)), adult Japanese speakers have a preference for the quantificational reading (see the experimental results below). If the children judge the Target Condition in (210d) as false, that suggests that they employ an elliptical object, not an indefinite NP, in the object position, (and that they show an adult-like preference for that option). On the other hand, if AE is not available to the children, and they resort to indefinite NPs, it is expected that they will judge (210d) as true, because the fox actually kicked balls. To exclude the possibility that the children succeed on (210d) by means of E-type *pros*, we also included the Control Condition in (210c). If they consistently employ E-type *pros* in the null object positions, they will judge (210c) as false as well as (210d). The expected responses under each interpretation are summarized in Table 4.8.

Table 4.8: Expected responses of Experiment 2

	Quantificational reading	Indefinite NP reading	E-type reading
Control	True	True	False
Target	False	True	False

4.7.4. Results

The results of Experiment 2 are summarized in Figure 4.3.

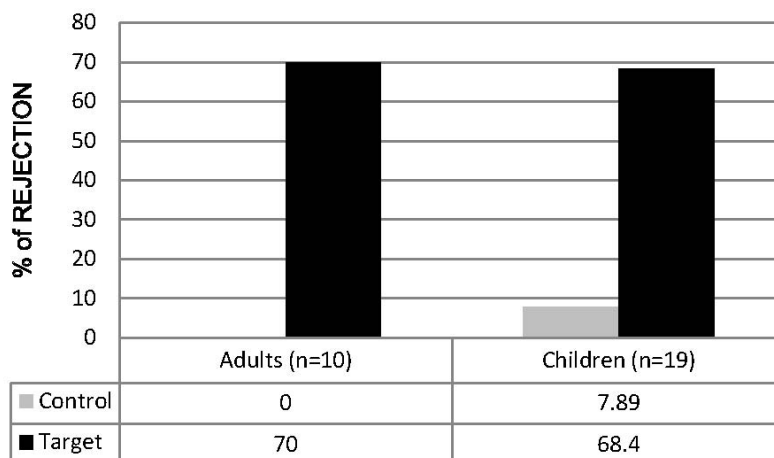


Figure 4.3: Results of Experiment 2

A clear contrast was found between the Control and Target conditions in both adults and children. The adult participants rejected the Target Condition 70% of the time (14/20), whereas they rejected none of the sentences in the Control Condition (0/20).⁹⁷ The children behaved similarly to the adults. They rejected the Target Condition 68.4% of the time (26/38). In contrast, they rejected the Control Condition only 7.8% of the time (3/38).⁹⁸ A paired *t*-test shows that the contrast is statistically significant ($t(18)=5.4$, two-tailed $p<.0001$).

⁹⁷ More specifically, there were three adult participants who consistently ‘accepted’ the Target Condition. (The other seven adults consistently ‘rejected’ the Target Condition.) This shows that, even though the quantificational reading is preferred by most of Japanese-speaking adults, there are a certain number of adults who have a preference for the indefinite reading.

⁹⁸ See Appendix II for the whole list of the individual responses. There was one child who consistently judged the control condition as false, and another child who judged the control items inconsistently (one as true and the other as false). Given that they judged the target condition as false as well, I speculate that these children were using an E-type *pro* in the null object position.

4.7.5. Discussion

In Section 4.6.5, I point out two possibilities for the non-adult-like behavior of the children participated in Experiment 1. One possibility is that they lack knowledge of AE, thus resulting in the chance-level performance in the Target Condition. Another possibility is that their interpretations were distorted by some extra-grammatical factors such as the interpretation of plural subjects and the felicity condition on the interpretation of negative sentences. These two possibilities make distinct predictions: The latter possibility predicts that, if the experimental design were improved by eliminating such confounding factors, children's performance would also be improved, approaching adult-like performance. The former possibility, on the other hand, predicts that children's performance would remain at chance level, no matter how much the design were elaborated. The results obtained in Experiment 2 suggest that the children have knowledge of AE, because the contrast between the Control and Target Conditions would not be expected if they lacked knowledge of AE, or they consistently used the other two strategies (i.e., E-type *pros* or indefinite NPs).

One remaining problem is that the rejection rate under the Target Condition remained around 70% for the children. This is not surprising, because the rejection rate by the adult controls also remained around the same level. This suggests that even some adult Japanese speakers prefer the indefinite NP reading in the provided contexts. Based on the fact that the results obtained from the adults and children were very similar (i.e., 70% rejection on the Target Condition), it might be possible to conclude that they have the same knowledge with respect to the interpretation of quantificational null objects, thus indicating the availability of AE in the children's grammar.

However, one might say that Experiment 2 is still insufficient to draw a strong conclusion that AE is available to children, because it is still unclear what exactly the source of the strong (70%) preference for the quantificational reading over the indefinite reading is. More specifically, since there is no theory to explain the preference, it is hard to evaluate whether competing

4.8. Experiment 3: Ellipsis of CP Arguments

Since the distribution of elided arguments normally overlaps the distribution of null indefinite NPs, it is difficult to find a situation where only the former is allowed. That is why we relied on the uncertain strong preference for the quantificational reading in Experiment 2. However, the range in application of AE is wider than that of null indefinite NPs. Although null indefinite NPs, by definition, are restricted to the domain of NPs, AE can be applied to arguments other than NPs. For example, as discussed in Section 2.2.2, CPs can be elided by AE (cf. Saito 2004). This is illustrated in the cleft construction in (211) below.

- These sentences involve a cleft construction, and the presupposition CP is not pronounced in

(211b).⁹⁹ Importantly, (211b) is ambiguous between a strict and a sloppy reading. As (211c), which has an overt definite pronoun *sore* ‘it’ in place of the null presupposition, is unambiguous

⁹⁹ There are several pieces of evidence that the *-no* marker found in the cleft construction in Japanese is of the category C, not N (cf. Murasugi 1991). First, although the pro-form *-no* typically does not refer to human beings, as evidenced by the ungrammaticality in (ib), it is totally acceptable to describe human beings in the cleft construction using the *-no* marker, as in (ii).

- (i) a. Taroo-wa [NP [S asoko-de tabete-orareru] hito]-to hanasi-o si-ta.
 Taroo-TOP there-at is.eating-HON person-with talk-ACC do-past
 ‘Taro talked to the person who is eating there.’
 b. * Taroo-wa [NP [S asoko-de tabete-orareru] no]-to hanasi-o si-ta.
 Taroo-TOP there-at is.eating-HON NO-with talk-ACC do-past
 ‘Taro talked to the one who is eating there.’ (Murasugi 1991:96)
- (ii) a. [[asoko-de tabete-orareru] no]-wa Tanaka-sensei desu.
 there-at is.eating-HON NO-TOP Prof.Tanaka is
 ‘It is Prof. Tanaka that is eating over there.’
 b. [[soko-kara detekita] no]-wa John da.
 there-from came.out NO-TOP John is
 ‘It is John who came out from there.’ (Murasugi 1991:96)

Second, the marginality of the *ga/no*-conversion in (iv), which is assumed to be licensed in a pre-nominal sentential modifier, as shown in (iii), suggests that the *-no* marker in the cleft construction is not of the category N.

