TWO TYPES OF VP-ELLIPSIS

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Lobeck (1990, 1995) and Saito and Murasugi (1990) argue that the functional categories (C, T, D) permit the ellipsis of their complements only when their Spec positions are filled. I propose that this licensing condition on ellipsis is extended to the functional category v and claim that there are two types of VP-ellipsis: one is vP-deletion, which is licensed in the functional category TP and the other is VP-deletion, which is licensed in the functional category vP. I argue that the proposed analysis of VP-ellipsis is supported by considering inversion constructions, voice mismatch and VP-ellipsis in infinitival clauses.*

Keywords: VP-ellipsis, the VP-internal subject hypothesis, voice mismatch, floating quantifiers

1. Introduction

This paper explores the licensing condition on ellipsis and the size of VP-ellipsis. Lobeck (1990, 1995) and Saito and Murasugi (1990) argue that ellipsis involves the functional categories (C, D, T) and the deletion of the complement is allowed only when their Spec positions are filled.1 This is

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1 More precisely, they argue that an ellipsis site must be the complement of a functional head which agrees with its specifier. However, in this paper, I assume with Richards (2003) and Saito et al. (2008) that an ellipsis site must be the complement of a functional head with a specifier. See Richards (2003) for the relevant discussion. An anonymous reviewer asked why Spec must be filled in the narrow syntax to permit ellipsis and why
schematized as in (1).

(1) a. Sluicing  
   b. VP-Ellipsis  
   c. N’-Ellipsis (NP-Ellipsis)

The generalization covers a wide range of ellipsis phenomena. First of all, let us consider sluicing (TP-deletion). Hereafter, elided parts are indicated by strike-through.

(2) a. John bought something, but I don’t know \([CP \text{ what} \left[ C’ \ C \ [TP \ he \ bought \ t_i] \right]]\).  
   (Saito et al. (2008: 252))

b. *John insisted that he turned in his homework, but I wasn’t sure \([CP \ [C’ \ \text{whether} \ [TP \ he \ turned \ in \ his \ homework]]\]).  
   (Saito et al. (2008: 252))

c. *John insisted that he turned in his homework, and Bill reported to Mary \([CP \ [C’ \ \text{that} \ [TP \ he \ turned \ in \ his \ homework]]\]).  
   (Saito et al. (2008: 252))

Sluicing takes place only if the Spec of CP is filled by a wh-phrase. (2b) and (2c) are ruled out because there is no element in the Spec of CP. Parallel facts hold for NP-ellipsis. NP-ellipsis is possible only if the Spec of DP is filled by a genitive DP or quantifiers.

(3) a. The fact that \([DP \ \text{John’s} \ [D’ \ D \ [NP \ analysis]]\] was poorly presented made the committee adopt Mary’s analysis instead.  
   (Lobeck (1995: 42))

b. The students attended the play but \([DP \ \text{most/some/all/each/two} \ [D’ \ D \ [NP \ students]]\] went home disappointed.  
   (Lobeck (1995: 42))

c. *Both students attended the rally, and \([DP \ [D’ \ \text{the} \ [NP \ students]]\] felt it was important.  
   (Lobeck (1995: 89))

d. *Mary likes your book but Bill likes \([DP \ [D’ \ \text{their/her/our} \ [NP \ book(s)]]\]).  
   (Lobeck (1995: 90))

(3c) and (3d) are ruled out because determiners and possessive pronouns are the head permitting ellipsis must be a functional category. I have no explanation for what is behind these requirements and how they can be implemented, so I will leave these issues for further research.
not in the Spec of DP, but are in the D head. Finally, the generalization can be extended to VP-ellipsis.

(4) John didn’t leave but Mary did [\(v_P\) leave].
They argue that VP-ellipsis in (4) is allowed because the Spec of TP is filled by the subject Mary.

(5) John didn’t leave but [TP Mary [\(t_P\) did [\(v_P\) leave]]].
However, their analyses do not take into consideration the VP-shell structure (Larson (1988, 1990)) and the VP-internal subject hypothesis (Kitagawa (1986), Kuroda (1988), Koopman and Sportiche (1991) and others). It is generally assumed within the minimalist framework that VPs have a complex structure, comprised of an inner VP and an outer \(v_P\), and subjects originating in the Spec of \(v_P\). Given these assumptions, there arises a question of whether the functional category \(v\) can permit ellipsis of its complement when the Spec of \(v_P\) is filled by a subject. If the ellipsis licensing condition in (1) is extended to the functional category \(v\), VP-ellipsis in (4) can also be analyzed as (6).

