

## CHAPTER 3

---

# ELLIPSIS IN TRANSFORMATIONAL GRAMMAR

---

HOWARD LASNIK AND KENSHI FUNAKOSHI

### 3.1 INTRODUCTION

---

ELLIPSIS has played a role in transformational generative grammar (TGG) since the inception of the approach in the 1950s. In the earliest model (Chomsky 1955) the vast majority of descriptive work was done by syntactic transformations. Phrase structure rules created basic monoclausal structures (often represented as trees), then two kinds of transformations dealt with these trees: Generalized transformations combined separate trees into one (sometimes altering them in the process); and singular transformations operated on single trees, both basic ones and those created via generalized transformations. These singular transformations inserted material, rearranged material, or deleted material, this latter kind of operation—labeled ‘deformation’ by Chomsky—being responsible for ellipsis. There have been many changes over the decades in the technology of TGG but the core ideas survive: Sentences have a basic underlying structure (or set thereof) and a transformationally derived ‘surface’ structure more immediately related to phonological form. Questions about ellipsis have persisted through the various theoretical changes. ‘Recoverability’ is a long-standing theme. In classical TGG, the question concerned the precise nature of the identity requirement governing deletion, since it was known that total identity was not required. Chomsky (1965) and Ross (1969b) especially contributed to this discussion. In slightly later work, it was often assumed that an ellipsis site is empty in initial structure, and then the antecedent is copied in (the inverse of a deletion transformation) to create a fully structured Logical Form (LF) representation. The recoverability question then concerns the extent to which the antecedent can be altered in the course of being copied. Williams (1977b) and Fiengo and May (1994) were influential contributors to this perspective.

The recoverability issue obviously intimately relates to the question of the exact nature of the ellipsis site. In the earliest work, it was simply assumed that the ellipsis site is syntactically fully represented, prior to deletion. But by the late 1960s, two alternatives began to be

pursued, one involving syntactic structure (exactly how much varied), but no lexical items, in the ellipsis site, the other having no structure whatsoever (a possibility resurrected by Culicover and Jackendoff 2005). Ross (1969b) already presented strong arguments against this second possibility and at least some versions of the first.

In addition to recoverability, ‘licensing’ is a requirement for ellipsis. Not just any XP can be elliptical (even in the presence of a suitable antecedent), and even an XP that can be elliptical can usually only be so in specific licensing contexts. This factor, unexplored in early work on ellipsis, became a significant research topic beginning in the 1980s, especially under the influence of Zagana (1982, and much subsequent work), Lobeck (1990), and Saito and Murasugi (1990a). Licensing still remains rather mysterious.

In this chapter we will examine these three themes of structure, recoverability, and licensing as they developed in transformational grammar.

## 3.2 STRUCTURE

Analyses of ellipsis can be classified into two fundamental approaches: (i) ones that assume that there is full internal structure in the ellipsis site at certain levels; (ii) ones that assume that there is neither internal structure nor an empty category in the ellipsis site. Let us call (i) the structural analysis and (ii) the non-structural analysis. In order to illustrate these analyses, let us consider a sluicing example like (1).

- (1) Ralph is going to invite somebody from Kankakee to the party, but they don’t know who. (Ross 1969b: 252)

Sluicing was first explored by Ross (1969b), and has been discussed by van Riemsdijk (1978), Chao (1987), Lobeck (1991, 1995), Chung et al. (1995), Romero (1998), Ginzburg and Sag (2000), Lasnik (2001), Merchant (2001), and Culicover and Jackendoff (2005), among others. In the second conjunct in (1), the embedded *wh*-question clause (the sluiced clause) is missing except for the *wh*-phrase *who*. Under the structural analysis, the missing part of the sluiced clause is fully represented at certain levels. Thus, the embedding verb *know* takes CP as its complement, as illustrated in (2a). On the other hand, under the non-structural analysis, there is nothing in the missing part, and *know* directly selects the *wh*-phrase, as illustrated in (2b).

- (2) a. ... they don’t know [<sub>CP</sub> who [<sub>IP</sub> Ralph is going to invite  $t_{\text{who}}$  from Kankae to the party]].  
 b. ... they don’t know [<sub>DP</sub> who].

In this section, we will review arguments in favor of the structural analysis over the non-structural analysis, and then we will compare two variants of the structural analysis (i.e., the deletion analysis and the LF-copying analysis). We will see that there are arguments for the deletion analysis, and the potential problems for the deletion analysis can be solved under specific analyses of sluicing.

### 3.2.1 Arguments for the structural analysis

#### 3.2.1.1 Case-matching effects

The first argument for the existence of syntactic structure in the ellipsis site is based on case-matching effects in German sluicing, discussed by Ross (1969b), who credits George Williams, and explored in great detail by Merchant (2001). Consider the following examples:

- (3) Er will jemandem schmeicheln, aber sie wissen nicht  
 he wants someone.DAT flatter but they know not  
 \*wen/wem.  
 \*whom.ACC/whom.DAT  
 'He wants to flatter somebody, but they don't know who.' (German, Ross 1969b: 253)
- (4) Er will jemanden loben, aber sie wissen nicht \*wem/wen.  
 he wants someone.ACC praise but they know not \*who.DAT/who.ACC  
 'He wants to praise someone, but they don't know who.' (German, Ross 1969b: 254)

The verb *schmeicheln* 'flatter' assigns dative case while *loben* 'praise' assigns accusative case. (3) and (4) show that the *wh*-phrase in the sluiced clause (the remnant *wh*-phrase) must be assigned the same case that the verb in the antecedent clause assigns. This fact can easily be accounted for if there is syntactic structure in the ellipsis site in sluiced clauses and an identity requirement obtains (see section 3.3), as the elided site then contains the same verb as the antecedent clause. On the other hand, if there is no structure in the ellipsis site, it is not obvious how to account for the matching requirement.

#### 3.2.1.2 Agreement

Another argument, also due to Ross (1969b), comes from subject–verb agreement. The verb that takes a sluiced clause as its subject exhibits singular agreement irrespective of the number marking of the remnant *wh*-phrase itself, as illustrated by (5).

- (5) a. He's going to give us one old problem for the test, but **which problem isn't/\*aren't** clear.  
 b. He's going to give us some old problems for the test, but **which problems isn't/\*aren't** clear. (Ross 1969b: 255–6; slightly modified)

The remnant *wh*-phrase in (5a) is singular while that in (5b) is plural. In spite of this difference, the verb must exhibit singular agreement in both clauses. Such obligatory singular agreement is a general property of a clausal subject, as shown by (6).

- (6) a. [That Bill left] is/\*are tragic.  
 b. [Why he did it] is/\*are a puzzle.  
 c. [Being drunk] gives/\*give me a kick. (Ross 1969b: 257)  
 d. [That the position will be funded and that Mary will be hired] now seems/\*seem likely. (McCloskey 1991b: 565, slightly modified)

Example (6) shows that a clausal subject requires singular agreement on the verb (though there are some exceptions, as discussed by McCloskey 1991b). The similarity between (5) and (6) can be easily accounted for if there is syntactic structure in the ellipsis site.

### 3.2.1.3 *Subcategorization*

The verb *wonder* takes an interrogative clause as its complement while it cannot take a DP, as shown in (7).

- (7) a. I wonder [<sub>CP</sub> how many men she's inviting].  
 b. \*I wonder [<sub>DP</sub> those old men]. (Ross 1969b: 257)

Given this, Ross (1969b) argues that (8) indicates that there is syntactic structure in the ellipsis site in a sluiced clause.

- (8) She says she's inviting some men—I wonder **how many men**? (Ross 1969b: 257)

In the sluiced clause in (8), *wonder* is followed by a DP, *how many men*. If there is no structure in the ellipsis site and *wonder* takes the DP as its complement in (8), the acceptability of (8) is a mystery. On the other hand, if there is structure in the ellipsis site, and *wonder* in (8) takes an (unpronounced) interrogative CP complement, the acceptability of (8) is accounted for.

### 3.2.1.4 *Preposition stranding*

Ross (1969b) observes that the possibility of P(reposition)-stranding in the sluiced clause correlates with that in non-ellipsis clauses. (9) shows that P-stranding is obligatory when the *wh*-phrase is the complement of *with* in a *do-away-with* construction.<sup>1</sup>

- (9) a. Who are you going to do away [<sub>PP</sub> with *t*<sub>who</sub>]?  
 b. \*<sub>[PP</sub> With whom] are you going to do away *t*<sub>PP</sub>? (Ross 1969b: 264)

When the antecedent clause is the *do-away-with* construction, the remnant *wh*-phrase cannot appear along with the preposition *with*, as (10) shows.

- (10) a. Bill's planning on doing away with one of his inlaws, but I don't know [which].  
 b. \*Bill's planning on doing away with one of his inlaws, but I don't know [with which]. (Ross 1969b: 265)

Under the structural analysis, the contrast between (10a) and (10b) and that between (9a) and (9b) can be treated in the same way since the sluiced clause in (10a) involves P-stranding while that in (10b) does not under the structural analysis, as illustrated by the following:

<sup>1</sup> See Ross (1967: 196–240) for discussion of this phenomenon.

