

# ON (IM)POSSIBLE N'-DELETION WITHIN PPs \*

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## 1. Introduction

It is well-known that many languages allow N'-deletion, where a part of a noun phrase to be elided under identity with its antecedent (Jackendoff 1971, Lobeck 1990, 1995, Saito & Murasugi 1990, among others).<sup>1</sup> Some concrete examples are given in (1). In (1a), which is from English, the elided element, indicated by the symbol  $\Delta$ , is interpreted as *wine*.

- (1) a. I like Bill's wine, but Max's  $\Delta$  is even better. (based on Jackendoff 1971:28)
- b. Taroo-no taido-ga yoi ippou Hanako-no  $\Delta$ -ga yokunai (koto)  
Taroo-Gen attitude-Nom good while Hanako-Gen -Nom not.good fact  
'(lit.) (the fact that) Taroo's attitude is good while Hanako's  $\Delta$  is not good'

As for Japanese, since Saito & Murasugi (1990), examples like (1b) have been taken as evidence for its existence in this language (see also Saito, Lin & Murasugi 2008, Watanabe 2010, Takahashi 2011 for more recent arguments).

The main empirical focus of this paper is the case of N'-deletion taking place within PPs. Some potential examples of such PP-internal N'-deletion found in the previous literature are given in (2). As far as we can tell, not many cases have been systematically examined in the literature, but their grammaticality indicates that N'-deletion seems to be possible within PPs.

- (2) a. Tureck's performance of Bach on the piano doesn't please me as much as Glenn Gould's  $\Delta$ . (based on Jackendoff 1971:31)

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<sup>1</sup> In this paper, the term *N'-deletion* is used without any theoretical commitment. For instance, as we see in the following sections, what is elided in the relevant construction is not a bar-level projection, N'. In addition to this, we abstract away from the issue of how to implement ellipsis, although we represent ellipsis in terms of deletion.

- b. [Kyoo-no ondo]-wa [[ kinoo-no Δ] yorimo] takai  
 today-Gen temperature-Top yesterday-Gen than high

(lit.) Today's temperature is higher than yesterday's Δ'

(based on Saito, Lin & Murasugi 2008:255)

Providing more controlled examples in the following sections, however, we show that there are certain environments where PP-internal N'-deletion is blocked. Then, we propose an analysis that can accommodate this novel observation, discussing some theoretical implications.

This paper is organized as follows: Section 2 is devoted to providing the novel observation regarding PP-internal N'-deletion. Section 3 offers the analysis of the data. In Section 4, we turn our attention to the cases involving Case-markers, instead of postpositions, and extend the proposed analysis to such cases. Section 5 concludes this paper, discussing some implications.

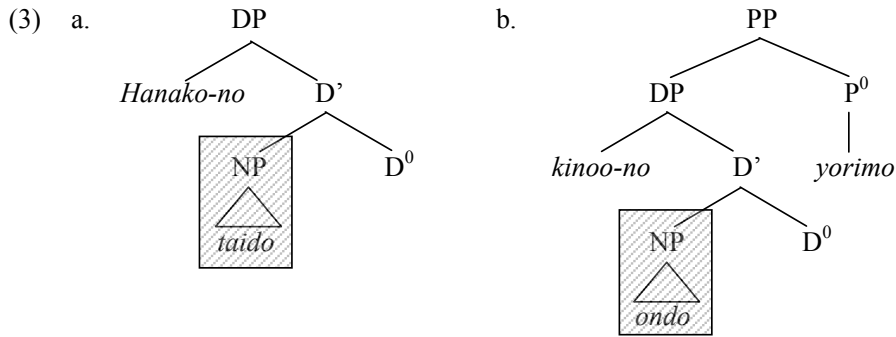
## 2. Observations

Before jumping into the crucial examples of PP-internal N'-deletion, let us introduce some background on N'-deletion in general. Under the standard analysis of N'-deletion (Saito & Murasugi 1990, Lobeck 1990, 1995), the relevant part of (1b) is analyzed as having a structure like (3a), where D<sup>0</sup> licenses ellipsis of its complement, namely NP (indicated by shading). As for PP-internal N'-deletion, its availability is not so surprising if we can assume a structure like (3b) for (2b), because P<sup>0</sup> has no local relationship with the NP inside the DP so that it should not disrupt ellipsis. The grammaticality of (4b) confirms this point (note that the examples in (4) are more appropriately controlled than ones like (2) in that both the antecedent and the target clauses contain PPs).<sup>2</sup>

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<sup>2</sup> Following Saito & Murasugi (1990) and others, the abstract noun *koogeki* 'attack' is used to avoid the possibility of the pronominal use of *no* (which roughly corresponds to *one* in English), since the pronominal *no* cannot refer to abstract nouns (Okutsu 1974, Kamio 1983, Murasugi 1991). Takahashi (2011:143) provides the following example to show that the pronominal *no* cannot refer to *koogeki* 'attack' (see also Arimoto & Murasugi 2005:174).