(6) John didn’t leave but Mary \(_i\) did [\(v_P\) \(_i\) did [\(v_P\) leave]]].
In (6), the elliptical VP is the complement of the functional head \(v\) whose Spec is filled by the trace of the subject Mary.

Gengel (2007), Yoshida and Gallego (2008) and Rouveret (2012) provide a similar approach to VP-ellipsis in terms of the Phase Theory advanced by Chomsky (2000, 2001, 2004, 2007, 2008). They argue that the domain of ellipsis corresponds to the Spell-Out domain. In the Multiple Spell-Out model of Chomsky (2000 and subsequent work), syntactic objects are transferred to the phonological and semantic components at the particular stages, called phases, which are identified with the propositional categories CP and (transitive) \(v_P\). Under the assumption that the Spell-Out domain is a phasal complement, VP-ellipsis elides a VP instead of a \(v_P\).

(7) VP-Ellipsis

\[
\begin{array}{c}
\text{vP} \\
\text{XP} \\
\text{v'} \\
\text{v} \\
\text{vP} \\
\text{Spell-Out domain}
\end{array}
\]

This paper argues that two types of VP-ellipsis, illustrated in (1b) and (7), are exhibited in English. Specifically, I propose that the licensing condition on ellipsis in (1) is extended to the functional category \(v\), yielding two types of VP-ellipsis. One is \(v_P\)-deletion, illustrated in (1b), and the other is VP-deletion, illustrated in (7).
This paper is organized as follows. In section 2, I propose that VP-ellipsis is licensed not only in the functional category TP but also in the functional category vP. In section 3, I provide three arguments for two types of VP-ellipsis. Section 4 concludes the paper.

2. Proposal

I propose that the licensing condition on ellipsis in (1) is extended to the functional category v, yielding two types of VP-ellipsis. One is vP-deletion, which is licensed in the functional category TP and the other is VP-deletion, which is licensed in the functional category vP. Two types of VP-ellipsis are schematized in (8).

$$\begin{array}{ll}
(8) & \text{a. vP-deletion} & \text{b. VP-deletion} \\
\text{TP} & \text{vP} \\
\text{Subj} & \text{Subj} \\
\text{T} & \text{vP} \\
\text{vP} & \text{vP} \\
\end{array}$$

I assume with Merchant (2001, 2008) that VP-ellipsis is derived by PF-deletion under the syntactic identity condition. In (8a), the deletion of the complement is allowed only when the Spec of TP is filled by a subject. On the other hand, in (8b), the deletion of the complement is allowed only when the Spec of vP is filled by a subject in the course of the derivation. Here, I assume with Chomsky (2000) and Boeckx and Stjepanović (2001) that head movement is a PF phenomenon. Assuming that main verbs move from V to v at PF, ellipsis may apply before head movement. If VP-ellipsis applies before V-to-v movement in English, the proposed analysis can account for the fact that main verbs do not survive VP-ellipsis. As is well known, English does not allow null objects.

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2 An anonymous reviewer asked whether there is any relation between PF-deletion and the general trace/copy-deletion algorithm. Johnson (2001) argues that VP-ellipsis is licensed through VP-Topicalization, on the basis of the fact that the licensing condition on VP-ellipsis displays striking parallelism with the licensing condition on VP-Topicalization. See Authier (2011), Aelbrecht and Haegeman (2012) and Funakoshi (2012) for the relevant discussion. However, Johnson’s analysis fails to account for the fact that VP-ellipsis is not subject to island constraints. In addition, it is not clear whether VP-ellipsis repairs a violation of the locality condition on movement. Since Johnson’s analysis has several problems, I assume that VP-ellipsis is not derived through VP-Topicalization. Nevertheless, it is not clear whether PF-deletion is associated with the trace/copy-deletion algorithm. I will leave this issue for further research.
(9) *John solved the problem, and Mary solved the problem, too.  
(Funakoshi (2012: 523))

(9) is ruled out because the main verb solve moves out of the site of VP-ellipsis as in (10).

(10) *John solved the problem, and Mary [\textit{VP} solved the problem], too.

In addition, ellipsis of the complement of V is impossible because VP is not a functional category, but a lexical category. Since lexical categories fail to satisfy the licensing condition on ellipsis in (1), the ellipsis of the complement of V is not allowed.