- (11) a. I don't know which [<sub>IP</sub> Bill's ~~planning on doing away~~ [<sub>PP</sub> with  $t_{\text{which}}$ ]].  
 b. \*I don't know [<sub>PP</sub> with which] [<sub>IP</sub> Bill's ~~planning on doing away~~  $t_{\text{PP}}$ ].

Merchant (2001) examines cross-linguistic data concerning the correlation between the possibility of P-stranding in sluicing and that in non-ellipsis contexts, and concludes that P-stranding is allowed under sluicing only if P-stranding is allowed in regular *wh*-movement (in non-ellipsis contexts).<sup>2,3</sup> Merchant (2001: 92–100) shows that English, Frisian, Swedish, Norwegian, Danish, and Icelandic allow P-stranding both in sluicing and in regular *wh*-movement while Greek, German, Dutch, Yiddish, Russian, Polish, Czech, Bulgarian, Serbo-Croatian, Slovene, Persian, Catalan, Spanish, French, and Italian do not allow it in either context. This cross-linguistic P-stranding correlation can also easily be accounted for under the structural analysis.

### 3.2.1.5 *Idiom reconstruction*

Rottman and Yoshida (2013) provide further evidence for the structural analysis, based on idiom chunks. A part of an idiom chunk can undergo *wh*-movement, as shown in the following:

- (12) a. John **pulled strings** to get his position.  
 b. **Which strings<sub>i</sub>** did John **pull**  $t_i$  to get his position?  
 (Rottman and Yoshida 2013: 653)

In (12b), *which strings*, which is a part of the idiom chunk (*pull strings*), undergoes *wh*-movement. The sentence retains its idiomatic meaning. Rottman and Yoshida (2013) observe that a part of an idiom chunk can be a remnant of sluicing, as shown in the following:

- (13) John **pulled strings** to get his position, but I don't know **which strings**.  
 (Rottman and Yoshida 2013: 653)

The sluiced clause in (13) retains its idiomatic meaning. If there is no structure in the ellipsis site, it is a mystery how it yields the idiomatic meaning.<sup>4</sup> On the other hand, under the structural analysis, the sluiced clause in (13) is directly analogous to (12b): the mechanism via which the idiomatic meaning obtains in (13) is reduced to whatever mechanism induces the idiomatic meaning in ordinary *wh*-question sentences with overt structures like (12b).

<sup>2</sup> However, potential counterexamples to this generalization have been reported in the literature (Almeida and Yoshida 2007; Sato 2011b). Although Stjepanović (2008), Vicente (2008), and Rodrigues et al. (2009) also discuss counterexamples, they conclude that the relevant data are in fact consistent with the generalization, once alternative sources, especially cleft-like sentences, are considered. See van Craenenbroeck (2010a) for extensive relevant discussion.

<sup>3</sup> Although Merchant (2001: 92) presents the generalization as a necessary and sufficient condition, it should be just a necessary condition because a language might allow *wh*-movement to strand a P while ellipsis of IP is prohibited for independent reasons.

<sup>4</sup> As a reviewer points out, this argument presupposes that idiomatic readings require the relevant parts to form a constituent at some point in the derivation.

### 3.2.1.6 Parasitic gaps

Yoshida et al. (2015a) provide a new argument for the structural analysis of sluicing. Their argument is based on the parasitic gap construction, which is exemplified by (14) (Chomsky 1982, 1986; Engdahl 1983; Culicover and Postal 2001; Nunes 2004).

- (14) [Which articles]<sub>i</sub> did John file  $t_i$  without reading \_\_\_<sub>PG</sub>? (Engdahl 1983: 5)

This sentence involves two gaps. The first gap ( $t_i$ ) is called a true gap since it is in a position where extraction is normally permitted. The true gap is basically a trace left by overt A'-movement. The second gap (\_\_\_<sub>PG</sub>) is called a parasitic gap. A parasitic gap is in a position where extraction is normally not allowed (e.g., adjunct islands and subject islands). A parasitic gap needs to be licensed by a true gap in its local domain. Thus, the sentence becomes unacceptable when there is no true gap, as shown in the following:

- (15) \*[Which article]<sub>i</sub> did John file this manuscript without reading \_\_\_<sub>PG</sub>?

The sentence also becomes unacceptable when there is a true gap but the true gap is not in a local configuration with the parasitic gap, as illustrated by the following example:

- (16) \*Who<sub>i</sub> did John assure  $t_i$  that Mary would be surprised soon after talking to \_\_\_<sub>PG</sub>?  
(Yoshida et al. 2015a: 1442)

Yoshida et al. (2015a) observe that a parasitic gap can appear in a sluiced clause, as shown by the following example:<sup>5</sup>

- (17) The editor told me [which book]<sub>i</sub> I must review  $t_i$  soon after receiving \_\_\_<sub>PG</sub>, but I don't remember [exactly how soon after receiving \_\_\_<sub>PG</sub>].  
(Yoshida et al. 2015a: 1443)

In this sentence, the antecedent clause contains a parasitic gap, which is licensed by the local true gap. What is crucial in this example is that the sluiced clause also involves a parasitic gap, which is contained in the remnant *wh*-phrase. Yoshida et al. (2015a) argue that the parasitic gap in the sluiced clause is licensed by a gap inside the syntactic structure that undergoes ellipsis. If there is no structure in the ellipsis site, it is unclear how the parasitic gap in the ellipsis clause is licensed.

<sup>5</sup> Interestingly, the non-ellipsis counterpart of this example is unacceptable:

- (i) \*The editor told me [which book]<sub>i</sub> I must review  $t_i$  soon after receiving \_\_\_<sub>PG</sub>, but I don't remember [exactly how soon after receiving \_\_\_<sub>PG</sub>]<sub>j</sub> the editor told me which book I must review  $t_j$ .  
(Yoshida et al. 2015a: 1453)

Yoshida et al. (2015a) argue that this indicates that sluicing can repair some island violations.

One might argue that the relevant parasitic gap is licensed by the true gap not in the elided structure but in the antecedent clause. However, the following example indicates that this is not the case:

- (18) \*The editor told me [which book]<sub>i</sub>; I must review  $t_i$  soon after receiving \_\_<sub>PG</sub>, but I don't remember [exactly how soon after receiving \_\_<sub>PG</sub>] I must review **it**.  
(Yoshida et al. 2015a: 1444)

(18) does not involve sluicing. The gap in question that is contained in the *wh*-phrase is followed by overt material. If it were the true gap in the antecedent clause that licenses the parasitic gap in the sluiced clause in (17), (18) should be acceptable.

To sum up, in order to license the parasitic gap in the sluiced clause in (17), we need to assume that there is a true gap in the sluiced clause, which means that there is structure in the ellipsis site in sluicing.

### 3.2.1.7 *Extraction out of VPE site*

Williams (1977b) claimed that *wh*-movement out of an elided VP is generally impossible, giving the following example:

- (19) (\*)John, who Bill saw, and who Bob did too

However, in our experience, native speakers find this example to be fine. Many parallel examples appear in the literature, almost invariably labeled grammatical. Fiengo and May (1994) give the following:

- (20) I know which book Max read and which book Oscar didn't.  
(21) Philby, who Angleton suspected, but who Dulles didn't.  
(22) What John knows is minimal, and what he doesn't is vast.

If there is internal structure in the elided VP, the source of the *wh*-phrase is straightforward, as is the existence of a trace for it to bind.

## 3.2.2 *Deletion vs LF-copying*

We have seen that there is substantial evidence for the structural analysis over the non-structural analysis. In this section, we will look at two variants of the structural analysis: the deletion analysis (Ross 1969b; Lasnik 2001; Merchant 2001) and the LF-copying analysis (Williams 1977b; Chao 1987; Lobeck 1991, 1995; Fiengo and May 1994). Both analyses assume that there is syntactic structure in the ellipsis site. They have different views regarding at which level of derivation structure appears. Under the deletion analysis, there is structure in the elided site at the beginning of the derivation, but it is deleted at PF. On the other hand, under the LF-copying analysis, a null pronominal-like element occupies the ellipsis site at first, and this null element is replaced at LF by syntactic

structure, which is copied from some appropriate linguistic antecedent (see section 3.3 for what kind of linguistic antecedent is appropriate for this purpose). In section 3.2.2.1, we will see arguments in favor of the deletion analysis. In section 3.2.2.2, we first review two phenomena that are potentially problematic for the deletion analysis, and then we discuss possible analyses of them that are compatible with the deletion analysis.

### 3.2.2.1 *Arguments for the deletion analysis*

As Ross (1969b) and Merchant (2001) contend, the case-matching effects that we presented in section 3.2.1.1 as an argument for the structural analysis also tend to argue for the deletion analysis of sluicing. Under the deletion analysis, the deletion operation applies to IP after the remnant *wh*-phrase undergoes *wh*-movement.<sup>6,7</sup> Therefore, the case that is assigned to the remnant *wh*-phrase is naturally maintained after the *wh*-phrase moves. On the other hand, under the LF-copying analysis, where the ellipsis site is empty throughout overt syntax, the remnant *wh*-phrase is base-generated in specCP. Thus, some extra mechanism is required to account for the case-matching effects.

The P-stranding generalization also favors the deletion analysis over the LF-copying analysis, since it straightforwardly follows from the deletion (plus movement) analysis while it does not from the LF-copying (plus base generation) analysis.

