Two Types of Ellipsis: A Phase-Based Approach*

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1. Introduction

Let us consider ellipsis phenomena like (1):

(1) a. Bill bought something, but I don’t know what [he bought].

b. John will learn French, and Mary will [learn French], too.

In (1a), the elements following the wh-word what in the second conjunct are elided, but their content is semantically recovered in some systematic way. The example in (1b) illustrates the same point. The elements following will in the second conjunct are elided, but their content is semantically recovered. In this way, ellipsis is complicated phenomena to which syntax and semantics/pragmatics are related.

Generative grammar regards language as a mental organ. One of the central challenges of the “Minimalist Program” of generative grammar is to reveal the division of labor between language and other cognitive systems. If the division of labor between syntax and semantics/pragmatics with respect to ellipsis phenomena is possible, it may contribute to a better understanding of the human cognitive system.

In this paper we investigate Hankamer and Sag’s (1976) claim that anaphora is classified into deep and surface anaphora, from a minimalist perspective. Then we propose that ellipsis is classified into two types: Syntactic Ellipsis (SE) and Pragmatic Ellipsis (PE), roughly corresponding to surface anaphora and deep anaphora, and that these two ellipses target two domains necessary in the phase theory (Chomsky (2001, 2004, 2007, 2008)). We demonstrate that the licensing and recoverability of these ellipses reflect the derivational nature of linguistic computation.

This paper is organized as follows. In section 2, we state the basic properties of ellipsis, and classify ellipsis into two types. In section 3, we propose the mechanism of ellipsis, based on the phase theory. In section 4, we extend the proposed analysis to anaphoric phenomena. Section 5 is a conclusion.

2. The Properties of Ellipsis

2.1. The Basic Properties of Ellipsis

Let us start with a brief review of the basic properties of ellipsis. Previous studies on the sentence like (1) have mainly addressed the following two issues: in what position is ellipsis licensed, and how is the content of ellipsis recovered? Call the former the Licensing Condition and the latter the Recoverability Condition.

Defining a target of ellipsis is a prerequisite for the Licensing Condition. The targets of ellipsis are restricted to specific categories, as shown in (2)-(5).

(2) Bill bought something, but I don’t know what [\textit{he bought}].

(3) Abby speaks passable Dutch, and Ben, [\textit{I speak passable Dutch}], too.

(Merchant (2003: 1))

(4) John will learn French, and Mary will [\textit{learn French}], too.

(5) John is telling lies again. I agree.

(Grimshaw (1979: 289))
Sluicing targets TP, as shown in (2). Given Merchant's (2003) assumption that the subject Ben in (3) moves outside TP. Stripping also targets TP. In (4), VP is elided. (5) is an example of Null Complement Anaphora (NCA), where CP is elided. The role of the Licensing Condition is to find a principle governing the structural condition on ellipsis.¹

Let us turn to the Recoverability Condition. Hankamer and Sag (1976) claim that anaphora can be classified into two types: surface anaphora and deep anaphora. Surface anaphora is syntactically controlled, and requires some sort of syntactic identity, say non-distinctiveness, between an anaphoric element and its antecedent. Deep anaphora does not always require syntactic control; pragmatic control suffices for deep anaphora to be licensed.

(6) a. [Hankamer produces a gun, points it offstage and fires, whereupon a scream is heard]
   Sag: #Jesus, I wonder who.
   b. Hankamer: Someone's just been shot.
   Sag: Yeah, I wonder who.
   (Hankamer and Sag (1976: 408))
(7) [Indulgent father feeds baby chocolate bar for dinner]
   Mother: I don't approve.
   (Ibid.: 411)

The sluiced elements in (6a, b) are surface anaphora, requiring syntactic control. (6a) indicates that pragmatic control does not suffice for Sluicing, which requires a linguistic antecedent. On the other hand, the NCA example in (7) shows the elided part in question is a deep anaphora because it can be pragmatically controlled.