- (iii) a. [NP [S Taroo-ga/no kat-ta] hon]
 Taroo-NOM/GEN buy-PAST book
 ‘the book that Taro bought’
 b. [NP [S Taroo-ga/no kat-ta no]
 Taroo-NOM/GEN buy-PAST NO
 ‘the one Taro bought’
 c. Taroo-ga/*no hon-o kat-ta.
 Taroo-NOM/GEN book-ACC buy-PAST
 ‘Taro bought the book.’ (Murasugi 1991:97-98)
- (iv) a. [[S Yamada-ga/??no at-ta] no]-wa Russell-ni desu.
 Yamada-NOM/GEN meet-PAST NO-TOP Russell-DAT is
 ‘It is Russell that Yamada met.’
 b. [[S John-ga/??no it-ta] no]-wa Tokyo-ni da.
 John-NOM/GEN go-PAST NO-TOP Tokyo-to is
 ‘It is to Tokyo that John went.’ (Murasugi 1991:98)

(it only allows the strict reading), a null definite pronoun cannot be the source of the sloppy reading in (211b). A null indefinite pronoun cannot be the source of the sloppy reading, either, because the unpronounced part is a presupposition of the cleft sentence, and a presupposition normally takes a form of proposition (categorically, ν P or CP). To confirm this point, the sentence in (212), which includes an indefinite pronoun *nanika* ‘something’ in place of the null proposition, has a totally different (and strange) interpretation.

- (212) Ken-wa [nanika-wa Harvard-da]-to it-ta.
 Ken-TOP something-TOP Harvard-COP-COMP say-PAST
 ‘Ken said that something was Harvard.’

Saito (2004) argues that the sloppy reading in (211b) results from the representation given in (213), where the presupposition CP is elided by AE.

- (213) Ken-wa [~~zibun no musuko ga kayotteiru no~~]-wa Harvard-da]-to it-ta.
 Ken-TOP self-GEN son-NOM attend-COMP-TOP Harvard-COP-COMP say-PAST

Since the elided part includes the anaphor *zibun* ‘self’, this approach readily explains the availability of the sloppy reading in (211b). What is important in this context is that we do not have to rely on the unknown preference for the sloppy/quantificational reading over the indefinite reading, because the use of indefinite NPs is grammatically excluded in this construction. In the third experiment, using the cleft construction mentioned above, I try to test whether Japanese-speaking children have knowledge of AE.

4.8.2. Predictions for Acquisition

The use of the cleft construction makes it possible to make more precise predictions. Given the proposal that AE and case morphology have a tight connection, and the fact that

Japanese-speaking children start to use case markers quite early (see Section 4.3), it is expected that Japanese-speaking children have knowledge of AE in relatively early ages, despite the fact that direct observable evidence indicating the existence of AE is extremely rare in child-directed speech (see Section 4.2). It is also predicted that children will not have the indefinite reading in sentences like in (211b), because indefinite NPs cannot serve as presuppositions. Furthermore, it is expected that Japanese-speaking children, as well as adult speakers, will show preference for the sloppy reading over the strict reading. Foley et al. (2003) observe that both adult and child English speakers have preference for the sloppy reading in sentences involving VP-ellipsis such as in (214).

(214) John likes his mother and Bill does, too.

Suppose that the sentence (214) has the LF representation in (215), and the VP in the second conjunct is elided due to the application of VP-ellipsis.

(215) John likes his mother and Bill does [_{VP} ~~like his mother~~], too.

What is needed to get the sloppy reading in (215) is variable binding between *Bill* and *his* in the second conjunct. The strict reading, on the other hand, is subject to pragmatic influence, and it is crucially linked to discourse. Therefore, to assign the strict reading to the possessive pronoun in (215), the grammar needs to refer to non-syntactic contexts. Foley et al. (2003) argue that, since the strict reading, compared with the sloppy reading, requires additional work (that is, assignment of reference in discourse), getting the strict interpretation is considered to be more costly than getting the sloppy interpretation. Hence, the sloppy reading is generally preferred over the strict reading in (214). I think that the same argument holds in Japanese cleft constructions. If the sloppy reading in (211b) only requires local variable binding and AE, but some extra work in discourse is necessary to get the strict reading, it is expected that both Japanese-speaking adults and children will show preference for the sloppy reading over the strict

reading. The first prediction under the Strong Continuity and early setting of the AE parameter is summarized in (216).

(216) Prediction 1: Strong Continuity & early setting of the AE parameter

If the competence for AE, variable binding, and cleft constructions is available, the sloppy interpretation should be accessible to children's grammars from the early stages of language acquisition. In the absence of the contexts that strongly lead children to the strict reading, the sloppy reading should be preferred. (cf. Foley et al. 2003)

The following two alternatives, which should be plausible from the viewpoint of non-UG-based accounts of language acquisition, contrast with the prediction in (216).

(217) Prediction 2: Deixis first

Children begin with the competence for the strict reading and only subsequently develop the competence for the sloppy reading.

(218) Prediction 3: Anything goes

Children begin with no competence for any well-defined interpretation for the cleft construction and AE, given their complexity and ambiguity they involve. That is, there is no well-defined competence for these structures, and all of the interpretations, both grammatical and ungrammatical, would be possible. Interpretations are determined mainly by general cognitive or pragmatic considerations.

The first alternative hypothesis might follow if deixis is considered to be the most basic property of reference (cf. Lyons 1977, 1979). Deixis under this hypothesis is therefore assumed to be primary, both in language acquisition and in the historical evolution of a given language. The second alternative hypothesis might follow if children's grammars do not reflect relevant UG principles and constraints. Given the complexity of the cleft construction and the absence of direct evidence for AE, it is expected under this hypothesis that children will accept any interpretations due to the principle of charity as long as a test sentence is compatible with a given

situation.

4.8.3. *Participants*

20 Japanese-speaking children between 5;06 and 6;04 (mean age: 5;11) participated in the study. They were recruited and tested at Miyagi Gakuin Kindergarten, Sendai.

4.8.4. *Methods*

Just like the two previous experiments, the Truth Value Judgment Task (Crain and Thornton 1998) was employed to test children's knowledge of AE. Each child was given a total of six test items – two practice sentences, two target sentences, and two control sentences. The sample test sentences used in the experiment are given below.

(219) Practice 1: A sentence with the anaphor *zibun*

Situation: - A pig washed a bear's car.
- A bear washed a pig's car.

Test sentence:

A: Buta-san-wa dare-no kuruma-o arat-ta kana?
pig-TOP who-GEN car-ACC wash-PAST Q
'Whose car did the pig wash?'

B: Buta-san-wa zibun-no kuruma-o arat-ta yo.
pig-TOP self-GEN car-ACC wash-PAST EXCL
Lit. 'The pig washed self's car.' (Expected answer: False)

(220) Practice 2: A cleft sentence with a null presupposition CP (no variable involved)

Situation: - A's ball is in Box 1, B's ball is in Box 2, C's ball is in Box 3.¹⁰⁰

- A said that C's ball was in Box 3.

- B said (falsely) that C's ball was in Box 1.

Test sentence:

A: A-wa [[C-no booru-ga haitteiru no]-wa
 A-TOP C-GEN ball-NOM contain COMP-TOP
 nan-ban-no hako da tte] it-ta kana?
 what-CL-GEN box COPL COMP say-PAST Q
 'Which box was it that A said that C's ball was in?'

B: A-wa [[C-no booru-ga haitteiru no]-wa
 A-TOP C-GEN ball-NOM contain COMP-TOP
 san-ban-no hako da tte] it-ta yo.
 3-CL-GEN box COPL COMP say-PAST EXCL
 'A said that it was Box 3 that C's ball was in.'

A: Soodane. Sorejaa,
 OK then
 B-wa [[e] nan-ban-no hako da tte] it-ta kana?
 B-TOP what-CL-GEN box COPL COMP say-PAST Q
 Lit. 'Which box was it that B said that [e]?'

B: B-wa [[e] ichi-ban-no hako da tte] it-ta yo.
 B-TOP 1-CL-GEN box COPL COMP say-PAST EXCL
 Lit. 'B said that it was Box 1 that [e].' (Expected answer: True)

¹⁰⁰ Popular cartoon characters were used in the actual experiment. To avoid unnecessary confusions, they are replaced with A, B, and C in the examples.