(11) *John solved the problem, and Mary [\textit{VP} t_i [\textit{VP} solved the problem]], too.

Thus, I assume that main verbs do not move from V to \textit{v} in English when VP-ellipsis applies.

(12) John solved the problem, and Mary did [\textit{VP} solve the problem].  
(Funakoshi (2012: 524))

The proposed analysis can straightforwardly account for the fact that floating quantifiers may follow the auxiliary in VP-ellipsis contexts.³

(13) ?I think that some of the boys have done the assignment, but I’m pretty sure that they haven’t all [\textit{VP} done the assignment].

(Baker (1981: 313, fn. 6))

Sportiche (1988) argues that a floating quantifier is an adjunct to a subject NP and when the subject undergoes A-movement, the quantifier can be stranded in the Spec of \textit{vP}.

(14) a. The children can all do it.  
(Sportishe (1988: 441))

b. The children_i can [\textit{VP} [\textit{QP} all [\textit{Q′} t_i]] [\textit{VP} do it]].

On the basis of Sportiche’s (1988) analysis of floating quantifiers, (13) can be analyzed as (15).

(15) ?I think that some of the boys have done the assignment, but I’m pretty sure that [\textit{TP} they_i haven’t [\textit{VP} [\textit{QP} all t_i] [\textit{v′} v \textit{\textit{VP} done the assignment}]]].

The fact that the quantifier remains in the Spec of \textit{vP} is confirmed by the

³ Although example (13) seems to be less acceptable, Merchant (2008) gives a grammatical sentence.

(i) Many of them have turned in their assignment already, but they haven’t yet all [\textit{VP} turned in their assignment].

(Merchant (2008: 176))

Hence, there is no problem to strand the quantifier \textit{all} in a position immediately preceding an ellipsis site.
following non-elliptical sentences.

(16) I think that some of the boys have done the assignment,  
   a. but I’m pretty sure that they haven’t all done the assignment.  
   b. *but I’m pretty sure that they haven’t done the assignment all.  

(Baker (1981: 313, fn. 6))

If VP-ellipsis does not take place, the quantifier all can be stranded only in the preverbal position as in (16a). Thus, it is reasonable to assume that the quantifier remains in the Spec of vP in (13). Since the quantifier, remaining in the Spec of vP, survives VP-ellipsis, we can think of VP-ellipsis in (13) as VP-deletion. In section 3, I provide three further arguments for VP-deletion.

Next, let us turn to optionality in the size of VP-ellipsis site. As is first pointed out by Ross (1969) and further discussed by Akmajian et al. (1979), the aspectual auxiliaries have and be may delete their complements. For example, any of the variants given in (17) is possible.

(17) John couldn’t have been studying Spanish,  
   a. but Bill could have been studying Spanish.  
   b. but Bill could have been studying Spanish.  
   c. but Bill could have been studying Spanish.  

(Akmajian et al. (1979: 15))

Given that ellipsis is licensed by the functional categories whose specifier positions are filled, every head triggering ellipsis must have its Spec filled. If this is the case, the subject Bill should move to each intermediate Spec position to permit the deletion of the complement.4

(18) Ellipsis Clause:  

[TP Billi could [vP3 t"i have [vP2 t′i been [vP1 t′i v [VP studying Spanish]]]]].

If the subject moves to the Spec of vP1, the functional head v1 can elide VP. Then, if it moves to the Spec of vP2, the v2 can elide vP1, and then if it moves to the Spec of vP3, the v3 can elide vP2. Finally, if it reaches the Spec of TP, the T can elide vP3.

The fact that the subject undergoes successive cyclic A-movement is supported by the distribution of floating quantifiers. If the stranding analysis of floating quantifiers is correct, quantifiers should be stranded in any of

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4 An anonymous reviewer asked what motivates the subject to undergo successive cyclic A-movement. I assume that successive cyclic A-movement is required by the Shortest Move condition, which requires that each link of movement be minimal.
these intermediate Spec positions. Indeed, the quantifier *all* can appear in these positions.

(19)  
   a. The neighbors must all have been sleeping.  
   b. The neighbors must have all been sleeping.  
   c. The neighbors must have been all sleeping.  

(McCawley (1998: 99))

Consequently, VP-ellipsis, illustrated in (17), is licensed once the subject moves to the intermediate Spec position in the course of the derivation.

The same reasoning is applied to VP-ellipsis in passive sentences. VP-ellipsis may target the complement of the passive auxiliary *be*.