### 3.2.2.2 *Potential arguments against the deletion analysis*

However, there are potential problems for the deletion analysis. In this section, we first review two of them, and then we discuss possible approaches to them that are compatible with the deletion analysis (section 3.2.2.3).

**Island violation repair by ellipsis.** Islands effects are not observed (or at least are significantly lessened) under sluicing in various circumstances. For example, Ross (1969b) observes that sluicing is not as sensitive to Complex NP islands as regular *wh*-movement is, as shown in (23).

- (23) a. \*She kissed a man who bit one of my friends, but Tom doesn't realize [which one of my friends]<sub>i</sub> she kissed [a man who bit *t*<sub>i</sub>].  
 b. ?She kissed a man who bit one of my friends, but Tom doesn't realize which one of my friends. (Ross 1969b: 276)

As Culicover and Jackendoff (2005) argue, this is problematic for the deletion (plus movement) analysis. Under the deletion analysis, the ellipsis clause in (23b) involves *wh*-movement out of a complex NP island, as illustrated by (24).

- (24) ... [CP which one of my friends [<sub>IP</sub> she kissed [<sub>Island</sub> a man who bit *t*<sub>Wh</sub> ]]]

<sup>6</sup> However, Kimura (2010) proposes a deletion analysis of sluicing in which the remnant *wh*-phrase does not undergo movement.

<sup>7</sup> As discussed by van Craenenbroeck and Lipták (2005, 2006, 2013) and van Craenenbroeck (2012a), sluicing could be a deletion operation that applies to a CP projection rather than IP given that CP constitutes several separate projections (see Rizzi 1997).

Thus, under the deletion analysis, it might be predicted that (23b) is as unacceptable as (23a), since the derivation involves an island violation. On the other hand, the LF-copying analysis correctly, or nearly correctly, predicts that (23b) is acceptable since the remnant *wh*-phrase is base-generated in specCP (i.e., *wh*-movement is not involved). As Ross (1969b), Chung et al. (1995), Lasnik (2001), and Merchant (2001) discuss, this island-repair-by-ellipsis phenomenon is widespread, applying to several other islands such as *wh*-islands, left-branch islands, derived position islands, and coordinate structure islands.<sup>8</sup> We will discuss a possible explanation of island violation repair phenomena under the deletion analysis in section 3.2.2.3.

**Multiple sluicing.** Nishigauchi (1998), Richards (2001), and Lasnik (2014) discuss another kind of repair by ellipsis. Unlike languages like Bulgarian and Serbo-Croatian, English does not allow multiple *wh*-fronting:

- (25) I know that in each instance one of the girls got something from one of the boys.  
 \*But they didn't tell me [which] [from which] got something. (Lasnik 2014: 4)

In the second sentence in (25), the two *wh*-phrases (*which* and *from which*) are fronted, yielding the unacceptability. Surprisingly, the multiple *wh*-fronting sentence becomes acceptable once sluicing applies to it, as shown in (26).

- (26) I know that in each instance one of the girls got something from one of the boys.  
 But they didn't tell me [which] [from which].  
 (Nishigauchi 1998; see also Bolinger 1978)

Nishigauchi (1998) suggests that sentences like (26) are similar to gapping, proposing that the first *wh*-phrase is in specCP while the second one is in some other position. However, Richards (2001) points out that multiple sluicing in English exhibits different properties from gapping. For example, in gapping constructions, the gapped clause must be conjoined with the corresponding non-gapped clause, in fact IP with IP, as illustrated by the following examples:

- (27) a. [Mary talked about *Syntactic structures*] and [John about 'Conditions on transformations.']  
 b. I think that [Mary talked about *Syntactic structures*] and [John about 'Conditions on transformations.']  
 c. \*[Mary talked about *Syntactic structures*] and I think [John about 'Conditions on transformations.']  
 d. \*I think that [Mary talked about *Syntactic structures*] and that [John about 'Conditions on transformations.'] (Lasnik 2014: 6)

<sup>8</sup> However, Barros et al. (2014) argue that island repair is an illusion since sluicing becomes island-sensitive once we properly control for non-island construals for ellipsis sites.

In these sentences, the second bracketed clauses are the gapped clauses and the first ones are the corresponding non-gapped clauses. In (27a) and (27b), the gapped IPs are conjoined with the corresponding non-gapped IPs, yielding the acceptable gapped clauses. On the other hand, in (27c) and (27d), the two IPs are not conjoined, resulting in illegitimate gapped clauses.

As (28) shows, multiple sluicing is not subject to such a strict locality condition.

- (28) In each instance, [one of the students talked about one of Chomsky's works], but I don't know exactly [which about which]. (Lasnik 2014: 6)

This indicates that multiple sluicing cannot be reduced to gapping. If a sentence like (28) is a genuine instance of multiple sluicing, as Merchant (2001) and Richards (2001) argue, this poses a potential problem for the deletion (plus movement) analysis of sluicing; it is a mystery why multiple *wh*-fronting is allowed in English only under sluicing. We will discuss a possible account for multiple sluicing that is compatible with the deletion analysis in section 3.2.2.3.

### 3.2.2.3 *Explanations under the deletion analysis*

**Explanations of island repair.**<sup>9</sup> Ross (1969b: 277) takes island violation repair as evidence that “the theoretical power of [global] derivational constraints is needed in linguistic theory”; an ungrammatical sentence obtains if a syntactic island is crossed by movement, and the island appears in surface structure while a lesser degree of the ungrammaticality results if the island does not appear in surface structure as a result of a deletion transformation.

Rejecting such global derivational constraints, Chomsky (1971) presents a representational constraint to account for island violations and their repair by ellipsis. He proposes that an island is marked by \* (# in Chomsky's 1972a presentation) when it is crossed by movement, as illustrated by the following, where a complex NP island is crossed.

- (29) ... [which one of my friends]<sub>i</sub> she kissed [<sub>NP\*</sub> a man who bit *t<sub>i</sub>*]

An output condition rules out a representation with \* in surface structure, explaining the unacceptability of standard island violations. Chomsky (1972a) further proposes that if a later operation deletes a category containing \*, the derivation is salvaged, explaining island violation repair by ellipsis.<sup>10</sup>

<sup>9</sup> The content of this section is based on Lasnik (2011).

<sup>10</sup> Lakoff (1972) argues that Chomsky's (1972a) \*-marking analysis is conceptually problematic because it requires that a new element be introduced, perhaps foreshadowing inclusiveness condition violations in modern terms. Kitahara (1999) explicitly appeals to inclusiveness in rejecting \*-marking for a different but related phenomenon, with \* on a trace left behind by an overly long movement, as in Lasnik and Saito (1984) and Chomsky (1986). Lasnik (2001) suggests a technical solution to this technical problem: Everything is “born” with a  $\checkmark$ . When a violation occurs, the  $\checkmark$  is erased. A representation with a category without a  $\checkmark$  yields an unacceptable sentence. Also see Temmerman (2013), developing ideas of Merchant (2008b), for an argument for \*-marking of traces.

Merchant (2001) gives an empirical argument against the \*-marking analysis. He points out that island violations are not always repaired by ellipsis. For example, in (30), *which* moves out of a complex NP island, and the crossed island is deleted by VP-ellipsis. In spite of this, the sentence is unacceptable (i.e., the island violation is seemingly not repaired).

- (30) \*They want to hire someone who speaks a Balkan language, but I don't know which<sub>i</sub> they do [<sub>VP</sub> want to hire [<sub>NP</sub> someone who speaks *t<sub>i</sub>*]].

This contrasts with sluicing on the face of it, as shown in the following:

- (31) They want to hire someone who speaks a Balkan language, but I don't know which<sub>i</sub> (Balkan language) [<sub>TP</sub> they want to hire [<sub>NP</sub> someone who speaks *t<sub>i</sub>*]].

Under the \*-marking analysis, the contrast between VP-ellipsis and sluicing in this respect is not expected.<sup>11</sup>

Merchant (2001) argues that all ellipsis is a deletion operation at PF and classifies islands into two types: PF islands (e.g., left-branch islands, COMP-trace effects, and derived position islands) and propositional islands (e.g., complex NP islands, adjunct islands, and sentential subject islands). PF islands are constraints that apply to PF representations. Therefore, ellipsis as a deletion operation at PF can get rid of illegitimate PF representations. Merchant (2001) argues that the case of apparent repair of propositional islands involves a smaller subpart of the antecedent that does not contain an island. For example, (31) is reanalyzed as in the following:

- (32) They want to hire someone who speaks a Balkan language, but I don't know which<sub>i</sub> (Balkan language) [<sub>TP</sub> she should speak *t<sub>i</sub>*]].

In contrast with sluicing, the case of VP-ellipsis (i.e., (30)) cannot be analyzed as involving an alternative short source that does not contain an island. Thus, the contrast between (30) and (31) follows.<sup>12</sup>

**Explanation of Multiple Sluicing.** Lasnik (2014) argues that multiple sluicing in English involves *wh*-movement of the first *wh*-phrase and rightward movement of the second *wh*-phrase, as illustrated by the following:

- (33) But they didn't tell me [<sub>CP</sub> [**which**] [<sub>TP</sub> *t<sub>i</sub>* [<sub>VP</sub> got something *t<sub>j</sub>*]] [**from which**]]

Lasnik's (2014) arguments for the rightward movement analysis are based on the observation that multiple sluicing in English is subject to constraints on rightward

<sup>11</sup> However, Merchant (2008b) proposes a variant of the \*-marking analysis that can accommodate this contrast between VP-ellipsis and sluicing.