(221) Target: A cleft sentence with a null presupposition CP ('False' on the sloppy reading)

- Situation:
- A's ball is in Box 1, B's ball is in Box 2, C's ball is in Box 3.
 - A said that his ball was in Box 1.
 - C said that A's ball was in Box 1, B's ball was in Box 2, and his ball was in Box 3.

Test sentence:

A: A-wa [[zibun-no booru-ga haitteiru no]-wa
 A-TOP self-GEN ball-NOM contain COMP-TOP
 nan-ban-no hako da tte] it-ta kana?
 what-CL-GEN box COPL COMP say-PAST Q
 Lit. 'Which box was it that A said that self's ball was in?'

B: A-wa [[zibun-no booru-ga haitteiru no]-wa
 A-TOP self-GEN ball-NOM contain COMP-TOP
 ichi-ban-no hako da tte] it-ta yo.
 1-CL-GEN box COPL COMP say-PAST EXCL
 Lit. 'A said that it was Box 1 that self's ball was in.'

A: Soodane. Sorejaa,
 OK then
 C-wa [[e] nan-ban-no hako da tte] it-ta kana?
 C-TOP what-CL-GEN box COPL COMP say-PAST Q
 Lit. 'Which box was it that C said that [e]?'

B: C-wa [[e] ni-ban-no hako da tte] it-ta yo.
 C-TOP 2-CL-GEN box COPL COMP say-PAST EXCL
 Lit. 'C said that it was Box 2 that [e].' (Expected answer: False)

(222) Control: A cleft sentence with a null presupposition CP ('True' on the sloppy reading)

Situation:

- A's ball is in Box 1, B's ball is in Box 2, C's ball is in Box 3.
- A said that his ball was in Box 1.
- C said that A's ball was in Box 1, B's ball was in Box 2, and his ball was in Box 3.

Test sentence:

A: A-wa [[zibun-no booru-ga haitteiru no]-wa
 A-TOP self-GEN ball-NOM contain COMP-TOP
 nan-ban-no hako da tte] it-ta kana?
 what-CL-GEN box COPL COMP say-PAST Q
 Lit. 'Which box was it that A said that self's ball was in?'

B: A-wa [[zibun-no booru-ga haitteiru no]-wa
 A-TOP self-GEN ball-NOM contain COMP-TOP
 ichi-ban-no hako da tte] it-ta yo.
 1-CL-GEN box COPL COMP say-PAST EXCL
 Lit. 'A said that it was Box 1 that self's ball was in.'

A: Soodane. Sorejaa,
 OK then
 C-wa [[e] nan-ban-no hako da tte] it-ta kana?
 C-TOP what-CL-GEN box COPL COMP say-PAST Q
 Lit. 'Which box was it that C said that [e]?'

B: C-wa [[e] san-ban-no hako da tte] it-ta yo.
 C-TOP 3-CL-GEN box COPL COMP say-PAST EXCL
 Lit. 'C said that it was Box 3 that [e].' (Expected answer: True)

The Continuity Hypothesis in (216) predicts that children will reject the Target Condition in (221) because of the expected preference for the sloppy reading. On the other hand, the Anything Goes Hypothesis in (218) predicts that children will accept the sentence, because there is a situation where C actually said that a ball was in Box 2. To ensure that children reject the Target Condition in (221) not due to their adherence to the strict reading, it is important to set the Control Condition in (222). Under the Continuity Hypothesis, it is expected that children will accept the test sentence in (222), because C actually said that his ball was in Box 3. On the other

hand, if children stick to the strict reading, it is expected that they should reject the sentence. The predictions for each condition are summarized in Table 4.9.

Table 4.9: Predictions for each condition in Experiment 3

	Continuity	Deixis	Anything Goes
Target	False	False	True
Control	True	False	True

4.8.5. Results

The results of Experiment 3 are summarized in Figure 4.4.

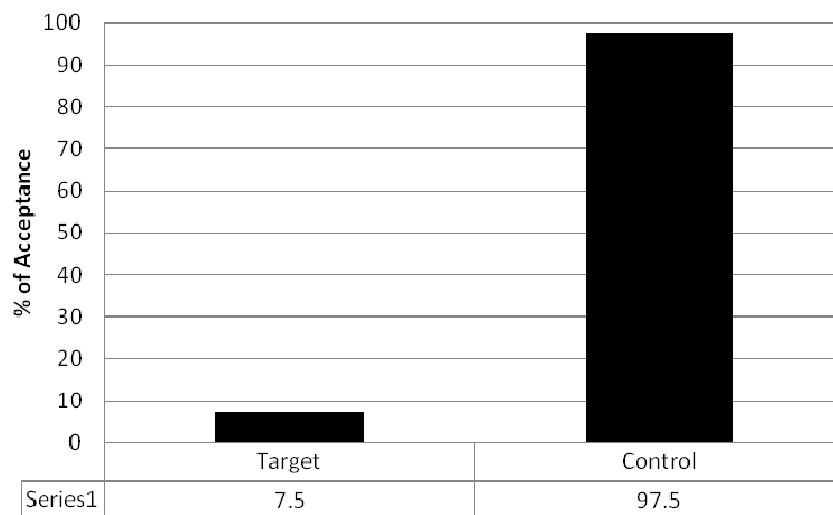


Figure 4.4: Results of Experiment 3 (% of acceptance)

All of the children passed the Practice Condition. Overall, children rejected the Target Condition 92.5% of the time, while they accepted almost all of the Control Condition. The difference between the Target and Control Condition is statistically significant (Wilcoxon Signed-Ranks Test (two-tailed): $Z=3.71$, $p=.0002$).

4.8.6. Discussion

The crucial improvement from the previous experiment is that the use of the cleft construction makes it possible to grammatically exclude the confounding indefinite NP reading, and as the result, we do not need to rely on the mysterious preference for the sloppy/quantificational reading over the indefinite NP reading. The results from Experiment 3 suggest that the improvement indeed had effects on children's performances: even though there were 30% of children/adults who accepted the Target Condition using the indefinite NP reading in Experiment 2, there was only one child (out of 20) who consistently accepted the Target Condition in Experiment 3. This indicates that almost all of the children correctly excluded the (ungrammatical) indefinite NP reading. Combined with the fact that the children correctly accepted the Control Condition 97.5% of the time, the results support the Continuity Hypothesis in (216). On the other hand, the two alternative hypotheses are rejected for the following reasons. The results obviously conflict with the Deixis First Hypothesis in (217); if the children consistently assigned the strict reading to the test sentences, they would have rejected the Control Condition as well. The Anything Goes Hypothesis in (218) is not supported, either; if the children did not have knowledge of AE, and any interpretation compatible with a given situation were possible for them, they would have accepted both the Target and Control Conditions.

To sum up, the results obtained in Experiment 3 support the Continuity Hypothesis in (216), and on the basis of the results, I conclude that Japanese-speaking children around the age of five to six already have knowledge of AE, which is consistent with the theory pursued in the dissertation.

APPENDIX I TO CHAPTER 4:

TEST ITEMS AND INDIVIDUAL RESPONSES OF EXPERIMENT 1

1. Test Items of Experiment 1

- (223) Practice 1: A negative sentence with the anaphor *zibun*

Situation

The bear kicked the panda's ball and the panda kicked the bear's ball.

Sentence

Kuma-san-wa [zibun-no booru]-o kera-na-katta yo.
bear-TOP self-GEN ball-ACC kick-not-PAST EXCL
Lit. 'The bear did not kick self's ball.' (True)

- (224) Practice 2: A negative sentence with a possessive noun

Situation

The cow took the raccoon's picture and the raccoon took the cow's picture.