(20) One theory claims that they can’t be distinguished,  
   a. while another claims that they can  
   b. while another claims that they can be  

(Levin (1986: 156))

Given the Spec requirement, the successive cyclic A-movement also takes place in passive sentences as in (21).\(^5\)

(21) One theory claims that they can’t be distinguished, while another claims that \( [_{TP \ t_i \ can \ [_{VP \ t_i' \ be \ [_{VP \ distinguished \ t_i}]}]}] \).  

In (21), VP-deletion is licensed once the internal argument moves to the Spec of \( vP \) in the course of the derivation. The fact that the internal argument moves through the Spec of \( vP \) is supported by the distribution of floating quantifiers, as well.

(22)  
   a. The children have all been vaccinated.  
   b. ?The children have been all vaccinated.  

(McCawley (1998: 99))

As shown in the contrast in (22), the quantifier *all* may be stranded in the Spec of *been*. Thus, given the assumption that successive cyclic A-movement take place, the proposed analysis can account for optionality in the size of VP-ellipsis site.\(^6\)

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\(^5\) See Legate (2003) and Sauerland (2003) for arguments that the internal argument moves to the Spec of TP via the Spec of \( vP \).

\(^6\) Although a trace of A-movement licenses ellipsis, a trace of A′-movement cannot.

(i) *John said that Mary bought something (at the store), but I don’t know what, John said \( [_{CP \ t_i' C \ [_{TP \ Mary \ bought \ t_i}]}] \). Thus, this suggests that the Spec requirement is a necessary but not sufficient condition for the functional head to elide its complement. I assume that the applicability of PF-deletion stems from the nature of the head. I leave this issue for further research.
3. Further Evidence for VP-Deletion

3.1. Inversion Constructions

Although we have seen in the previous section that floating quantifiers may follow auxiliaries in VP-ellipsis contexts, subjects can also follow auxiliaries when VP-ellipsis takes place. This is seen by inversion constructions. Here, capital letters indicate focal stress.

\[(23)\]
\[\begin{align*}
&\text{a. ANNA ran much faster than could have MANNY.} \\
&(\text{Culicover and Winkler (2008: 639)}) \\
&\text{b. Leslie had been there, and so had been Sandy.} \\
&(\text{Culicover and Winkler (2008: 651)}) \\
&\text{c. Sandy has been very angry, as has been Leslie.} \\
&(\text{Culicover and Winkler (2008: 652)})
\end{align*}\]

As shown in (23), subjects can follow more than one auxiliary in inversion constructions. One might assume that the subject occupies the Spec of TP in (23). If the Spec of TP is filled by the subject, two auxiliaries should move across the subject to the C head.

\[(24)\] ANNA ran much faster than \([\text{CP could}_k \text{ have}_j [\text{TP MANNY}_i t_k [vP2}
\[\begin{align*}
&\text{t}_i [vP1 \text{ run}]]]]].
\]

However, this kind of movement is impossible in interrogatives.

\[(25)\] a. *Could have been Bill studying Spanish? (Potsdam (1996: 40))
\[\begin{align*}
&\text{b. *Has been Chuck flying longer?} \\
&(\text{Niinuma and Park (2004: 435)})
\end{align*}\]

Thus, it is unreasonable to assume that the subject occupies the Spec of TP in (23). To capture the word order in (23), we should adopt the VP-internal subject hypothesis. Given the VP-internal subject hypothesis, the elided constituents in (23) are VPs.

\[(26)\] ANNA ran much faster than \([\text{CP could}_i [\text{TP t}_i [vP2 \text{ have}_i [vP1}
\[\begin{align*}
&\text{MANNY [VP e]]]]]].
\]

Indeed, the structures of (26) are supported by the distribution of floating quantifiers.

Given Sportiche’s analysis of floating quantifiers, which was discussed in the previous section, we expect that the quantifier all cannot appear to the right of the subject in the inversion construction. This prediction is borne out by the following examples.
(27)  
a. *The teacher has been there, and so have the students all [e].
b. The teacher has been there, and so have all the students [e].
c. *The teacher has been there, and so have been the students all [e].
d. The teacher has been there, and so have been all the students [e].

My informant points out that the quantifier all cannot appear to the right of
the subject in the inversion constructions as in (27a) and (27c), while it can
appear to the immediate left of the subject in the inversion constructions as
in (27b) and (27d). 7 Thus, the contrasts in (27) show that the subject does
not move to the Spec of TP, but remains in the Spec of vP.