2.2. Two Types of Ellipsis

We are now in a position to discuss the classification of ellipsis. In what follows, we assume that there are two types of ellipsis in human language, an assumption reminiscent of the original claim of Hankamer and Sag (1976). Concretely, we propose that ellipsis can be classified into two types: Syntactic Ellipsis (SE) and Pragmatic Ellipsis (PE). The former roughly corresponds to surface anaphora, and the latter to deep Anaphora. Although we acknowledge that the distinction between surface anaphora and deep anaphora is not crystal clear as discussed in Chao (1987) and Lobeck (1995), we assume, without further argument, that A'-movement out of an ellipsis site can distinguish two types of ellipsis.² SE has an internal structure, so extraction out of SE is possible, whereas PE does not have an internal structure, so extraction out of PE is impossible. Contrast (8)-(10) with (11):

(8) Bill bought something, but I don't know what [\[he bought]].
   (Sluicing=SE)
(9) Abby speaks passable Dutch, and Ben. [\[he speaks passable Dutch]], too.
   (Stripping=SE)
(10) I don't know which puppy you should adopt, but I know [which one] you shouldn't.
   (Schuyler (2001: 1))
   (VP-ellipsis=SE)
(11) "A car, Max knew he had won—but a swimming pool, he guessed!"
   (Toosarvandani (2011: 5))
   (NCA=PE)

Sluicing, VP-ellipsis, and Stripping are SE, whereas NCA is PE. The difference in this extractability can be attributed to the visibility of structure of the elliptic site.

3. A Mechanism of Ellipsis

In this section we argue that the two types of ellipsis reflect the derivational domains independently motivated by the current phase theory in Chomsky (2001, 2004, 2007, 2008). Before presenting our proposal, let us make a brief review of the current phase-based model.

The current phase-based model is a kind of cyclic spell-out model. In this model, a syntactic derivation undergoes Spell-Out at multiple points and sends its output to the interface levels (PF and LF), as illustrated in (12) (Post-LF is a Conceptual-Intentional (C-I) system which is an extralinguistic cognitive system).

¹ See Lobeck (1991, 1995), Saito and Murasugi (1990), and Richards (2003) for a recent study on the syntactic licensing conditions on ellipsis.

² Depiante (2000) proposes that, in addition to the criteria such as pragmatic antecedent, extraction distinguishes between deep and surface anaphora.
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(12) The Cyclic Spell-Out Model

The derivational unit relevant to cyclic Spell-out is a phase. A phase is a current interpretation of the notion of cycle and a minimal unit of computation. Following Chomsky (2008), we assume that CP and transitive vP are phases.

What undergoes Spell-out at each phase is the complement of the phase, the transfer domain. This is illustrated in (13), where HP and ZP are phases.

(13)

Once HP (a phase) is completed, its complement SP (a transfer domain) undergoes Spell-Out and is transferred to phonological (PF) and semantic components (LF), thereby becoming inaccessible to further syntactic operations. Derivation proceeds, and when ZP (a phase) is completed, its complement RP (a transfer domain) is transferred to the phonological and semantic components.

Crucially, the notions of the transfer domain and the phase are necessary in the phase theory. Given Occam's razor, the properties of ellipsis should be reduced to these notions as much as possible. Thus, it would be conceptually preferable for the target of ellipsis to be restricted to the transfer domain and the phase.

In order to account for the properties of ellipsis in terms of the phase theory, we propose the following hypothesis:

(14) The Target-of-Ellipsis Hypothesis
a. SE targets the transfer domain.
b. PE targets the phase.

The hypothesis in (14) retains the different structural requirements (the Licensing Condition) imposed on the two types of ellipsis, and at the same time, the different conditions on their recoverability (the Recoverability Condition).

(14) predicts that Sluicing, Stripping, and VP-ellipsis, which are examples of SE, target the transfer domain, whereas NCA, which is an example of PE, targets the phase. In the following subsection, we will show that these predictions are correct.

3.1. A mechanism of SE

There is reason to assume that the transfer domain is a target of SE, because the transfer domain is a unit active only within linguistic computation and is only accessible to information relevant to linguistic computation. Let us see what the mechanism of SE is.

SE has an internal structure, which plays a role in recovering an ellipsis site. Given this assumption and (14a), SE should delete the transfer domain under some sort of syntactic identity with some other syntactic structure. As a triggering element of SE, we assume the [+E] feature in the phase head (cf. Merchant (2001)), which triggers ellipsis of the complement domain of the phase, the transfer domain.3 This is illustrated in (15).

3 Takahashi (2002) proposes that the complement of the head of a phase is deleted as a result of Recycle, which means that the domain which is transferred at the phase level is recycled into other derivation, and the recycled elements can be deleted or deaccented at PF. His and our analyses share the same view, in that the complement of the phase is deleted, though we do not assume Recycle.
In (15), the transfer domain which is a sister of the phase head with a feature [+E] is deleted. 