<sup>12</sup> Lasnik (2001) argues that propositional island violations can be repaired even if an alternative short source is not available (see Barros et al. 2014 for arguments against Lasnik's arguments). Furthermore, Lasnik (2001) also argues that apparent failure of repair in VP-ellipsis obtains even when Merchant's (2001) PF islands are involved. See Fox and Lasnik (2003) for detailed discussion about the contrast between sluicing and VP-ellipsis in terms of island repair.

movement in general, rather than those on *wh*-movement. First, the second *wh*-phrase in multiple sluicing prefers to be a PP rather than a DP, as illustrated by the following:

- (34) a. ?Someone talked about something, but I can't remember [who] [about what].  
 b. ?\*Someone saw something, but I can't remember [who] [what].  
 (Lasnik 2014: 8)

The same preference for PP over DP is found in rightward movement, as shown in the following:

- (35) a. Some students met  $t_i$  yesterday [with some professors]<sub>i</sub>.  
 b. ?\*Some students met  $t_i$  yesterday [some professors]<sub>i</sub>. (Lasnik 2014: 8)

Second, it is well known that rightward movement of DP improves when the DP is made 'heavier', as illustrated in the following (see Ross 1967 and Fiengo 1980 among others):

- (36) a. \*Mary saw yesterday [Harry].  
 b. Mary saw yesterday [her old friend Harry].  
 c. Mary saw yesterday [Harry Hetherington]. (Lasnik 2014: 9)

Likewise, multiple sluicing involving DP as the second *wh*-phrase improves when the DP is made heavier, as shown in the following:

- (37) ?Some linguist criticized (yesterday) some paper about sluicing, but I don't know [which linguist] [which paper about sluicing]. (Lasnik 2014: 9)

Third, rightward movement does not allow P-stranding, as illustrated by the following (see Ross 1967 and Drummond et al. 2010):

- (38) a. \*A linguist spoke about yesterday [a paper on sluicing].  
 b. A linguist criticized yesterday [a paper on sluicing]. (Lasnik 2014: 9)

The second *wh*-phrase in multiple sluicing is subject to the same constraint:

- (39) Some linguist spoke about some paper on sluicing, but I don't know [which linguist] [?(about) which paper on sluicing]. (Lasnik 2014: 9)

Finally, rightward movement is subject to the Right Roof Constraint (Ross 1967) that rightward movement out of an embedded clause is prohibited, as shown in the following:

- (40) a. Some students spoke  $t_i$  yesterday [to some professors]<sub>i</sub>.  
 b. \*Some students said [that Mary will speak  $t_i$ ] yesterday [to some professors]<sub>i</sub>.  
 (Lasnik 2014: 10)

Likewise, the first *wh*-phrase and the second one in multiple sluicing cannot be separated by a clause boundary, as (41) shows.

- (41) \*Some of the students wanted [John to go to some of the lectures], but I'm not sure [which] [to which]. (Lasnik 2014: 10)

Given these similarities between rightward movement and multiple sluicing, Lasnik (2014) concludes that multiple sluicing in English involves rightward movement of the second *wh*-phrase. This analysis is compatible with the deletion analysis of sluicing. Thus, multiple sluicing ceases to be problematic for the deletion analysis under Lasnik's (2014) account.

### 3.2.3 Summary of section 3.2

In this section, we reviewed arguments in favor of the structural analysis of ellipsis over the non-structural analysis, and then we compared the two variants of the structural analysis (i.e., the deletion analysis and the LF-copying analysis). We saw that there are arguments for the deletion analysis, and that potential problems for the deletion analysis (island repair and multiple sluicing) can be solved under Merchant's (2001) and Lasnik's (2014) proposals.

## 3.3 RECOVERABILITY

---

Elided material must be recoverable somehow. It is generally agreed that elided material must be identical to its antecedent in order to guarantee the recoverability of ellipsis. However, the precise formulation of the identity condition of ellipsis is controversial. Some argue that elided material and its antecedent must be syntactically or formally identical (Chomsky 1964, 1965; Sag 1976a; Williams 1977b; Kitagawa 1991; Fiengo and May 1994; Chung et al. 1995; Lasnik 1995b; Fox 2000; Fox and Lasnik 2003; Chung 2006; Merchant 2008a; among others) while others argue that they must be semantically or pragmatically identical (Dalrymple et al. 1991; Hardt 1992c; Prüst 1993; Ginzburg and Sag 2000; Merchant 2001; Yoshida 2010; Weir 2014, among others). In this section, we review some proposals under syntactic identity and semantic identity. First, we will present arguments for syntactic identity in section 3.3.1, and then we will look at arguments against syntactic identity and for semantic identity in section 3.3.2.

### 3.3.1 Syntactic identity

The first relevant discussion of ellipsis appears in Chomsky (1955). He begins by considering the following examples (p. 423):

- (42) a. I saw the play and so did he.  
b. I will see the play and so will he.  
c. I have seen the play and so has he.  
d. I have been seeing the play and so has he.

For Chomsky, the derivation of such sentences involves a generalized transformation (conjunction), a permutation (exactly the same one used in simple yes–no questions), and a ‘deformation’ (deletion operation) eliminating the material after the first auxiliary. The first mention of an identity requirement appears here, but it is not the requirement one might expect (material to be deleted identical to an antecedent). Rather, Chomsky suggests that the *auxiliaries* must be identical:

(43) \*I will see the play and so did he.

“...the auxiliary phrases must be identical in the two conjuncts...for the transformation...to apply.” That is, material *outside* the ellipsis site must be identical, an interesting possibility discussed briefly much later by Fox and Lasnik (2003) and Lasnik and Park (2013).

Simple VP-ellipsis also comes under investigation, including now classic instances such as:

- (44) a. John will.  
 b. John is.  
 c. John has.  
 d. John does.

Again, Chomsky notes that “these appear to be ‘truncated’ sentences, with a verb phrase ‘understood’” and he indicates that formal analysis leads to the same conclusion, thus “providing grounds in formal linguistic structure for this intuition.” In particular, precisely the same analysis of the English verbal system that Chomsky had motivated to account for yes–no question alternations is efficacious in describing the ellipsis patterns. Chomsky does point out an interesting problem that arises, an apparent ordering paradox. In the derivation of (44c), *have* and the perfect morpheme *en* were introduced together in the Aux. So to derive the correct output, it must be that the rule separating *en* from *have* and attaching it to the following verb (called Affix Hopping in later work) must precede the deletion rule, since that affix is included in the deletion site. (And likewise for (44b).) On the other hand, the tense affix in (44d) survives the deletion, so in this case, deletion must precede Affix Hopping. Chomsky’s solution is to propose that there are two Affix Hopping rules, one preceding deletion, for *en* and *ing*, and another for tense, which follows deletion. Another possibility is that Affix Hopping is the right account for tense morphology, but not for aspectual morphology, the latter being ‘lexicalist’. This is not unlikely since the strong evidence for syntactic separation of tense does not obtain for other pieces of inflectional morphology. More on this possibility, suggested by Lasnik (1995b), later in this subsection.

A syntactic recoverability condition on elided material is first explicitly articulated by Chomsky (1964). There are two instances. First, a “designated representative of a category” may be deleted. For instance, Chomsky hints that indefinite pronouns (‘designated representatives’ of the category NP) underlie interrogative ones and thus are deletable by the interrogative transformation. The second instance is more familiar: apart from a designated representative, “a transformation can delete an element only if...the structural condition that defines this transformation states that the deleted element is structurally identical to

another element of the transformed string” (p. 41). This formal identity condition guarantees that “A deleted element is . . . always recoverable.”

Chomsky (1965) explores this recoverability condition further. He first suggests, subject to later refinement, that “an erasure operation can use the term X to delete Y just in case X and Y are identical” (p. 145). Chomsky then considers the notion ‘identity’, indicating that it might be taken to mean “strict identity of feature composition” (p. 177). But he then gives a pair of examples showing that this cannot be quite right:

(45) John is more clever than Bill.

(46) These men are more clever than Mary.

Assuming a clausal source for comparatives, (45) works as expected, with *is clever* deleted under complete identity. But, Chomsky observes in (46) the antecedent for deletion of *is clever* is *are clever*, which is not fully identical. The problem is even more evident in the French analogue, where the deleted adjective is not completely identical to its antecedent, differing in the feature  $\pm$ plural, like the copula, and also in being +feminine:

(47) Ces hommes sont plus intelligents que Marie.

Based on this, Chomsky makes the intriguing suggestion that features added by agreement rules do not have the same status as features that are inherent parts of lexical items:

... in the case of Adjectives and the copula (also Verbs, which take part in similar rules) the inflectional features that are added by agreement transformations are apparently not considered in determining whether the item in question is strictly identical with some other item. (p. 180)

Even the plural feature of a nominal expression is not always inherent. Predicate nominals show the pattern of verbs and adjectives, as seen in (48)—reasonable since in this instance as well, the feature is triggered by agreement.<sup>13</sup>

(48) I know several more successful lawyers than Bill.