Sentence

Ushi-san-wa [tanuki-san-no syashin]-o tora-na-katta yo.
cow-TOP raccoon-GEN picture-ACC take-not-PAST EXCL
'The cow did not take the raccoon's picture.' (False)

- (225) Control 1: A negative Null Object Construction (NOC) with plural subjects

Situation

The bear and the panda kicked their own balls, and the gorilla and the fox kicked their own ball.

Sentence

[Kuma-san to panda-san]-wa [zibun-no booru]-o ket-ta kedo,
bear and panda-TOP self-GEN ball-ACC kick-PAST but
[kitsune-san to gorira-san]-wa [e] kera-na-katta yo.
fox and gorilla-TOP kick-not-PAST EXCL
Lit. 'The bear and the panda kicked self's balls, but the fox and the gorilla didn't kick [e].' ('False' on the sloppy reading)

- (226) Control 2: A negative NOC with plural subjects

Situation

The elephant and the turtle ate their own lunch, and the monkey and the rabbit ate their own lunch.

Sentence

[zou-san to kame-san]-wa [zibun-no obentoo]-o tabe-ta kedo,
elephant and turtle-TOP self-GEN lunch-ACC eat-PAST but
[osaru-san to usagi-san]-wa [e] tabe-na-katta yo.
monkey and rabbit-TOP eat-not-PAST EXCL

Lit. ‘The elephant and the turtle ate self’s lunch, but the monkey and the rabbit didn’t eat [e].’ (‘False’ on the sloppy reading)

- (227) Target 1: A negative NOC with plural subjects

Situation

The cow and the raccoon took their own pictures, but the pig took the sheep’s picture and the sheep took the pig’s picture.

Sentence

[Ushi-san to tanuki-san]-wa [zibun-no syashin]-o tot-ta kedo,
cow and raccoon-TOP self-GEN picture-ACC take-PAST but
[buta-san to hitsuji-san]-wa [e] tora-na-katta yo.
pig and sheep-TOP take-not-PAST EXCL

Lit. ‘The cow and the raccoon took self’s pictures, but the pig and the sheep didn’t take [e].’ (‘True’ on the sloppy reading)

- (228) Target 2: A negative NOC with plural subjects

Situation

The bear and the panda kicked their own balls, but the fox kicked the gorilla’s ball and the gorilla kicked the fox’s ball.

Sentence

[kuma-san to panda-san]-wa [zibun-no booru]-o ket-ta kedo,
bear and panda-TOP self-GEN ball-ACC kick-PAST but
[kitsune-san to gorira-san]-wa [e] kera-na-katta yo.
fox and gorilla-TOP kick-not-PAST EXCL

Lit. ‘The bear and the panda kicked self’s balls, but the fox and the gorilla didn’t kick [e].’ (‘True’ on the sloppy reading)

2. Individual Responses of Experiment 1

Table 4.10: Individual responses of Experiment 1

		Practice 1 True	Practice 2 False	Control 1 False	Control 2 False	Target 1 True	Target 2 True
1	4;04	C	C	C	C	C	W
2	4;04	C	C	C	C	C	C
3	4;09	C	C	C	C	W	C
4	4;09	C	C	C	C	W	W
5	4;11	C	C	C	C	C	C
6	4;11	C	C	C	C	W	W
7	4;11	C	C	C	C	W	W
8	5;01	C	C	C	C	C	C
9	5;02	C	C	C	C	W	W
10	5;03	C	C	C	C	W	W
11	5;05	C	C	C	C	C	C
12	5;07	C	C	C	C	W	W
13	5;07	C	C	C	C	W	C
14	5;08	C	C	C	C	W	W
15	5;10	C	C	C	C	C	C
16	5;10	C	C	C	C	W	W
17	5;10	C	C	C	C	W	W
18	5;11	C	C	C	C	W	C
19	5;11	C	C	C	C	C	C

C: Correct response (= Expected response by the sloppy reading)

W: Wrong response (= Unexpected response by the sloppy reading)

APPENDIX II TO CHAPTER 4

TEST ITEMS AND INDIVIDUAL RESPONSES OF EXPERIMENT 2

1. Test Items of Experiment 2

- (229) Practice 1: A simple sentence with a quantifier

Situation

A sheep took two pictures, and a raccoon took two pictures.

Sentence

Tanuki-san-wa [ni-mai-no syasin]-o tot-ta yo.
raccoon-TOP 2-CL-GEN picture-ACC take-PAST EXCL
'The raccoon took two pictures.' (True)

- (230) Practice 2: A simple sentence with a quantifier

Situation

A rabbit ate two cakes, and a monkey ate two doughnuts.

Test sentence

Osaru-san-wa [san-ko-no doonatu]-o tabe-ta yo.
monkey-TOP 3-CL-GEN doughnuts-ACC eat-PAST EXCL
'The monkey ate three doughnuts.' (False)

- (231) Control 1: A sentence with a Quantificational Null Object (QNO)

Situation

A cow washed two cars, and a pig washed two cars.

Test sentence

Ushi-san-wa [ni-ko-no kuruma]-o arat-ta yo.
cow-TOP 2-CL-GEN car-ACC wash-PAST EXCL
Buta-san-mo [e] arat-ta yo.
pig-also wash-PAST EXCL
Lit. 'The cow washed two cars. The pig also wahsed [e].' ('True' on the
quantificational reading)

- (232) Control 2: A sentence with a QNO

Situation

A bear kicked three balls, and a fox kicked three balls.

Test sentence

Kuma-san-wa	[	san-ko-no	booru	]-o	ket-ta	yo.
bear-TOP		3-CL-GEN	ball-ACC		kick-PAST	EXCL
Kitsune-san-mo			[e]		ket-ta	yo.
fox-also					kick-PAST	EXCL

Lit. 'The bear kicked three balls. The fox also kicked [e].' ('True' on the quantificational reading)

- (233) Target 1: A sentence with a QNO

Situation

A cow washed two cars, and a pig washed one car.

Test sentence

Ushi-san-wa	[	ni-ko-no	kuruma	]-o	arat-ta	yo.
cow-TOP		2-CL-GEN	car-ACC		wash-PAST	EXCL
Buta-san-mo			[e]		arat-ta	yo.
pig-also					wash-PAST	EXCL

Lit. 'The cow washed two cars. The pig also washed [e].' ('False' on the quantificational reading)

- (234) Target 2: A sentence with a QNO

Situation

A bear kicked three balls, and a fox kicked two balls.

Test sentence

Kuma-san-wa	[	san-ko-no	booru	]-o	ket-ta	yo.
bear-TOP		3-CL-GEN	ball-ACC		kick-PAST	EXCL
Kitsune-san-mo			[e]		ket-ta	yo.
fox-also					kick-PAST	EXCL

Lit. 'The bear kicked three balls. The fox also kicked [e].' ('False' on the quantificational reading)

2. Individual Responses of Experiment 2

Table 4.11: Individual responses of Experiment 2

		Practice 1 True	Practice 2 False	Control 1 True	Control 2 True	Target 1 False	Target 2 False
1	4;03	C	C	C	W	C	C
2	4;04	C	C	C	C	C	C
3	4;05	C	C	C	C	C	C
4	4;08	C	C	C	C	W	W
5	4;09	C	C	C	C	C	C
6	4;11	C	C	C	C	C	C
7	5;02	C	C	C	C	C	C
8	5;03	C	C	C	C	C	C
9	5;04	C	C	C	C	C	C
10	5;06	C	C	C	C	C	C
11	5;06	C	C	C	C	W	W
12	5;06	C	C	C	C	W	W
13	5;06	C	C	C	C	W	W
14	5;07	C	C	W	W	C	C
15	5;07	C	C	C	C	W	W
16	5;08	C	C	C	C	C	C
17	5;09	C	C	C	C	W	W
18	5;10	C	C	C	C	C	C
19	6;02	C	C	C	C	C	C

C: Correct response (= Expected response by the quantificational reading)

W: Wrong response (= Unexpected response by the quantificational reading)

APPENDIX III TO CHAPTER 4

TEST ITEMS AND INDIVIDUAL RESPONSES OF EXPERIMENT 3

1. Test Items of Experiment 3

(235) Practice 1: A sentence with the anaphor *zibun*

Situation: - A pig washed a bear's car.
- A bear washed a pig's car.