Although we have seen that the subject does not move to the Spec of
TP, one might argue that the subject is extraposed to a sentence-final posi-
tion in inversion constructions. Given that the focused phrase moves to the
IP-internal Focus Position (FocP) (Jayaseelan (2001), Belletti (2004)), the
structural configuration in (23a) is represented as in (28).

(28) ANNA ran much faster than

```
CP
  \_______________________________\  
tj  FocP
  \_______________________________\  
Foc  vP2
  \_______________________________\  
have  vP1
  \_______________________________\  
t1  v
  \_______________________________\  
vP         
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However, Culicover and Winkler (2008) provide an argument against
heavy-DP shift analysis. The argument comes from the distribution of par-

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7 As pointed out by an anonymous reviewer, (27b) sounds better than (27d). The dif-
fERENCE in acceptability has to do with the relative weight of the subject and the auxiliary
verbs. Culicover and Winkler (2008) and Culicover (2013) argue that when the subject
is “heavy,” inversion around the entire verbal cluster is possible, and even preferable.

(i)  
a. *Leslie had been there, and so had been I.  
    (Culicover and Winkler (2008: 651))
b. Leslie had been there, and so had been Sandy.  
    (Culicover and Winkler (2008: 651))
c. Leslie had been there, and so had been those demonstrators that you told
    me about.  
    (Culicover (2013: 104))

See Culicover and Winkler (2008) and Culicover (2013) for further examples and discus-
sion.
asitic gaps (PG). They show that while PGs do not appear in the heavy-shifted DP, PGs can appear in the subject DP in the inversion construction.

(29)  a. *a person, that Sandy gave money to \(t_i\) after introducing \(t_j\) to Otto \([\text {DP some friends of } pg_i]\)\(^8\)  
\hspace{0.5cm} (Culicover and Winkler (2008: 632))

b. a person, that Sandy gave more money to \(t_i\) than would have \([\text {even good friends of } pg_i]\)  
\hspace{0.5cm} (Culicover and Winkler (2008: 632))

Since PGs cannot appear in the heavy-shifted DP, this contrast indicates that the subject does not undergo heavy DP shift in the inversion construction.

In addition, we can see a similar contrast between the existential construction and Presentational *There* Insertion (PTI). The latter is regarded as the counterpart of heavy DP shift for subjects in Rochemont and Culicover (1990). While PGs cannot appear in the associate DP in the PTI, they may appear within the associate DP in the existential construction as in (30).

(30)  a. *a person, that I didn’t recognize \(t_i\) even though there was \(t_j\) on the table \([\text {a picture of } pg_i]\)  
\hspace{0.5cm} (Culicover and Winkler (2008: 632))

b. ?a person, that I didn’t recognize \(t_i\) even though there was \([\text {a picture of } pg_i]\) on the table  
\hspace{0.5cm} (Culicover and Winkler (2008: 632))

Since PGs cannot appear within the heavy-shifted DP in PTI, (30) suggests that the subject does not undergo heavy DP shift in the existential constructions. The results are compatible with the facts that we have seen in (29). Since the subject in the inversion construction exhibits the same result as the \(vP\)-internal DP in the existential construction, we can draw the conclusion that the subject stays at the Spec of \(vP\) in the inversion construction. Consequently, two arguments support the structure of (26), repeated as (31).

(31)  a. ANNA ran much faster than \([\text {CP could, } TP t_i [vP2 have } [vP1 MANNY [vP e]]]]\).

b. Leslie had been there, and so \([\text {CP had, } TP t_i’ [vP3 t_i [vP2 been [vP1 Sandy [vP e]]]]]].\)

c. Sandy has been very angry, as \([\text {CP has, } TP t_i’ [vP3 t_i [vP2 been [vP1 Leslie [vP e]]]]]].\)

\(^8\) Note that it is possible to have a parasitic gap within an object DP if the object does not undergo rightward movement.

(i) a person, that Sandy gave money to \(t_i\) after introducing \([\text {DP some friends of } pg_i]\) to Otto.  
\hspace{0.5cm} (Culicover and Winkler (2008: 632))

Hence, the deviance of (29a) comes from the application of heavy DP shift.
Since the subjects in the Spec of vp survive VP-ellipsis, we conclude that deletion targets a VP instead of a vp in inversion constructions. In addition, the inversion construction clearly indicates that VP-ellipsis in (31) meets the licensing condition on ellipsis in (1), because ellipsis is licensed by the functional category v whose specifier position is filled by a subject.

3.2. Voice Mismatch

The second evidence for VP-deletion comes from voice mismatch. It is well known that VP-ellipsis permits voice mismatch.9

(32) Someone should replace the bulb in the staircase, but iti can’t be [replacedti] because it’s jammed. (Rouveret (2012: 955))

In (32), the passive phrase is elided based on the active antecedent. It has been assumed that the elided constituent should be syntactically identical to its antecedent. Thus, the above example apparently shows the violation of the syntactic identity condition on ellipsis. However, assuming that the head that determines the voice properties of the clause is external to the target of VP-ellipsis, we can account for the voice mismatches in VP-ellipsis, keeping the syntactic identity condition on ellipsis intact.

Kratzer (1996) proposes that there is a voice head above VP and the external argument is introduced to its specifier position, as schematized in (33).

(33) [VoiceP external argument [Voice’ Voice [VP NP [V’ V …]]]]

(Kratzer (1996: 132))

For illustrative purposes, I use v to represent voice, instead of Voice. Then, a sentence like (32), repeated here as (34a), has the following structures:

(34) a. Someone should replace the bulb in the staircase, but iti can’t [vp be [vp replacedti]] because it’s jammed.

b. Antecedent Clause:

```
TP
  Someonei should vP
       |       | v
       |       [VP
       | replace DP
       the bulb in the staircase
```

9 See Kehler (2002), Merchant (2008, 2013) and Tanaka (2011) for further examples and discussion.
c. Ellipsis Clause:

\[
\begin{array}{c}
\text{TP}_2 \\
\text{TP}_1 \quad \text{because it's jammed} \\
it_i \\
can't \\
t_i' \quad \text{vP} \\
| \\
\text{be} \quad \text{replace} \\
\text{DP} \\
[\text{passive}] \\
t_i
\end{array}
\]

Given that the voice head is external to the target of VP-ellipsis, the antecedent VP in (34b) is identical to the elided VP in (34c), so that VP-ellipsis satisfies the syntactic identity condition. Moreover, VP-ellipsis can satisfy the identity condition on ellipsis in terms of the verbal morphology under the assumption that affix-hopping is not applied to the passive morpheme -en in syntax, but rather the affix -en is introduced by a later morphological rule (Pullum and Wilson (1977)). Thus, syntactic identity plays a crucial role in licensing VP-ellipsis. In order for the elided constituent to be identical to its antecedent, the elided constituent satisfies the syntactic identity condition in a lower position than the voice head v. Hence, we conclude that voice mismatch is possible in VP-deletion.

On the other hand, Merchant (2013) points out that sluicing (TP-deletion) does not allow voice mismatches.

(35)  
\begin{enumerate}
\item (*Joe was murdered, but we don’t know who, [\text{murdered Joe}].
\item (*Someone murdered Joe, but we don’t know who by, [\text{Joe was murdered}].
\end{enumerate}

Merchant (2013) argues that voice mismatches are impossible in both (35a) and (35b) because the two TPs have different values for the voice feature, violating the syntactic identity condition on ellipsis. According to Merchant’s analysis of voice mismatch, we expect that voice mismatch is also impossible in vP-deletion because the voice head is internal to the elided projection. This expectation is borne out by the following example.

(36) *Someone should replace the bulb in the staircase, but it, can’t be replaced because it’s jammed. (Rouveret (2012: 955))

As shown in (36), voice mismatch is impossible when the passive auxiliary be is included in the target of ellipsis. Note that VP-ellipsis optionally
elides the passive auxiliary *be* as in (37).

(37) One theory claims that they can’t be distinguished, while another claims that they can (be).

Given that the passive auxiliary *be* is optionally elided by VP-ellipsis, the deviance of (36) is due to the violation of the syntactic identity condition on ellipsis. If deletion targets *vP*, the two *vPs* have different values for the voice feature, violating the syntactic identity condition on ellipsis.

(38)

a. *Someone should replace the bulb in the staircase, but it can’t [\[vP be replaced \]] because it’s jammed.*

b. Antecedent Clause:

```
TP
   Someone, should [vP
      t, VP
         replace DP
            the bulb in the staircase]
```

c. Ellipsis Clause:

```
TP2
   TP1 because it’s jammed
      it, can’t [vP
         t, VP
            be replace DP
               [active]
               the bulb in the staircase]
```

As a result, voice mismatch is impossible in *vP*-deletion.

As we have seen above, voice mismatch supports the claim that there are two types of VP-ellipsis. VP-deletion permits voice mismatch while *vP*-deletion does not. Consequently, VP-ellipsis, illustrated in (37), is classified into two types in terms of the size of the ellipsis site as in (39).

(39) One theory claims that they can’t be distinguished,

a. while another claims that they can [\[vP be distinguished \]]

b. while another claims that they can be [\[vP distinguished \]].
In (39a), deletion targets vP, while in (39b) it targets VP. Thus, we conclude that the passive auxiliary be permits VP-deletion. In the next subsection, I provide another argument that VP-deletion is licensed by the passive auxiliary be.

3.3. VP-Ellipsis in Infinitival Clauses

Further evidence for two types of VP-ellipsis comes from the infinitival to, which is taken to be base-generated in T. As is well-known, control infinitivals allow VP-ellipsis while raising infinitivals do not. This contrast is illustrated in (40) and (41).\(^{10}\)

\[\begin{align*}
(40) \quad & \text{a. } \text{Kim isn’t sure she can solve the problem, but she will try} \\
& [\text{TP PRO to } [\text{vP e}]]. \quad \text{(Martin (2001: 154))} \\
& \text{b. } \text{Rebecca wanted Jill to join the team, so Pam persuaded her} \\
& [\text{TP PRO to } [\text{vP e}]]. \quad \text{(Martin (2001: 154))}
\end{align*}\]

\[\begin{align*}
(41) \quad & \text{a. } \ast \text{I consider Pam to like soccer, and I believe } [\text{TP Rebecca to} \\
& [\text{vP e}]] \text{ as well.} \quad \text{(Martin (2001: 154))} \\
& \text{b. } \ast \text{John does not like math but Mary seems } [\text{TP } t_i \text{ to } [\text{vP e}]]. \\
& \quad \text{(Martin (2001: 162))} \\
& \text{c. } \ast \text{Harry may not be as happy as he appears } [\text{TP } t_i \text{ to } [\text{vP e}]]. \\
& \quad \text{(Martin (2001: 162))}
\end{align*}\]

Although the Spec of TP is filled by the subject of an infinitival clause or trace, the functional category TP, headed by the raising infinitival to, cannot license vP-deletion. This suggests that the Spec requirement is a necessary but not sufficient condition for the functional head to elide its complement.\(^{11}\) Thus, I assume that raising infinitivals do not have the ability to elide their complements.

In section 3.2, we have seen that VP-deletion is licensed by the passive

\(^{10}\) For some speakers, there is no difference between control and raising infinitival complements in VP-ellipsis. However, I assume with Martin (2001) that although VP-ellipsis is legitimate in control infinitival clauses, it is not in raising infinitival clauses. I leave for further research the question how the proposed analysis accounts for variation among speakers.

\(^{11}\) An anonymous reviewer pointed out that the contrast between (40) and (41) can be accounted for by assuming that Spec-head agreement allows the functional head to elide its complement. The functional category TP, headed by the control infinitival to, can license vP-deletion, because to agrees with PRO in order to check Null Case. On the other hand, the functional category TP, headed by the raising infinitival to, cannot license vP-deletion, because to is not in an agreement relation with its specifier. See Bošković (1997) and Martin (2001) for the relevant discussion. However, as pointed out by Levin (1986), the control infinitival to does not allow vP-deletion in some cases.
auxiliary *be*. If this is correct, we expect that VP-ellipsis is possible if the raising infinitival *to* is followed by the passive auxiliary *be*. This expectation is supported by the following contrast.

(42)  
\begin{align*}
\begin{array}{ll}
\text{a.} & \text{The cake turned out to be done, even though it didn’t appear to be } [e]. \\
\text{b.} & \text{*The cake turned out to be done, even though it didn’t appear to } [e]. \quad \text{(Levin (1986: 140))}
\end{array}
\end{align*}

As shown in (42a), VP-ellipsis is possible if the raising infinitival *to* is followed by the passive auxiliary *be*. Thus, it is reasonable to assume that deletion targets a VP in (42a) while it targets a vP in (42b). Specifically, the structures of the elliptical clauses of (42) are represented as follows.

(43)  
\begin{align*}
\begin{array}{ll}
\text{a.} & \text{The cake turned out to be done, even though it_i didn’t appear } [\text{TP } t’_{i} \text{ to } [\text{vP } t’_{i} \text{ be } [\text{VP done } t’_{i}]]]. \\