Based on this, Chomsky offers two conclusions:

First, features introduced by transformation into lexical formatives are not to be considered in determining when deletion is permitted; a formative, in other words, is to be regarded as a pair of sets of features, one member of the pair consisting of features that are inherent to the lexical entry or the position of lexical insertion, the second member of the pair consisting of features added by transformation. Only the first set is considered in determining legitimacy of deletion in the manner previously described. Second, what is involved in determining legitimacy of deletion is not identity but rather nondistinctness in the sense of distinctive feature theory . . . Thus consider once again the case of ‘I know several lawyers’—‘Bill is a

<sup>13</sup> See also Merchant (2014a).

lawyer.’ The Predicate-Nominal of the latter is not singular, in the base structure; rather, it is unspecified with respect to number exactly as the nasal is unspecified with respect to point of articulation in the lexical representations of the formatives *king*, *find*, *lamp*, etc. Hence, it is not *identical with* the corresponding nominal element of ‘I know several lawyers’; it is, rather, nondistinct from it, and the example suggests that this is sufficient to permit deletion. (p. 181)

Finally, Chomsky argues that this analysis need not be stated or even mentioned in any specific rules of grammar, since:

... it is, apparently, determined by a general convention regarding the form of grammar. In other words, we are tentatively proposing it for consideration as a linguistic universal, admittedly, on rather slender evidence... If this proposal is a correct one, then the analysis of formatives that we have suggested is a general condition on the functioning of erasure transformations. (pp. 181–2)

In a further consideration of formal identity, Lasnik (1995b) presents an account of a surprising asymmetry in English VP ellipsis first noticed by Warner (1986) and rediscovered by Colbert (2007). Lasnik’s account is based on a ‘hybrid’ approach to English verbal morphology, initially motivated by the divergent behavior of auxiliary and main verbs with respect to negative placement and Subject-Aux Inversion. In this hybrid approach, main verbs come to be associated with their verbal morphology (particularly their tense morphology) via Affix Hopping. Auxiliaries, on the other hand, are ‘lexicalist’, introduced into the syntactic derivation already fully inflected. The core of the ellipsis asymmetry is that finite forms of main verbs, but not of *be*, can apparently antecede deletion of infinitival forms:

(49) John *slept here*, and Mary will ~~*sleep here*~~ too.

(50) \*John *was here* and Mary will ~~*be here*~~ too.

If, as Lasnik argued, *slept* is underlyingly *sleep* with a syntactically independent tense morpheme (as in Chomsky 1955 and 1957), there is a stage in the derivation where *slept* and *sleep* are completely identical. On the other hand, if *was* is *was* throughout the derivation, there is no stage where it is identical to *be*, thus excluding (50), if there is a strict formal identity requirement on ellipsis:<sup>14</sup>

(51) A form of a verb V can only be deleted under identity with the very same form.

<sup>14</sup> See Rouveret (2012) for extensive commentary on Lasnik’s (1995b) account, and an alternative that relies on another sort of formal identity requirement, due to Chung (2006). Immediately below, we will briefly discuss Chung’s proposal. Also see Potsdam (1997a) for a challenge to Lasnik’s (1995b) account, and Lasnik (1997) for a partial response.

In further motivation of a formal identity requirement, Chung (2006) observes an extremely interesting constraint on ‘sprouting’, a type of sluicing where there is no apparent antecedent for the *wh*-trace (see Chung et al. 1995):

(52) She solved the puzzle, but I don’t know how.

(53) He ate, but I don’t know what.

It should be noted at the outset that sprouting raises non-trivial difficulties for any identity requirement, whether syntactic or semantic, as noted by van Craenenbroeck and Merchant (2013). One possibility briefly suggested by van Craenenbroeck and Merchant (2013) is that there is a null adjunct or null argument that does serve as an antecedent. We briefly return to this question in 3.3.2.1. Chung’s discovery is that when the missing antecedent would have been a PP, the sluicing fragment must also be a PP, and not a mere DP:

(54) They’re jealous, but it’s unclear \*(of) who.

(55) Joe was murdered, but we don’t know \*(by) who.

(56) Mary was flirting, but they wouldn’t say \*(with) who.

(57) We’re donating our car, but it’s unclear \*(to) which organization.

It is worthy of note that even when the preposition is predictable, as in some of the above examples, it still must show up in the sprouting construction. This is in sharp contrast with standard sluicing (in a language allowing preposition stranding, like English). In these instances, the preposition is optional (and probably even dispreferred) in the fragment:

(58) They’re jealous of someone, but it’s unclear (of) who.

(59) Joe was murdered by someone, but we don’t know (by) who.

The presence of some prepositions seems entirely formally motivated, as in (58) but even these must show up in sprouting. Significantly, this pattern in Chung’s examples is not unique to English. It shows up, as Chung points out, in other languages with preposition stranding, such as Danish and Norwegian. Chung concludes that we must look beyond semantics and pragmatics to account for the contrasts. That is, there is a formal identity condition at work here.

Merchant (2008a) presents another argument for a syntactic identity requirement on ellipsis. Merchant observes that sluicing doesn’t tolerate active–passive mismatches:<sup>15</sup>

(60) \*Joe was murdered, but we don’t know who ~~murdered~~ Joe

<sup>15</sup> Potsdam (2007) argues that voice mismatches are tolerable in Malagasy.

(61) \*Someone murdered Joe, but we don't know who by/ by whom.

On the face of it, this is rather strong evidence for a syntactic identity requirement, since actives and corresponding passives are very close to semantically parallel. But there is evidently a glitch, since VP ellipsis does seem to tolerate active–passive mismatches:

(62) This problem was to have been looked into, but obviously nobody did \_\_\_

(63) The janitor should remove the trash whenever it is apparent that it needs to be \_\_\_

Merchant's insightful solution to this nearly paradoxical situation reaffirms syntactic identity. He proposes that the functional head responsible for active and passive voice is included in a clausal ellipsis site, but is outside of a VPE site. Thus in the case of VPE, antecedent and ellipsis site are syntactically identical (neither active nor passive), while in the case of sluicing they are not, thus accounting for the contrast between (60), (61) on the one hand and (62), (63) on the other.<sup>16</sup>

### 3.3.2 Semantic identity

#### 3.3.2.1 Arguments against (strict) syntactic identity

Merchant (2001: 19–25) provides arguments against syntactic identity. The first argument, alluded to in section 3.3.1, concerns sprouting:

- (64) a. Abby was reading, but I don't know **what**.  
 b. Ben called—guess **when**! (Merchant 2001: 19)

In these examples, there is no overt element in the antecedent clauses that corresponds to the remnant *wh*-phrase (*what* in (64a) and *when* in (64b)). The IPs in the antecedent clauses and those in the sluiced clauses are therefore structurally different. Thus, examples like these should be unacceptable under a strict syntactic identity condition.

Merchant (2001) also argues that sluicing in Romanian poses a problem for syntactic identity. In Romanian, a D-linked *wh*-phrase such as *care* 'which' must be accompanied by a clitic, as illustrated by the following (see Dobrovie-Sorin 1993; Grosu 1994: 224):

- (65) [Pe care băiat] \*(l-) ai văzut?  
 ACC which boy him have.2SG seen  
 'Which boy did you see?' (Romanian, Merchant 2001: 21)

<sup>16</sup> See Kertz (2010) for an information-structure-based alternative account of the asymmetry between sluicing and VP-ellipsis in voice mismatches.

In this example that involves the D-linked *wh*-phrase *pe care băiat* ‘ACC which boy’, the clitic *l-* ‘him’ is required. Merchant (2001) observes that a D-linked remnant *wh*-phrase in sluicing does not require a clitic in the antecedent clause, as shown in the following:

- (66) Am văzut pe un băiat dar nu știu [pe care].  
 I.have seen ACC a boy but not I.know ACC which  
 ‘I saw a boy, but I don’t know which.’ (Romanian, Merchant 2001: 21)

There must be a clitic associated with the D-linked remnant *wh*-phrase in the sluiced clause. In spite of this, there is no clitic in the antecedent clause. This means that the elided IP and the antecedent IP are structurally different. Thus, (66) should be unacceptable under the syntactic identity condition, contrary to fact.

Finally, Merchant (2001) argues that what Fiengo and May (1994) call vehicle change phenomena pose a problem for a strict syntactic identity condition, which incorrectly predicts that the following sentence should be unacceptable due to a Condition C violation:

- (67) They arrested Alex<sub>i</sub>, though he<sub>i</sub> thought they wouldn’t. (Merchant 2001: 24)

Under a strict syntactic identity condition, the ellipsis clause headed by *though* in (67) must be as in the following:

- (68) \*He<sub>i</sub> thought they wouldn’t [arrest Alex<sub>i</sub>]. (Merchant 2001: 24)

This sentence contains an R-expression *Alex* that is bound by *he*, violating Condition C. Therefore, (67) should be unacceptable under a strict syntactic identity condition.<sup>17</sup>

A further argument against syntactic identity comes from a growing body of literature that provides evidence that a ‘cleft’ can be an underlying structure for ellipsis when the antecedent does not contain a cleft<sup>18</sup> (Szczełniak 2006, 2008; Vicente 2008; Rodrigues et al. 2009; Barros and van Craenenbroeck 2013; see also van Craenenbroeck 2010a).