Test sentence:

- A: Buta-san-wa dare-no kuruma-o arat-ta kana?
pig-TOP who-GEN car-ACC wash-PAST Q
'Whose car did the pig wash?'
- B: Buta-san-wa zibun-no kuruma-o arat-ta yo.
pig-TOP self-GEN car-ACC wash-PAST EXCL
Lit. 'The pig washed self's car.' (False)

(236) Practice 2: A cleft sentence with a null presupposition CP

Situation: - A's ball is in Box 1, B's ball is in Box 2, C's ball is in Box 3.
- A said that C's ball was in Box 3.
- B said (falsely) that C's ball was in Box 1.

Test sentence:

- A: A-wa [[C-no booru-ga haitteiru no]-wa
A-TOP C-GEN ball-NOM contain COMP-TOP
nan-ban-no hako da tte] it-ta kana?
what-CL-GEN box COPL COMP say-PAST Q
'Which box was it that A said that C's ball was in?'
- B: A-wa [[C-no booru-ga haitteiru no]-wa
A-TOP C-GEN ball-NOM contain COMP-TOP
san-ban-no hako da tte] itta yo.
3-CL-GEN box COPL COMP say-PAST EXCL
'A said that it was Box 3 that C's ball was in.'

- A: Soodane. Sorejaa,
 OK then
 B-wa [[e] nan-ban-no hako da tte] it-ta kana?
 B-TOP what-CL-GEN box COPL COMP say-PAST Q
 Lit. 'Which box was it that B said that [e]?'
 B: B-wa [[e] ichi-ban-no hako da tte] it-ta yo.
 B-TOP 1-CL-GEN box COPL COMP say-PAST EXCL
 Lit. 'B said that it was Box 1 that [e].' (True)

(237) Control 1: A cleft sentence with a null presupposition CP

- Situation: - A's ball is in Box 1, B's ball is in Box 2, C's ball is in Box 3.
 - A said that his ball was in Box 1.
 - C said that A's ball was in Box 1, B's ball was in Box 2, and his ball was in Box 3.

Test sentence:

- A: A-wa [[zibun-no booru-ga haitteiru no]-wa
 A-TOP self-GEN ball-NOM contain COMP-TOP
 nan-ban-no hako da tte] it-ta kana?
 what-CL-GEN box COPL COMP say-PAST Q
 Lit. 'Which box was it that A said that self's ball was in?'
 B: A-wa [[zibun-no booru-ga haitteiru no]-wa
 A-TOP self-GEN ball-NOM contain COMP-TOP
 ichi-ban-no hako da tte] it-ta yo.
 1-CL-GEN box COPL COMP say-PAST EXCL
 Lit. 'A said that it was Box 1 that self's ball was in.'
 A: Soodane. Sorejaa,
 OK then
 C-wa [[e] nan-ban-no hako da tte] it-ta kana?
 C-TOP what-CL-GEN box COPL COMP say-PAST Q
 Lit. 'Which box was it that C said that [e]?'
 B: C-wa [[e] san-ban-no hako da tte] it-ta yo.
 C-TOP 3-CL-GEN box COPL COMP say-PAST EXCL
 Lit. 'C said that it was Box 3 that [e].' ('True' on the sloppy reading)

(238) Control 2: A cleft sentence with a null presupposition CP

- Situation:
- A sheep is on Picture 1, a panda is on Picture 2, and a gorilla is on Picture 3.
 - The sheep said that he was on Picture 1.
 - The gorilla said that the sheep was on Picture 1, the panda was on Picture 2, and the gorilla himself was on Picture 3.

Test sentence:

A: Hitsuji-san-wa [[zibun-ga utsutteiru no]-wa
 sheep-TOP self-NOM appear COMP-TOP
 nan-ban-no syashin da tte] it-ta kana?
 what-CL-GEN picture COPL COMP say-PAST Q
 Lit. 'Which picture was it that the sheep said that self was on?'

B: Hitsuji-san-wa [[zibun-ga utsutteiru no]-wa
 sheep-TOP self-NOM appear COMP-TOP
 ichi-ban-no syashin da tte] it-ta yo.
 1-CL-GEN picture COPL COMP say-PAST EXCL
 Lit. 'The sheep said that it was Picture 1 that self was on.'

A: Soodane. Sorejaa,
 OK then
 Gorira-san-wa [[e] nan-ban-no syashin da tte] it-ta kana?
 gorilla-TOP what-CL-GEN picture COPL COMP say-PAST Q
 Lit. 'Which picture was it that the gorilla said that [e]?'

B: Gorira-san-wa [[e] san-ban-no syashin da tte] it-ta yo?
 gorilla-TOP 3-CL-GEN picture COPL COMP say-PAST EXCL
 Lit. 'The gorilla said that it was Picture 3 that [e].' ('True' on the sloppy reading)

(239) Target 1: A cleft sentence with a null presupposition CP

- Situation:
- A's ball is in Box 1, B's ball is in Box 2, C's ball is in Box 3.
 - A said that his ball was in Box 1.
 - C said that A's ball was in Box 1, B's ball was in Box 2, and his ball was in Box 3.

Test sentence:

A: A-wa [[zibun-no booru-ga haitteiru no]-wa
A-TOP self-GEN ball-NOM contain COMP-TOP
nan-ban-no hako da tte] it-ta kana?
what-CL-GEN box COPL COMP say-PAST Q
Lit. 'Which box was it that A said that self's ball was in?'

B: A-wa [[zibun-no booru-ga haitteiru no]-wa
A-TOP self-GEN ball-NOM contain COMP-TOP
ichi-ban-no hako da tte] it-ta yo.
1-CL-GEN box COPL COMP say-PAST EXCL
Lit. 'A said that it was Box 1 that self's ball was in.'

A: Soodane. Sorejaa,
OK then
C-wa [[e] nan-ban-no hako da tte] it-ta kana?
C-TOP what-CL-GEN box COPL COMP say-PAST Q
Lit. 'Which box was it that C said that [e]?'

B: C-wa [[e] ni-ban-no hako da tte] it-ta yo.
C-TOP 2-CL-GEN box COPL COMP say-PAST EXCL
Lit. 'C said that it was Box 2 that [e].' ('False' on the sloppy reading)

(240) Target 2: A cleft sentence with a null presupposition CP

Situation:

- A bear's face is on Picture 1, a pig's face is on Picture 2, and a cow's face is on Picture 3.
- The bear said that his face was on Picture 1.
- The pig said that the bear's face was on Picture 1, the self's face was on Picture 2, and the cow's face was on Picture 3.

Test sentence:

A: Kuma-san-wa [[zibun-no kao-ga kaitearu no]-wa
bear-TOP self-GEN face-NOM drawn COMP-TOP
nan-ban-no e da tte] it-ta kana?
what-CL-GEN picture COPL COMP say-PAST Q
Lit. 'Which picture was it that the bear said that self's face was on?'

B: Kuma-san-wa [[zibun-no kao-ga kaitearu no]-wa
 bear-TOP self-GEN face-NOM drawn COMP-TOP
 ichi-ban-no e da tte] it-ta yo?
 1-CL-GEN picture COPL COMP say-PAST EXCL
 Lit. 'The bear said that it was Picture 1 that self's face was on.'