Recall that Sluicing, Stripping, and VP-ellipsis are examples of SE. One of the predictions then is that the transfer domain is deleted in these instances. This prediction is borne out by (16)-(18).

(16) Bill bought something, but I don’t know [to what C [79 he bought]].

(17) Abby speaks passable Dutch, and Ben. [v speaks passable Dutch], too. (Merchant (2003: 1))

(18) John will learn French, and Mary will [v learn French], too.

(16) and (17) are schematized in (19), and (18) in (20), respectively.

(19) Sluicing and Stripping

\[
\begin{array}{c}
\text{CP=phase} \\
\downarrow \\
\text{C'} \\
\downarrow \\
\text{transfer domain} \\
\downarrow \\
\text{C} \\
\downarrow \\
\text{TP} \\
\downarrow \\
\emptyset \\
\end{array}
\]

(20) VP ellipsis

\[
\begin{array}{c}
vP=\text{phase} \\
\downarrow \\
v' \\
\downarrow \\
\text{transfer domain} \\
\downarrow \\
v \\
\downarrow \\
\text{VP} \\
\downarrow \\
\emptyset \\
\end{array}
\]

In (19), [+E] feature on the phase head C triggers ellipsis of its complement, the transfer domain TP. In (20), [+E] feature on the phase head v triggers ellipsis of its complement, the transfer domain VP.

3.2. A Mechanism of PE

Why does PE not have internal structure? Depiante (2000) claims that Null Complement Anaphora is a null pro-form and thus it does not have internal structure. Thus, extraction out of NCA is impossible.

Following Depiante’s (2000) proposal, we assume that PE is a null pro-form. We also propose that this null pro-form categorically corresponds to a phase, which serves as a unit in computation external to the narrow linguistic faculty (Post-LF),4 because the phase is a complete semantic unit (a proposition). Thus, PE recovers its content by referring to the “phase” unit at Post-LF, as in (21) (with Δ showing null pro-form).

\[
\begin{array}{c}
\text{VP V} \\
\downarrow \\
\Delta \\
\end{array}
\]

\(\text{(PE)}\)

categorically corresponding to phase

If this is correct, NCA recovers its content by referring to a ‘phase’ unit at Post-LF, as schematized in (22).

\[
\begin{array}{c}
\text{CPE) V} \\
\downarrow \\
\text{Δ} \\
\end{array}
\]

categorically corresponding to phase

In (22), NCA (null pro-form) corresponds to CP—phase John is telling lies again at Post-LF. In this way, NCA recovers its content.

If this approach has succeeded in capturing the licen-

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4 An anonymous reviewer noted that it is the author’s responsibility to argue that there are linguistic structures at Post-LF. We claim that the Post-LF has some “structure” in the sense of Fregelian compositionality. The reviewer also asked how to reconcile this statement with the statement that PE does not have internal structure. However, some “structure” in the sense of Fregelian compositionality is not visible to linguistic computations, and hence it is quite different from structures in syntax.
ing condition by the two domains irreducible in the current phase system (= the transfer domain and phase), one of the predictions will be that PE cannot target the transfer domain and has to target the phase. This prediction is verified by the contrast between (23) and (24), on the one hand, and (25) on the other hand.

(23) *Bill seems [\textsubscript{T\textsubscript{R}} to be obnoxious], but I don’t think that Sam seems \textsubscript{\Delta}.  
(Jacobson (1990: 440))

(24) *Mary believed Bill [\textsubscript{T\textsubscript{R}} to be obnoxious], but I don’t think she believed Sam \textsubscript{\Delta}. 

(25) Mary persuaded Sam [\textsubscript{CP} \textsubscript{PRO} to leave], but I don’t think she has yet persuaded Bill \textsubscript{\Delta}.  
(\textit{ibid.}: 441)

All examples involve NCA. As we have already shown, NCA is PE (see (11)). Therefore, NCA targets only CP-phase, but not TP. In (23), \textit{to be obnoxious} is a TP, which is not a phase. Thus, it does not correspond to the null pro-form in the second conjunct at post-LF. The same is true of (24). In (25), on the other hand, \textit{PRO to leave} corresponds to CP, which is a phase, so it can correspond to the null pro-form in the second conjunct.\textsuperscript{5}

NCA is further restricted by the lexical properties of verbs. For example, discover and find out do not allow NCA, even if a null pro-form corresponds to CP-phase, as illustrated in (26) and (27).