<sup>17</sup> The other argument against syntactic identity by Merchant (2001) concerns English verbal morphology in ellipsis. The verbal morphology in the sluiced clause does not have to match with that in the antecedent clause, as illustrated by the following (and as already noted by Ross 1969b):

- (i) a. [Decorating for the holidays] is easy if you know how [~~to decorate for the holidays~~].  
 b. I remember [meeting him], but I don’t remember when [~~I met him~~]. (Merchant 2001: 22–3)

However, this largely ceases to be problematic under Lasnik’s (1995b) analysis of English verbal morphology. This is so because as we saw in section 3.3.1, there is a stage in the derivation where *decorating* and *decorate* in (ia) and *meeting* and *met* in (ib) are completely identical. The deletion of *to* in (ia) might remain a problem.

<sup>18</sup> The relevant literature almost invariably calls these potential ellipsis sources ‘clefts’, but that usage is in conflict with tradition. Thus, a cleft version of (69a) is really (i), which contains all the elements of the original sentence:

- (i) It is Jack who is sleeping.

For example, Barros and van Craenenbroeck (2013) argue that tag questions provide evidence for the possibility of clefts as an underlying source for ellipsis. As (69) indicates, tag clauses and assertion clauses that are followed by them are subject to a strict identity condition.

- (69) a. Jack is sleeping, {isn't he/\*isn't it}?  
 b. It is Jack, {\*isn't he/isn't it}? (Barros and van Craenenbroeck 2013: 4)

Given this property of tag questions, Barros and van Craenenbroeck (2013) argue that the ellipsis site of the fragment answer in (70B) has a cleft structure rather than a structure isomorphic with the antecedent.

- (70) A: Bill met a member of the Linguistics Department.  
 B: Yes, Ken Safir, {wasn't it/??didn't he}?  
 (cf. B': Yes, he met Ken Safir, {\*wasn't it/ didn't he}?)  
 (Barros and van Craenenbroeck 2013: 4)

This is problematic with a strict syntactic identity condition, under which the 'wasn't it' version of (70B) is expected to be unacceptable.<sup>19</sup>

### 3.3.2.2 *Merchant's semantic identity*

Given the empirical problems with syntactic identity, Merchant (2001) argues that there is no syntactic identity requirement at all, and instead proposes a semantic identity condition on ellipsis. Informally, Merchant's (2001) semantic identity condition amounts to requiring that the antecedent entail the elided element, abstracting away from focused material that it contains, and the elided element also entail the antecedent, again abstracting away from

<sup>19</sup> Another potential problem for syntactic identity concerns antecedent-contained deletion (ACD; Bouton 1970, May 1985, Hornstein 1995a, and Kennedy 1997, among others). A typical example of ACD is given in the following:

- (i) Dulles suspected everyone who Angleton did. (May 1985: 11)

In (i), the elided VP is contained in its antecedent VP. Thus, if ellipsis is subject to a (strict) syntactic identity requirement, (i) has the representation shown in (ii).

- (ii) Dulles suspected everyone who Angleton did [<sub>VP</sub> suspect everyone who Angleton did [<sub>VP</sub> suspect everyone who Angleton did [<sub>VP</sub> . . . ]]]

(ii) is uninterpretable since it contains an infinitely large VP. Thus, it is a mystery under syntactic identity why (i) is interpretable. However, May's (1985) analysis makes ACD compatible with syntactic identity. Assuming the operation Quantifier Raising (QR) in LF, which is A'-movement that adjoins a quantificational phrase to a dominating node (IP or VP), May (1985) argues that (i) has the following LF representation:

- (iii) [<sub>IP</sub> [<sub>DP</sub> everyone who<sub>i</sub> Angleton did [<sub>VP</sub> suspect ~~t<sub>i</sub>~~]], [<sub>IP</sub> Dulles [<sub>VP</sub> suspected t<sub>j</sub>]]]

In (iii), the quantificational DP undergoes QR, adjoining to the matrix IP. As a result, the elided VP is no longer contained in its antecedent VP, deriving the well-formed LF representation. Thus, ACD becomes unproblematic for syntactic identity (i.e., at the level of LF) under May's QR analysis.

focused material.<sup>20</sup> With this condition, let us consider (64a), the representation of which under the deletion analysis is given in (71):

- (71) [<sub>IP</sub> Abby was reading], but I don't know what<sub>i</sub> [<sub>IP</sub> Abby was reading ~~*t<sub>i</sub>*~~].

There are no focused portions either in the antecedent IP or the elided IP. Given that the trace of *wh*-movement is translated as an existentially bound variable, the elided IP roughly means that there is something Abby was reading. The antecedent IP also entails that there is something Abby was reading. The elided IP and the antecedent IP entail each other, satisfying Merchant's semantic identity condition. Therefore, the semantic identity condition can account for sentences like (64a).

Merchant's semantic identity condition also straightforwardly accounts for the Romanian example with a D-linked *wh*-phrase (66) because the antecedent and the elided element in this example are semantically equivalent, hence entailing each other.

The vehicle change phenomena can also be accommodated under Merchant's semantic identity. Suppose that the elided VP in (67) contains the pronoun *him* rather than the R-expression *Alex*, as illustrated by the following:

- (72) They [<sub>VP</sub> arrested Alex<sub>i</sub>], though he<sub>i</sub> thought they wouldn't [<sub>VP</sub> arrest ~~*him<sub>i</sub>*~~].

This representation does not violate Condition C. The semantic identity condition allows ellipsis like this because the antecedent VP and the elided VP are semantically equivalent when the pronoun *him* refers to *Alex*.

Yoshida (2010) provides further evidence for semantic identity on the basis of what he calls the *sluicing in adjunct* (SIA) construction, exemplified by the following:

- (73) a. John does not love anyone without knowing who.  
 b. John must love someone without knowing who. (Yoshida 2010: 348)

In these examples, the adjunct clauses undergo sluicing. Yoshida (2010) argues that in the SIA construction, the antecedent for the elided IP in the adjunct clause is the matrix VP

<sup>20</sup> The formal definitions are given below:

- (i) Semantic identity condition on ellipsis (Merchant 2001: 38)  
 A constituent  $\alpha$  can be deleted only if  $\alpha$  is e-GIVEN.
- (ii) e-GIVENNESS (Merchant 2001: 31; see also Schwarzschild 1999)  
 An expression E counts as e-GIVEN iff E has a salient antecedent A and, modulo  $\exists$ -type shifting,  
 (a) A entails the F-closure of E, F-clo(E), and  
 (b) E entails F-clo(A).
- (iii)  $\exists$ -type shifting (Merchant 2001: 14, n. 3)  
 $\exists$ -type shifting is a type-shifting operation that raises expressions to type  $\langle t \rangle$  and existentially binds unfilled arguments.
- (iv) F-closure (Merchant 2001: 14)  
 The F-closure of  $\alpha$ , written F-clo( $\alpha$ ), is the result of replacing F-marked parts of  $\alpha$  with  $\exists$ -bound variables of the appropriate type (modulo  $\exists$ -type shifting).

rather than the matrix IP. If this is correct, the SIA construction is problematic for syntactic identity because a VP and an IP are evidently different in structure. In what follows, we review Yoshida's (2010) argument that the antecedent in the SIA construction is the matrix VP rather than the matrix IP.

The only available interpretation for the adjunct clauses headed by *without* in (73) is (74).

(74) . . . without knowing who<sub>i</sub> [<sub>IP</sub> John loves *t*<sub>i</sub>]

This means that the elided material in (73) does not contain negation or *must*. This contrasts with ordinary sluicing. As shown in (75), the only available interpretation is the one in which negation and *must* are interpreted in the ellipsis sites.

- (75) a. John isn't inviting someone, but I don't know who.  
 b. You must select a color, but I can't tell you which one. (Yoshida 2010: 351)

That the elided IPs in (73) do not contain negation or *must* means that the matrix IPs do not serve as the antecedents for the elided IPs because IPs contain negation and modal verbs. If the antecedents for the elided IPs were the matrix IPs, negation or *must* would be interpreted in the ellipsis site both under the syntactic identity approach and under the semantic identity approach. On the other hand, if the matrix VPs rather than the IPs serve as the antecedents, the SIA construction ceases to be problematic under the semantic identity condition. Suppose that the adjunct clauses headed by *without* in (73) are adjoined to VP,<sup>21</sup> and that subjects are base-generated in specVP (the VP-internal subject hypothesis: Zagana 1982; Fukui and Speas 1986; Kitagawa 1986; Kuroda 1988; Koopman and Sportiche 1991), and that they leave copies in that position when they raise to specIP. Then, in (73b), for example, the interpretation of the matrix (lower segment of) VP is  $\exists x$ . John loves *x*, and that of the elided IP is  $\exists x$ . he loves *x*. They are semantically equivalent.<sup>22</sup> Thus, sluicing in (73b) satisfies Merchant's semantic identity. Note that this account of the SIA construction is possible only under the semantic identity approach since VP and IP can be identical only semantically, not syntactically.