A: Soodane. Sorejaa,
 OK then
 Buta-san-wa [[e] nan-ban-no e da tte] it-ta kana?
 pig-TOP what-CL-GEN picture COPL COMP say-PAST Q
 Lit. 'Which picture was it that the pig said that [e]?'

B: Buta-san-wa [[e] san-ban-no e da tte] it-ta yo?
 pig-TOP 3-CL-GEN picture COPL COMP say-PAST EXCL
 Lit. 'The pig said that it was Picture 3 that [e].' ('False' on the sloppy reading)

2. Individual Responses of Experiment 3

Table 4.12: Individual responses of Experiment 3

		Practice 1 False	Practice 2 True	Control 1 True	Control 2 True	Target 1 False	Target 2 False
1	5;06	C	C	W	C	W	C
2	5;07	C	C	C	C	C	C
3	5;08	C	C	C	C	C	C
4	5;09	C	C	C	C	W	W
5	5;10	C	C	C	C	C	C
6	5;10	C	C	C	C	C	C
7	5;11	C	C	C	C	C	C
8	5;11	C	C	C	C	C	C
9	5;11	C	C	C	C	C	C
10	5;11	C	C	C	C	C	C
11	6;00	C	C	C	C	C	C
12	6;00	C	C	C	C	C	C
13	6;01	C	C	C	C	C	C
14	6;01	C	C	C	C	C	C
15	6;02	C	C	C	C	C	C
16	6;03	C	C	C	C	C	C
17	6;03	C	C	C	C	C	C
18	6;03	C	C	C	C	C	C
19	6;04	C	C	C	C	C	C
20	6;04	C	C	C	C	C	C

C: Correct response (= Expected response by the sloppy reading)

W: Wrong response (= Unexpected response by the sloppy reading)

CHAPTER 5: CONCLUDING REMARKS

This dissertation investigated the acquisition of AE. In Chapter 2, I first pointed out that the previous studies that connect AE and Scrambling or (absence of) agreement are untenable from the viewpoint of the cross-linguistic distribution and acquisition of AE. Then, I proposed that the cross-linguistic distribution and acquisition of AE are best accounted for by the morphology of extended nominal projections such as case and number. More specifically, it is argued that only languages that exhibit non-fusional, agglutinating (case) morphology allow AE. This proposal correctly explains the facts that are problematic for the previous analyses. For example, Hindi has both free word order and morphological agreement between arguments and predicates (cf. Mahajan 1990, Kidwai 2000). Nevertheless, Hindi allows AE (Simpson et al. 2013), which makes it difficult to maintain the Anti-agreement Analysis. The proposal made in this dissertation, on the other hand, correctly predicts that Hindi allows AE, as it exhibits non-fusional, agglutinating nominal morphology.

Chapter 3 takes up the question of whether agreement actually blocks AE. Although the data reported by Şener and Takahashi (2010) suggest that subject agreement in Turkish blocks AE, in conformity to the Anti-agreement Analysis, I pointed out that AE in subject position could be blocked by various as-yet-unknown factors, and it is necessary to look at object agreement languages to test whether agreement blocks AE. Three languages with object agreement were reported in Chapter 3, and the data from Hindi and Basque indicate that agreement does not necessarily block AE. The other language, Kaqchikel Maya, behaves differently from Hindi and Basque in that it never allows AE, and it might suggest that agreement blocks AE in the language. However, this fact does not put the current morphological analysis at stake. Considering that the

paradigm of agreement and personal pronouns are very similar, it is reasonable to assume that agreement markers in Kaqchikel are not true agreement morphemes but indeed pronominal clitics. Given that these pronominal clitics exhibit fusional case morphology, the data obtained from Kaqchikel are also consistent with the current morphological analysis.

To test acquisitional predictions from the proposal made in Chapter 2, Chapter 4 investigated how Japanese-speaking children acquire AE. It has been observed in the literature that Japanese-speaking children acquire case-markers quite early (cf. Matsuoka 1998). Given that, the analysis proposed in this dissertation predicts that Japanese-speaking children will acquire AE very early, despite the fact that direct positive evidence indicating that Japanese allows AE is virtually non-existent in child-directed speech. To test the prediction, I conducted three experiments with Japanese-speaking children. What makes these experiments different from previous studies on the acquisition of AE is that the sloppy/quantificational reading, which is a crucial indicator of ellipsis, is separated from the indefinite reading. For example, the sloppy reading ‘Mary kicked Mary’s ball’ in (241b) entails the indefinite reading ‘Mary kicked a ball.’

- (241) a. John-wa [zibun-no booru]-o ket-ta.
 John-TOP self-GEN ball-ACC kick-PAST
 Lit. ‘John kicked self’s ball.’
 b. Mary-mo [e] ket-ta.
 Mary-also kick-PAST
 Lit. ‘Mary also kicked [e].’

Even if children accept (241b) in the context where Mary also kicked Mary’s ball, that does not necessarily indicate that they have knowledge of AE: they might be able to accept (241b) by means of the indefinite reading as well. In other words, as long as they recognize that Mary kicked something, children would be able to show an adult-like performance, without considering internal make-up of the missing argument. It is therefore important to separate the sloppy/quantificational reading from the indefinite reading to test whether children have

knowledge of AE. The results from the experiments, in which I distinguished between the sloppy/quantificational reading and the indefinite reading, suggest that Japanese-speaking children aged four to six have knowledge of AE. These findings are consistent with the current proposal that relates the acquisition of AE and the acquisition of case-markers. On the other hand, it is not clear how the previous analyses account for the early acquisition of AE. As discussed in Chapter 2, neither scrambling nor absence of agreement can be considered as a clear-cut trigger for the acquisition of AE. Thus, it is necessary for the previous analyses to show a reasonable acquisitional path to explain the fact that Japanese-speaking children have knowledge of AE at the earliest observable stage.

Before concluding this dissertation, I would like to discuss two theoretical consequences of the proposal made in this dissertation. One is concerning the theory of language variation, and the other is on the possibility of unifying Radical Pro Drop (RPD) and AE.

5.1. Argument Ellipsis and the Theory of Parameters

The main proposal of this dissertation is that the availability of AE in a language is determined by its nominal morphology, in particular, whether it exhibits fusional or agglutinating nominal morphology. What is of significance about this thesis is that the point of language variation in terms of AE is located outside narrow syntax. Put differently, I argue that the cross-linguistic difference in the availability of AE is not encoded in narrow syntax,¹⁰¹ but it emerges through the processes of ‘externalizing’ syntactic structures into morphological and phonological entities.

¹⁰¹ Following Chomsky (1995a, 2000, 2001, 2004) and Hauser et al. (2002), I assume that ‘narrow syntax’ consists of the operations that are relevant to structure building, such as Merge (external and internal) and Agree (and possibly Labeling). Narrow syntax is considered to be the core property of ‘Faculty of Language in the Narrow Sense (FLN)’ (Hauser et al. 2002), as Hauser et al. (2002:1571) state that “We assume, putting aside the precise mechanisms, that a key component of FLN is a computational system (narrow syntax) that generates internal representations and maps them into the sensory-motor interface by the phonological system, and into the conceptual-intentional interface by the (formal) semantic system ...”

The 'Principles and Parameters Approach to UG' advanced by Chomsky (1981) paves the way for investigating internal mechanisms of language variation and language acquisition. Under this approach, it is assumed that subsystems of principles (e.g., Binding, Government, Case, etc.) are equipped with 'parameters,' which are taken to be the locus of language variation. The task of children to acquire their language is then considered as setting the parameters in one way or another in accordance with the input they receive. Importantly, the advent of 'parameters' technically resolves a tension between descriptive and explanatory adequacy. What had been problematic before the 'P&P' era was that a number of rules were proposed to attain descriptive adequacy, which requires a theory to correctly describe the internal linguistic competence of the native speaker (Chomsky 1965:24). As the number of rules proliferated, it became more difficult to attain explanatory adequacy, which requires a theory to correctly select one grammar from descriptively adequate grammars on the basis of primary linguistic data (Chomsky 1965:25). However, given that values of the parameters are set in one way or another at any point of language acquisition, it is no longer necessary to evaluate competing grammars to select the correct one: technically, under the 'P&P' approach, children have an I-language at all stages of language acquisition.