(26) Guess what, [\textsubscript{CP} John is telling lies again].  
*Yeah, I’d already discovered \textsubscript{\Delta}. 

(27) Guess what, [\textsubscript{CP} John is telling lies again].  
*Yeah, I’d already figured out \textsubscript{\Delta}.  
(Grimshaw (1979: 289))

With respect to this restriction, Grimshaw (1979) claims that NCA is impossible if verbs obligatorily C(ategory)-select S’ (CP).\textsuperscript{6} Given this, a null pro-form is not licensed in (26) and (27), since verbs discover and find out obligatorily C-selects CP.\textsuperscript{7,8}

4. Extension of the Analysis to Anaphoric Phenomena

It is a widely accepted view that ellipsis belongs to anaphoric elements. In this section we suggest that the proposed analysis might easily be extended to anaphoric phenomena such as \textit{do so} anaphora. Here we focus on \textit{do so} anaphora, as illustrated in (28).

(28) John took the exam, and I did so, too.  
(Lakoff and Ross (1976: 106))

Given that the A’-extractability out of the elliptic site is the relevant criterion, do so anaphora is PE targeting vP, as shown in (29).

(29) *I don’t know which puppy you SHOULD adopt, but I know which one you SHOULDN’T do so.  
(Schuyler (2001: 2))

Thus, the content of \textit{do so} in \textit{do so} anaphora corresponds to vP-phase, not VP.\textsuperscript{9} This is illustrated in (30).

(30) John \textsubscript{[\textit{\textsubscript{\lambda}} took the exam]},

\textsuperscript{5} PE which targets DP does not exist in English, because Case cannot be assigned to null pro-form, and it violates an inverse case filter in the sense of Bošković (1997, 2002), which is a “requirement that traditional Case assigner assign their Case features” (Bošković (2002: 170)). SE which targets DP does not exist in English, given that DP is a phase (Chomsky (2008)).

\textsuperscript{6} On the basis of this claim, Grimshaw (1979) argues that not only S-selection but also C-selection is required. See Grimshaw (1979) for the relevant discussion.

\textsuperscript{7} An anonymous reviewer asked why verbs like \textit{persuade} allows NCA, though they selects CP as its complement. However, as we have stated, Grimshaw (1979) claims that NCA is possible if verbs \textit{obligatorily} C(ategory)-select S’ (CP). Given this, NCA of the complement of \textit{persuade} is possible, because a C-selection of CP is \textit{not} obligatory.

\textsuperscript{8} An anonymous reviewer asked how the proposed analysis can account for the fact that the sloppy interpretation is possible in Null Complement Anaphora, since it would be peculiar if it is assumed that binding condition applies at an extralinguistic level. However, sloppy reading is determined semantically, not syntactically. In addition, the fact that sloppy reading cannot distinguish between deep and surface anaphora has already been established. See Depiante (2000) for the relevant discussion.

\textsuperscript{9} Following Lasnik (1999), we assume that A-movement does not leave a lower copy, so there is no copy of the subject in the vP-internal position.
and I [did so], too.

categorically corresponding to phase

This conclusion supports Stroik’s (2001) claim that
do so is an anaphoric element for the projection vP, not VP.

5. Conclusion

In this paper, we have demonstrated that the licensing
and recoverability of the ellipsis are closely related to
phase-based computation. We have shown that ellipsis is
classified into SE and PE, and that their ellipses target
the phase and the transfer domain independently moti-
vated by the phase theory in Chomsky (2001, 2004,
2007, 2008). We have also shown that our argument
can extend to Anaphoric Phenomena.

Our argument has at least two theoretical implications.
First, it supports the phase theory in Chomsky
(2001, 2004, 2007, 2008), in that the phase and the
transfer domain play an important role in the licensing
and recoverability of ellipsis. Second, our argument
might offer a promising direction toward natural charac-
terization of ellipsis in human language. Chomsky
(1995) claims that ellipsis phenomena are beyond the
sentence unit, so they are difficult to treat in narrow syn-
tax. However, if the licensing and recoverability of ellip-
sis reflect the derivational nature of linguistic computa-
tion, division of labor between linguistic computation
and semantics/pragmatics might be possible, which in
turn contributes to the advancement of the study of ellip-
sis in the Minimalist Program.

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