<sup>21</sup> Yoshida (2010: 351) argues that the following constituency tests suggest that the adjunct clause is adjoined to VP:

- (i) a. I thought John loves someone without knowing who and [<sub>VP</sub> love someone without knowing who], he does *t*<sub>VP</sub> indeed. (VP-preposing)  
 b. John loves someone without knowing who, and Mary does so (= [<sub>VP</sub> love someone without knowing who]), too. (Do so substitution)  
 c. John loves someone without knowing who, and Mary does, too (= [<sub>VP</sub> love someone without knowing who]). (VP-deletion)

However, we cannot conclude from these data that the adjunct clause *must* adjoin to VP since they can be accounted for even if we just assume that the adjunct clause *can* adjoin to VP.

<sup>22</sup> As a reviewer points out, the elided IP and the antecedent VP are not semantically equivalent if we take the tense information in the matrix clause into account. Noticing this potential problem, Yoshida (2010) suggests that the elided IP does not contain a tense because the tense in the adjunct PP depends on the matrix tense.

Therefore, the SIA construction provides an argument for the semantic identity approach.

### 3.3.3 Summary of section 3.3

To sum up, there are arguments for syntactic identity and semantic identity. Given Lasnik's (1995b) English verbal morphology argument, Chung's (2006) sprouting argument, and Merchant's (2008a) voice mismatch argument, a semantic identity condition is not a sufficient condition on ellipsis. Furthermore, Merchant's (2001) sprouting, Romanian sluicing, and vehicle change arguments and Yoshida's (2010) SIA construction argument indicate that a syntactic identity condition should not be too strict, as Chomsky (1965) already pointed out.

## 3.4 LICENSING

---

It is not the case that ellipsis is possible whenever an identity condition is satisfied. Consider the following sluicing examples:

- (76) a. One of the linguists [was going to the Leap Day party], but no one told me who  
      ~~[was going to the Leap Day party]~~.  
      b. \*[One of the linguists was going to the Leap Day party], but no one told me that  
      ~~[one of the linguists was going to the Leap Day party]~~. (Aelbrecht 2009: 94)

In (76a) the elided IP follows the remnant *wh*-phrase, while in (76b) it follows the complementizer. In both examples, (both syntactic and semantic) identity is satisfied. In spite of this, (76a) is acceptable while (76b) is not. Therefore, there is something other than an identity condition to satisfy, in order for ellipsis to be licensed.

There seems to be a near consensus that ellipsis requires the presence of a licensing head (Zagona 1982, 1988a, 1988b; Chao 1987; Lobeck 1990, 1993, 1995; Saito and Murasugi 1990a; Johnson 2001b; Martin 2001; Merchant 2001, 2004a; Gergel 2006; Aelbrecht 2009): in order to be licensed, the ellipsis site must be in a local relation with a head with specific morphosyntactic properties. In this section, we review some proposals in the literature about what properties of licensing heads and what local relation between the ellipsis site and the licensing head are relevant to ellipsis licensing.

### 3.4.1 Licensing heads

#### 3.4.1.1 *Agreeing heads*

Lobeck (1990, 1995) and Saito and Murasugi (1990a) argue that agreeing functional heads license ellipsis of their complements, based on Fukui and Speas' (1986) notion of Kase.

C with the feature [+Wh], I with the feature [+Tns/+Agr], and D with the feature [+Poss] or [+Plural] assign Kase to their specifier, as summarized in the following table:

(77)

	C	I	D
Kase assigner	[+Wh] (Sluicing)	[+Tns/+Agr] (VP-ellipsis)	[+Poss], [+Plural] (NP-ellipsis)
Non-Kase assigner	that, if, for	to	the, a(n), that, this

Kase assigners are agreeing functional heads while non-Kase assigners are non-agreeing functional heads. D with [+Poss] or [+Plural] licenses ellipsis of its complement (i.e., NP), as illustrated by the following examples (this is an instance of so-called N'-ellipsis or NP-ellipsis; see Saito and Murasugi 1990a):<sup>23</sup>

- (78) a. John's ~~[talk]~~ was short, but Mary's [talk] was way too long.  
 b. Although she might buy these ~~[books on art history]~~, Mary said she wouldn't buy those [books on art history]. (Lobeck 1990: 350)

Given that genitive case is assigned by D with [+Poss], NP-ellipsis in (78a) is licensed by D with [+Poss]. A plural demonstrative is a D specified with [+Plural]. Thus, the D in (78b) licenses NP-ellipsis. On the other hand, NP-ellipsis is not licensed by a non-agreeing functional head, as illustrated by (79).

- (79) a. \*A single protester attended the rally because the ~~[protester]~~ apparently felt it was important.  
 b. \*Sue toyed with the idea of buying a windsurfer, then decided she didn't want a ~~[windsurfer]~~ after all.  
 c. \*Although John doesn't like this ~~[brand of frozen pizza]~~, he likes that brand of frozen pizza. (Lobeck 1990: 351)

Neither *the*, *a*, nor *this* is specified with [+Poss] or [+Plural], hence are not agreeing heads. Thus, NP-ellipsis in (79) is not licensed.

Furthermore, the contrast between (76a) and (76b), repeated here as (80a) and (80b) respectively, can be attributed to the distinction between agreeing heads and non-agreeing heads.

<sup>23</sup> A quantifier also licenses NP-ellipsis, as Lobeck (1990: 350) observes:

(i) Few [people] attended the rally because many ~~[people]~~ decided to watch the event on TV.

Lobeck (1990) argues that quantifiers are functional categories that head QP, taking NP as their complements, and they license ellipsis although they are not Kase assigners. This means that Kase is not a necessary condition for a licensing head. See section 3.4.1.3.

- (80) a. One of the linguists [was going to the Leap Day party], but no one told me who  
~~[was going to the Leap Day party]~~.  
 b. \*[One of the linguists was going to the Leap Day party], but no one told me that  
~~[one of the linguists was going to the Leap Day party]~~. (Aelbrecht 2009: 94)

Given that C whose specifier is filled with a *wh*-phrase is specified with [+Wh] while C filled with a complementizer is not, the elided IP is licensed in (80a) but not in (80b). This is why the elided IP must follow a *wh*-phrase.

An elided VP must be licensed by I with [+Tns/+Agr]. This is illustrated by the following:<sup>24</sup>

- (81) a. Because she \*(shouldn't) [~~smoke~~], Mary doesn't smoke.  
 b. Dennis rarely plays the piano, but Susan often \*(does) [~~play the piano~~].  
 (Lobeck 1990: 352)

Given that only I that is lexically filled is specified with [+Tns/+Agr], I filled with a modal verb or with pleonastic *do* licenses VP-ellipsis while I that is not lexically filled does not. Non-finite I in raising constructions is not an agreeing head because it lacks [+Tns/+Agr]. Thus, it does not license VP-ellipsis, as shown in the following examples:

- (82) a. \*I consider Pam to [<sub>VP</sub> like soccer], and I believe Rebecca to [~~<sub>VP</sub> like soccer~~] as well.  
 b. \*Bill believes Sarah to [~~<sub>VP</sub> be honest~~], and he believes Kim to [~~<sub>VP</sub> be honest~~] as well.  
 (Martin 2001: 154)

However, as Saito and Murasugi (1990a) and Takahashi (1994) observe, VP-ellipsis is licensed in control infinitivals, as illustrated by the following:

- (83) a. Kim isn't sure she can [<sub>VP</sub> solve the problem], but she will try to [~~<sub>VP</sub> solve the problem~~].  
 b. Rebecca wanted Jill to [<sub>VP</sub> join the team], so Pam persuaded her to [~~<sub>VP</sub> join the team~~].  
 (Martin 2001: 154)

According to Martin (2001), control *to*, unlike raising *to*, is an agreeing functional head since it assigns null case to PRO in its specifier. Given this, the difference between raising *to* and control *to* can be reduced to the agreeing/non-agreeing distinction.

### 3.4.1.2 Heads with strong features

Martins (1994) argues that functional heads with a strong feature, which triggers overt verb movement, license VP-ellipsis in Romance languages, based on her observation that there is a correlation between the possibility of enclisis in finite clauses and that of VP-ellipsis in

<sup>24</sup> Though this specific argument is widely cited, there appear to be interfering factors. First, if we drop the *shouldn't* in (81a), the resulting sentence, whether elliptical or not, is a contradiction: *Because she smokes, Mary doesn't smoke*. Second, in both (81a) and (81b), deleting the VP should result in a stranded affix, triggering *do*-support. See the Chomsky (1955) argument in section 3.3.1.