The resolution of the tension between descriptive and explanatory adequacy made it possible to pursue new questions, which ask how well language is designed, and why language is that way (cf. Chomsky 2000, 2004). These are the central questions of the Minimalist Program (MP) (cf. Chomsky 1995b, 2000, 2001, 2004), and it seems that the recognition of parameters has changed from the early P&P approach. More specifically, theoretical apparatuses that are not required by '(virtual) conceptual necessity' are abandoned in the MP (e.g., D-structure, S-structure, Government, X-bar theory, etc.), and this leaves us the structure building operation Merge (External and Internal), and the two interfaces, the sensorimotor (SM) interface and the

conceptual-intentional (C-I) interface.¹⁰² Since it is unappealing to suppose that Merge or the interfaces conditions are parameterized, reseachers try to find the locus of language variation outside narrow syntax.¹⁰³

For example, Berwick and Chomsky (2011:37) claim that ‘parametrization and diversity, then, would be mostly – possibly entirely – restricted to externalization’ (see also Gallego 2011, Boeckx 2012, forthcoming, for similar ideas). Boeckx (2011, 2012) extends their claim and argues that ‘principles of narrow syntax are not subject to parametrization; nor are they affected by lexical parameters.’ These claims share the idea that the Faculty of Language in the Narrow Sense (FLN) (Hauser et al. 2002) is not subject to language variation, and language variation emerges through the processes that externalize internal syntactic structures into morphological/phonological entities. Put differently, language variation emerges only in the areas where optimization processes occur in order to meet the requirements imposed by the SM

¹⁰² The following excerpt from Aoun et al. (2001:399) seems to be useful to understand the basic notion of ‘(virtual) conceptual necessity.’

“Chomsky (1993) has argued that Merge is a virtually conceptually necessary operation. In what sense is this so? Its conceptual necessity rests on its link to a very obvious feature of natural languages: sentences are composed of words that are arranged in larger phrasal structures. Given this fact, there must be some operation for composing words into phrases, and this operation is Merge. What makes Merge “virtually conceptually necessary” is that every theory needs an operation like it in order to accommodate this obvious fact about natural language.”

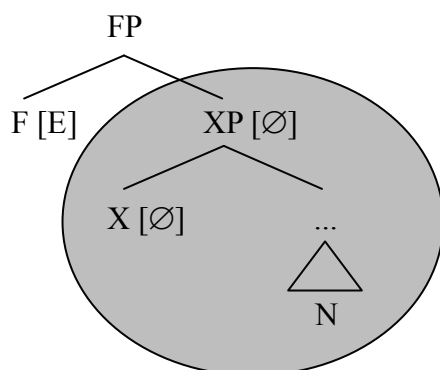
It is not clear to me what the modifier ‘virtual’ exactly means, but it suffices to understand the ‘conceptual necessity’ part in the current discussion.

¹⁰³ The interface conditions I have in mind are something like ‘Full Interpretation’ and ‘Linearization,’ which are imposed by the systems outside of narrow syntax,. I think it is highly unlikely that there exists language variation as to whether a language obeys the condition of Full Interpretation. Whether there exists language variation in Linearization seems to be more controversial. Take the Head-Parameter, for example. If we maintain the Head-Parameter, keeping syntactic objects produced in narrow syntax unordered, then it seems necessary to suppose some variation in linearization processes at the PF-interface. Also, it is equally possible to assume that Linearization itself is an invariant mechanism, and the variation in headedness comes from differences in other domains (such as functional categories, formal features, prosody, etc.). See, among others, Kayne’s (1994) *Linear Correspondence Axiom* and Fukui and Takano’s (1998) *Demerge and Concatenate* for the latter approach.

interface. For example, German has fusional case/number morphology, and the SM system requires the morphological component to combine K and # into a single category for VI. Here the source of variation is considered to be (late-inserted) vocabulary items, which force the morphological component to modify morphemes for the purpose of VI.

Although quite interesting, whether the locus of parameters is outside narrow syntax or not is, needless to say, an empirical question, and there has been little work that directly bears on the question.¹⁰⁴ I argue that the morphological approach to the parameter of AE put forth in this dissertation is fully consistent with the claim that language variation is located outside the narrow syntax. More specifically, I assume that the syntactic processes involved in AE are the same across languages, as illustrated in (242).

(242) Syntax of AE



The highest phrase FP in the extended projection of the lexical category N works as a phase (Bošković, in press), and the phase head F licenses ellipsis of its complement (Merchant

¹⁰⁴ See, for example, Tokizaki (2011, 2013) for an attempt to reinterpret Snyder's (2001) Compounding Parameter from the viewpoint of stress assignment. Though interesting, Tokizaki's analysis fails to explain some facts that the Compounding Parameter successfully captures. In particular, it fails to explain (a) the correlation between endocentric compounding and adjectival resultatives and (b) the correlation between the acquisition of endocentric compounding and the acquisition of verb-NP-particle constructions in English.

2001).¹⁰⁵ What determines the availability of AE is whether a language expresses the phase head F with distinct exponents. If a language does have distinct, agglutinating exponents for F, elision of XP (plus zero-pronunciation of F) yields the effect of AE without any problems. On the other hand, if a language does not have distinct exponents for F, and the features of F is always pronounced with the features of X, the requirement from the SM interface combines the adjacent heads F and X into one head for VI in the post-syntactic, morphological component. However, the combination of F and X gives the SM interface a conflicting instruction (i.e. F is pronounced, whereas X is unpronounced), thus resulting in the absence of AE in languages that have fusional morphology for F and X.

To sum up this section, the proposal put forth in this dissertation offers a way to account for the cross-linguistic distribution and acquisition of AE without making reference to cross-linguistic variations in narrow syntax. It is considered that the variation in terms of AE emerges in the morphological component where optimization processes occur by the requirements from the SM interface, and I suggested that this line of research is consistent with the recent Minimalist view that claims that the cross-linguistic variation should be confined to externalization processes.

¹⁰⁵ As for the identity of FP, I do not think it is syntax itself that determines variation in nominal structure in (ia) and (ib).

- (i) a. [_{KP} K [_{#P} # [_{DP} D [_{NP} N]]]]
- b. [_{#P} # [_{DP} D [_{NP} N]]]

Rather, I assume that variation exists in the lexicon: if a language does not have K as a vocabulary item, then the nominal structure of the language results in the K-less structure like in (ib). Although I understand that I need to admit some version of the ‘lexical’ parameter (contra Boeckx 2011), and that it is difficult to distinguish between syntactic and lexical parameters, at the moment I stipulate it without further discussion.

5.2. Argument Ellipsis and Radical Pro Drop

This section discusses the possibility of unifying AE and RPD. AE, which is the central topic of this dissertation, mostly concerns interpretations of null arguments, as the internal makeup of the null arguments is crucial to decide whether they result from ellipsis or not. Thus, this dissertation revolves around the availability of the sloppy/quantificational reading, which has been assumed to indicate the presence of internal structure of elided materials. RPD, on the other hand, only concerns the distribution of null arguments. The interpretation of radically dropped *pros* is assumed to be the same as their overt counterparts (i.e., ordinary pronouns), since *pros* are considered to be phonologically null versions of pronouns.