\text{b.} & \text{*The cake turned out to be done, even though it_i didn’t appear } [\text{TP } t’_{i} \text{ to } [\text{vP } t’_{i} \text{ be } [\text{VP done } t’_{i}]]].
\end{array}
\end{align*}

In (43a), the passive auxiliary *be* elides the complement of *v*, yielding a grammatical result. On the other hand, in (43b), the raising infinitival *to* elides the entire complement of T. In addition, the copular *be* shows a similar ameliorative effect. VP-ellipsis is possible if the infinitival *to* is followed by the copular *be*.

(44)  
\begin{align*}
\begin{array}{ll}
\text{a.} & \text{Some people believe there to be no such rules, but I believe there to be } [\text{such rules}]. \\
\text{b.} & \text{*Some people believe there to be no such rules, but I believe there to } [\text{be such rules}].
\end{array}
\end{align*}

It is generally assumed that the expletive *there* is an indicator of raising in-

(i)  
\begin{align*}
\begin{array}{ll}
\text{a.} & \text{I will never be left alone unless I ask to } ??(\text{be}). \quad \text{(Levin (1986: 140))} \\
\text{b.} & \text{The use of whistles can be effective, but only as effective as the community wants them to } *(\text{be}). \quad \text{(Levin (1986: 154))}
\end{array}
\end{align*}

These examples suggest that Spec-head agreement is a necessary but not sufficient condition for the functional head to elide its complement.

On the other hand, the Spec requirement is also a necessary but not sufficient condition for the functional head to elide its complement. Thus, we cannot conclude that Spec-head agreement is preferable to the Spec requirement. I will leave the issue for further research.

In addition, if it is Spec-head agreement (not merely the presence of Spec) that allows the functional head to elide its complement, we expect that there must be some kind of agreement between the head *v* and its Spec to elide its complement VP. However, as pointed out by an anonymous reviewer, it is not clear whether such agreement exists between the head *v* and its Spec. Since this generalization on ellipsis remains to be explained, I will also leave this problem for further research.
finital clauses. Given that VP-ellipsis in (44a) is subject to the licensing condition on ellipsis in (1), (44a) suggests that the expletive moves from the Spec of be to the Spec of TP. Following Akmajian and Wasow (1975), I assume that the be-shift (be-raising) applies before VP-ellipsis. Given these assumptions, the structures of the elliptical clauses of (44) are represented as follows.

(45)  
a. Some people believe there to be no such rules, but I believe there to [\(_v\)P t\(_j\) be [\(_v\)P such rules]].
b. *Some people believe there to be no such rules, but I believe there to [\(_v\)P be such rules].

Since the Spec of \(_v\)P is filled by the trace of the expletive, the functional category \(_v\)P, headed by the copular be, permits the ellipsis of VP as in (45a). On the other hand, raising infinitivals cannot elide their complements as in (45b). Thus, these ameliorative effects indicate the existence of two types of VP-ellipsis.

In this subsection, we have seen that VP-ellipsis is licensed by the element that typically appears in T. Control infinitivals permit \(_v\)P-deletion while raising infinitivals do not. Although raising infinitivals do not allow \(_v\)P-deletion, VP-ellipsis is possible when they are followed by the passive auxiliary or the copular be. Thus, we conclude that VP-ellipsis is licensed not only in the functional category TP, but also in the functional category \(_v\)P. Therefore, infinitival clauses provide further evidence that there are two types of VP-ellipsis.

4. Conclusion

In this paper, we have investigated the licensing condition on ellipsis and the size of VP-ellipsis. I have proposed that the licensing condition on ellipsis, which was originally proposed by Lobeck (1990, 1995) and Saito and Murasugi (1990), be extended to the functional category \(_v\) and claimed that there are two types of VP-ellipsis. One is \(_v\)P-deletion, which is licensed in TP and the other is VP-deletion, which is licensed in \(_v\)P. Although recent research argues that VP-ellipsis elides a VP instead of \(_v\)P, I have argued that the functional category T also has a role in licensing \(_v\)P-deletion. The proposed analysis accounts for voice mismatch and VP-ellipsis in inversion

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12 Several researchers argue that the expletive *there* is first merged in the Spec of \(_v\)P. See Bowers (2002) and Deal (2009) for a detailed analysis.
constructions and infinitival clauses.

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