Romance languages. Portuguese and Galician allow enclisis in finite clauses while Spanish, Catalan, French, and Italian do not, as shown in the following examples:

- (84) a. Deste-**lhe** o livro?  
 gave-**him** the book  
 ‘Did you give him the book?’ (Portuguese, Martins 1994: 174)
- b. Déches**lle** o livro?  
 gave.**him** the book (Galician, Martins 1994: 174)
- (85) a. \*Diste-**le** el libro?  
 gave-**him** the book (Spanish, Martins 1994: 174)
- b. \*Has-**li** donat el llibre?  
 have-**him** given the book (Catalan, Martins 1994: 175)
- c. \*As-**lui** tu donné le livre?  
 have-**him** you given the book (French, Martins 1994: 175)
- d. \*Hai **gli** dato il libro?  
 have **him** given the book (Italian, Martins 1994: 175)

Martins (1994) observes that the cross-linguistic difference in terms of the possibility of enclisis is correlated to another cross-linguistic difference in terms of the possibility of VP-ellipsis: Languages that allow enclisis also allow VP-ellipsis while languages that do not allow enclisis do not allow VP-ellipsis. By VP-ellipsis, Martins (1994) means V-stranding VP-ellipsis. V-stranding VP-ellipsis is VP-ellipsis that applies to a VP whose head has moved out of it (see Otani and Whitman 1991; Lasnik 1997; Potsdam 1997a; Ngonyani 1998; Doron 1999; Cyrino and Matos 2002; Goldberg 2005; Toosarvandani 2009; Funakoshi 2012, 2014, 2016; Gribanova 2013b; Abe 2014; Hayashi 2015; a number of these works show that mere object drop does not suffice to account for all the observed phenomena). When it applies to a transitive sentence, V-stranding VP-ellipsis yields a null object sentence, as illustrated by the following:

- (86) ... V-I {<sub>VP</sub> ... t<sub>o</sub> }

As (87) shows, VP-ellipsis is possible in Portuguese and Galician, which allow enclisis.

- (87) a. Si, dei {<sub>VP</sub> t<sub>dei</sub> h<sub>o</sub>}.  
 yes gave {<sub>VP</sub> t<sub>gave</sub> him.it}  
 ‘Yes, I did.’ (Portuguese, Martins 1994: 174)
- b. Si, din {<sub>VP</sub> t<sub>din</sub> h<sub>o</sub>}.  
 yes gave {<sub>VP</sub> t<sub>gave</sub> him.it} (Galician, Martins 1994: 174)

On the other hand, languages that do not allow enclisis do not allow VP-ellipsis, as shown in (88).

- (88) a. \*Sí, di.  
           yes gave (Spanish, Martins 1994: 174)
- b. \*Sí, he donat.  
           yes have given (Catalan, Martins 1994: 175)
- c. \*Oui, j'ai donné.  
           yes I.have given (French, Martins 1994: 175)
- d. \*Sì, ho dato.  
           yes have given (Italian, Martins 1994: 175)

In order to account for the correlation between enclisis and VP-ellipsis, Martins (1994) proposes that enclisis results when a finite verb moves to a functional head ( $\Sigma$  in her terms; see also Laka 1990), and verb movement is triggered by a strong feature on the functional head. This is illustrated by the following schematic structure (Cl stands for a clitic):<sup>25</sup>

- (89) ... V- $\Sigma$ ... Cl... [<sub>VP</sub> t<sub>V</sub>...]

The correlation follows if we further assume that VP-ellipsis must be licensed by a functional head with a strong feature.<sup>26</sup>

### 3.4.1.3 *Potential problems*

We have seen that ellipsis requires a licensing head, and a licensing head must be specified with certain features (Kase in English and a strong feature in Romance languages).<sup>27</sup> This properly describes some facts, but not all, about ellipsis. For example, negation licenses VP-ellipsis in English, as Potsdam (1997a) points out (see also Baltin 1993 and Lobeck 1995):

- (90) a. Ted hoped to vacation in Liberia but his agent recommended that he not  
           ~~[<sub>VP</sub> vacation in Liberia]~~.
- b. We think that Mary should present her case but we will ask that Bill not  
           ~~[<sub>VP</sub> present his case]~~. (Potsdam 1997a: 538)

Even if we assume, following Pollock (1989), that sentential negation is the head of NegP, it is hard to assume that it is specified with Kase (i.e., it is an agreeing head). This means that Kase is not a necessary condition for a licensing head, as we already indicated in n. 23. Furthermore, a strong feature is not a sufficient condition on licensing V-stranding VP-ellipsis. In Danish, a V-2 language, verb movement is triggered by a strong feature. In spite of this, V-stranding VP-ellipsis is not allowed, as shown in the following examples:

<sup>25</sup> Martins (1994) assumes that a clitic adjoins to AgrS.

<sup>26</sup> Thoms (2011b) proposes a different approach to ellipsis licensing from the Lobeck–Martins approach. According to him, ellipsis is licensed by movement. Interestingly, this movement approach to ellipsis licensing makes similar predictions about V-stranding VP-ellipsis as Martins' (1994) approach.

<sup>27</sup> Matos (1992) proposes that the set of licensing heads can differ from one language to another (see also Martins 1994: 187).

- (91) a. \*Vore øjne opfatter det ikke, men biers øjne opfatter ~~{t<sub>opfatter-det</sub>}~~.  
 our eyes perceive it not but bees.POSS eyes perceive ~~{t<sub>perceive-it</sub>}~~  
 (intended) ‘Our eyes don’t perceive it, but bees’ eyes do perceive it.’
- b. Vore øjne opfatter det ikke, men biers gør ~~{opfatter-det}~~.  
 our eyes perceive it not but bees.POSS do ~~{perceive-it}~~  
 ‘Our eyes don’t perceive it, but bees’ (eyes) do’. (Danish, Mikkelsen 2007: 13)

(91b) shows that ordinary (headed) VP-ellipsis is permitted in Danish. However, (91a) indicates that V-stranding VP-ellipsis is not allowed.<sup>28</sup>

A more serious and general problem with these approaches is that there is no clear criterion on what counts as an agreeing head. We do not have ellipsis-independent evidence that heads with [+Wh], [+Tns], [+Poss], or [+Plural] are agreeing heads while *that*, *if*, *for*, and the non-control *to* are not. To put it more generally, it is not clear why a certain functional head with a certain feature is required to license ellipsis. Why are an agreeing functional head or  $\Sigma$  with the strong feature relevant to licensing ellipsis? As far as we know, a principled explanation of this has not yet been proposed.

### 3.4.2 Relation between licensing heads and ellipsis sites

It is generally assumed in the literature that it is not sufficient for a licensing head to have a certain feature specification in order to license ellipsis: a licensing head must be in a specific relation with the ellipsis site. It has been proposed (without much empirical evidence) that the relevant relation is government (Zagona 1982; Lobeck 1990, 1995; Saito and Murasugi 1990a), the head–complement relation (Merchant 2001), or c-command (Aelbrecht 2009). Aelbrecht (2009) provides an argument that the relevant relation is not an extremely local one such as the head–complement relation. Consider the following VP-ellipsis sentence:

- (92) I hadn’t been thinking about that. Well, you should have been ~~{thinking about that}~~.  
 (Aelbrecht 2009: 96)

Aelbrecht (2009) argues that ellipsis of *thinking about that* in this example is licensed by the finite auxiliary *should* rather than the non-finite *been*, which is in the head–complement relation with the elided VP. That non-finite auxiliary verbs cannot license VP-ellipsis can be confirmed by the unacceptability of (93a).

- (93) a. \*I hadn’t been thinking about it, but I recall Morgan having been ~~{thinking about it}~~.  
 b. I hadn’t been thinking about it, but I recall Morgan having been thinking about it.  
 (Aelbrecht 2009: 96–7)

<sup>28</sup> See Funakoshi (2012, 2014) for other conditions on headless XP-ellipsis, of which V-stranding VP-ellipsis is a subtype.

The acceptability of the non-ellipsis counterpart of (93a) (i.e., (93b)) suggests that the unacceptability of (93a) is due to (unlicensed) ellipsis. Given that non-finite auxiliary verbs cannot license VP-ellipsis, Aelbrecht (2009) concludes that it is *should* rather than *been* that licenses VP-ellipsis in (92). In (92), the licenser *should* is not in the head–complement relation with the ellipsis site. Therefore, (92) indicates that a licenser does not have to be in the head–complement relation with an ellipsis site. Given this, Aelbrecht (2009) argues that the relevant relation for ellipsis licensing is c-command (or the Agree relation, which is defined based on c-command).

### 3.5 CONCLUSION

---

This chapter has discussed three issues related to ellipsis (i.e., the structure of the ellipsis site, recoverability, and licensing) from the point of view of transformational grammar. In section 3.2, we reviewed arguments in favor of the structural analysis of ellipsis that mandates full internal structure in the ellipsis site at certain levels, and compared the two variants of the structural analysis (i.e., the deletion analysis and the LF-copying analysis). We concluded that there are arguments for the deletion analysis, and the potential problems for the deletion analysis (island repair and multiple sluicing) can be addressed under Merchant’s (2001) and Lasnik’s (2014) proposals. Section 3.3 concerned recoverability. We concluded that in order for elided material to be recoverable, a semantic identity condition must be satisfied, but that is not a sufficient condition; syntactic or formal identity must be taken into account (Lasnik’s 1995b English verbal morphology argument, Chung’s 2006 sprouting argument, and Merchant’s 2008a voice mismatch argument). However, we also saw that a syntactic identity condition should not be too strict, as Chomsky (1965) already pointed out (Merchant’s 2001 sprouting, Romanian sluicing, and vehicle change arguments and Yoshida’s 2010 SIA construction argument). Finally, we discussed licensing in section 3.4, where we reviewed some proposals in the literature about what properties of licensing heads and what local relation between the ellipsis site and the licensing head are relevant to ellipsis licensing.