It is well-known that null arguments that allow the sloppy reading also allow the strict reading. Hence, the basic null object example in (243b) is ambiguous between the strict (meaning ‘Ken despises Masa’s teacher’) and the sloppy (meaning ‘Ken despises Ken’s teacher’) reading.

- (243) a. Masa₁-wa zibun₁-no sensei-o sonkeisiteiru.
 Masa-TOP self-GEN teacher-ACC respect
 Lit. ‘Masa₁ respects self₁’s teacher.’
 b. Ken-wa [e] keibetusiteiru.
 Ken-TOP despise
 Lit. ‘Ken despises [e].’
 c. Ken-wa kare-o keibetusiteiru.
 Ken-TOP he-ACC despise
 ‘Ken despises him.’

It is argued in this dissertation, along with many other studies on the null subject/object construction in Japanese (cf. Oku 1998, Saito 2007, Takahashi 2008b), that the sloppy reading is derived by means of AE. As for the availability of the strict reading, on the other hand, most of the studies simply suppose that it results from *pros*: since overt pronouns such as in (243c) only allow the strict reading, it is natural to assume that the phonologically null pronouns behave the

same. However, previous analyses such as Oku's (1998) Scrambling Analysis and Saito's (2007) Anti-agreement Analysis are not explicit about why *pros* are always available in the position where AE is available. In other words, although these analyses might be able to account for the availability/absence of AE, it is not at all clear why *pros* (the strict reading) can always replace the option of AE.

One reasonable hypothesis for the connection between AE (the sloppy reading) and *pros* (the strict reading) is suggested by Takahashi (2012), where it is proposed that the strict reading found in (243b) is the result of elision of pronouns, as shown in (244).

- (244) Ken-wa ~~kare-o~~ keibetusiteiru.
 Ken-TOP he-ACC despise
 'Ken despises him.'

If such deletion were possible, we would be able to unify the effects of AE and RPD, dispensing with *pros* from lexical entries. The question is, is such a deletion process permissible? What seems dubious about (244) is that the pronoun *kare-o* 'he-ACC,' which is not present in the antecedent sentence, is deleted. Takahashi (2012) argues that the process occurring in (244) is not special, because a similar phenomenon is also observed in sentences involving 'vehicle change' (cf. Fiengo and May 1994).

- (245) a. Mary loves John₁, and he₁ thinks Susan does, too.
 b. Mary loves John₁, and he₁ thinks Susan does [_{VP} love *John₁ / him₁], too.

Although the sentence in (245a), which involves VP-ellipsis in the second conjunct, is grammatical, the grammaticality is not expected if the elided VP has the same form as the VP in the antecedent clause: the R-expression *John* in the elided VP will induce a Condition C violation. One way to avoid such an undesirable result is to assume that the R-expression in the elided VP is changed to the pronoun *him*, as shown in (245b). Takahashi's (2012) point is that the

assumption of eliding a pronoun to yield the strict reading in (244) is not unreasonable, as we independently need the same mechanism to explain the vehicle change effects.

Though quite interesting, Takahashi's (2012) approach, as he acknowledges in Takahashi (2008b), faces some problems. First, consider the cases where null arguments are used in the absence of linguistic antecedents.

- (246) [Observing a student smoking in the classroom]
- a. Taroo: [e] hai gan-de sinu kamosirenai.
 lung cancer-of die may
 ‘He may die of lung cancer.’
- b. Taroo: Sensei-ga [e] sikaru daroo.
 teacher-NOM scold will
 ‘The teacher will scold him.’

(Takahashi 2008b)

The null subject in (246a) and the null object in (246b) are instances of ‘deep anaphora’ in that they are used in the absence of linguistic antecedents (Hankamer and Sag 1976). If these null arguments were derived from ellipsis, this would go against Hankamer and Sag's (1976) proposal that elided materials are an instance of ‘surface anaphora,’ which requires linguistically expressed antecedents. In fact, Takahashi (2008b) reports that deep anaphora do not have a sloppy reading, suggesting that ellipsis is not involved in this example.

- (247) [Watching a boy hitting himself]
- Taroo: Hanako-mo [e] tataku daroo.
 Hanako-also hit will
 Lit. ‘Hanako will hit [e], too.’

Though the fact is not so clear-cut, it appears that the sentence (247) does not have the interpretation ‘Hanako will hit herself, too.’ This suggests that we need to keep phonologically null pronouns, i.e., *pros*, in lexical entries. The absence of the sloppy reading in (247) might be

explained if we assume that it is a pronoun, not a reflexive, that is elided in (247). However, such an approach leaves the question of why a reflexive cannot be elided in this case.

Second, as we saw in Chapter 2, AE is subject to the parallelism constraint on deletion. Consider the examples from Neeleman and Szendrői (2007) again.

- (248) a. Mary-wa zibun-no kuruma-o aratta.
 Mary-TOP self-GEN car-ACC washed
 ‘Mary washed her car.’
- b. John-mo [e] aratta.
 John-also washed
 Lit. ‘John also washed [e].’
- c. Atode John-wa [e] notta.
 afterward John-TOP rode
 ‘Afterward, John rode in Mary’s car.’ (strict)
 ‘* Afterward, John rode in John’s car.’ (sloppy)
- (Neeleman and Szendrői 2007:684)

(248b) is an instance of AE, where the sloppy reading (i.e., ‘John also washed John’s car’) is possible. What is different between (248b) and (248c) is that, whereas a direct object is missing in the former, a PP argument is missing in the latter. Interestingly, the sloppy reading is unavailable in (248c). Neeleman and Szendrői (2007) argue that this is because the structural parallelism is not met in (248c): the unpronounced PP in (248c) and the antecedent NP in (248a) have different structures. Suppose, as Takahashi (2012) argues, that the strict reading is also derived by means of ellipsis. Then, how can we explain the fact that only the strict reading survives in (248c)? If the strict reading were the result of ellipsis, it would also be difficult to obtain the strict reading in (248c), because the parallelism constraint should be in effect in this case, too.

Therefore, it seems that we need to maintain phonologically null *pros* in lexical entries. More concretely, I claim that RPD must be maintained independently of AE. Remember that RPD is different from Italian-type pro drop in that any pronominal arguments including

possessors and referential objects can be null in the absence of rich agreement. Although I do not discuss Italian-type pro drop in detail in this dissertation, I simply adopt a general assumption that Italian-type pro drop (licensed by rich agreement) is allowed when the content of dropped arguments can be recovered by the ϕ -features expressed in verbal agreement (cf. Rizzi 1982, 1986, among many others). Given the fact that the absence of rich agreement does not necessarily make RPD readily available (for example, Swedish and Afrikaans, which do not exhibit verbal agreement at all, do not have RPD - see Section 2.4.2 for details), we need an independent mechanism for RPD. Assuming the RPD rule by Neeleman and Szendrői (2007) (see Section 2.5.1), I propose that, although RPD and AE involve different mechanisms, they emerge from the same source – that is, agglutinating nominal morphology. This explains the observed tight connection between the distribution of RPD (the availability of the strict/E-type reading) and the distribution of AE (the availability of the sloppy/quantificational reading).

To sum up this section, I showed that it is difficult to unify RPD and AE by dispensing with the former. I argue that we need to maintain both RPD and AE in grammar, and that the overlapping distribution of RPD and AE can be explained by deducing it from fusional/extended nominal projections. More specifically, I proposed that RPD and AE result from the same source, i.e., non-fusional nominal morphology, but they emerge through different mechanisms (RPD through the RPD rule proposed by Neeleman and Szendrői (2007), and AE through the mechanism proposed in this dissertation). By doing so, the tight connection between the availability of the strict/E-type reading (RPD) and the availability of the sloppy/quantificational reading (AE) is explained.

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