- (i) \*Taroo-no koogeki-wa totemo tuyoi no datta  
 Taroo-Gen attack-Top very strong one was  
 'Taroo's attack was a very strong one'



- (4) a. Taroo-wa [PP [kaseizin-e-no koogeki] **de**] kunsyoo-o moratta  
 Taroo-Top Martians-to-Gen attack with decoration-Acc received  
 ‘(lit.) Taroo received a decoration [**with** [an attack to Martians]]’
- b. Hanako-wa [PP [kinseizin-e-no Δ] **de**] medaru-o moratta  
 Hanako-Top Venusians-to-Gen with medal-Acc received  
 ‘(lit.) Hanako received a medal [**with** [Δ to Venusians]]’

In the rest of this section, however, we show that N'-deletion within PPs is indeed blocked in certain syntactic contexts, despite the fact that it is generally possible. To be more specific, we claim that N'-deletion is blocked if both of the following two conditions are satisfied: (i) A quantifier functions as a remnant of N'-deletion; (ii) the postposition following the ellipsis site is different from the one in the antecedent.

Let us consider the examples in (5) and (6). (5a) is the antecedent for (5b-d), which involve N'-deletion within PPs. In (5b), the postposition following the ellipsis site is identical to the one in the antecedent (5a). On the other hand, (5c-d) involve the postpositions which are different from the one in the antecedent. The fact that (5b-d) are all grammatical suggests that N'-deletion is possible in these examples.

- (5) a. Kinseizin-wa [kinoo-no kaseizin-no koogeki **kara**] seikansita  
 Venusians-Top yesterday-Gen Martians-Gen attack from survived  
 ‘(lit.) Venusians survived [**from** yesterday’s attack by Martians]’
- b. Suseizin-wa [kyoo-no Δ **kara**] toosoosita  
 Mercurians-Top today-Gen from run.away  
 ‘(lit.) Mercurians run away [**from** today’s Δ]’
- c. Suseizin-wa [kyoo-no Δ **e**] taiousita  
 Mercurians-Top today-Gen to responded  
 ‘(lit.) Mercurians responded [**to** today’s Δ]’

- d. Suseizinin-wa [kyoo-no Δ **de**] hiheisita  
 Mercurians-Top today-Gen with got.exhausted  
 ‘(lit.) Mercurians got exhausted [**with** today’s Δ]’

That is, N’-deletion is possible even when the postposition following the N’-deletion site is different from its counterpart in the antecedent in cases like (5). Nonetheless, a contrast emerges if remnants are changed into quantifiers, as in (6).<sup>3</sup>

- (6) a. Kinseizinin-wa [subete-no kaseizinin-no koogeki **kara**] seikansita  
 Venusians-Top all-Gen Martians-Gen attack from survived  
 ‘(lit.) Venusians survived [**from** all attacks by Martians]’
- b. Suseizinin-wa [hotondo Δ **kara**] toosoosita  
 Mercurians-Top most from run.away  
 ‘(lit.) Mercurians run away [**from** most Δ]’
- c. \*Suseizinin-wa [hotondo Δ **e**] taiousita  
 Mercurians-Top most to responded  
 ‘(lit.) Mercurians responded [**to** most Δ]’
- d. \*Suseizinin-wa [hotondo Δ **de**] hiheisita  
 Mercurians-Top most with got.exhausted  
 ‘(lit.) Mercurians got exhausted [**with** most Δ]’

(6b), which involves the postposition identical to the one in (6a), is still grammatical, while (6c-d), which involve different postpositions, are ungrammatical.<sup>4</sup>

The contrast becomes clearer if the examples in (5) and (6) are modified as follows:

- (7) a. Kinseizinin-wa [kaseizinin-no kinoo-no koogeki **kara**] seikansita  
 Venusians-Top Martians-Gen yesterday-Gen attack from survived  
 ‘(lit.) Venusians survived [**from** yesterday’s attack by Martians]’

<sup>3</sup> Although Saito & Murasugi (1990) and Saito, Lin & Murasugi (2008) argue that adjuncts do not count as legitimate N’-deletion remnants, Takahashi (2011) provides several grammatical cases of N’-deletion with adjunct remnants (see also Kadowaki 2005, Abe 2006, and Watanabe 2010).

<sup>4</sup> The linking element *no* must be absent for quantifiers to qualify legitimate N’-deletion remnants (Watanabe 2010), but the contrast between (6b) and (6c-d) suggests that its absence is not the source of the ungrammaticality of the latter. That is, if the absence of *no* makes (6c-d) ungrammatical, (6b) should be also ungrammatical, contrary to fact.

- b. *Suiseizin-wa* [*doseizin-no kyoo-no* Δ **kara**] *toosoosita*  
 Mercurians-Top Saturnians today-Gen from run.away  
 ‘(lit.) Mercurians run away [**from** today’s Δ by Saturnians]’
- c. *Suiseizin-wa* [*doseizin-no kyoo-no* Δ **e**] *taiousita*  
 Mercurians-Top Saturnians today-Gen to responded  
 ‘(lit.) Mercurians responded [**to** today’s Δ by Saturnians]’
- d. *Suiseizin-wa* [*doseizin-no kyoo-no* Δ **de**] *hiheisita*  
 Mercurians-Top Saturnians today-Gen with got.exhausted  
 ‘(lit.) Mercurians got exhausted [**with** today’s Δ by Saturnians]’
- (8) a. *Kinseizin-wa* [*kaseizin-no subete-no koogeki kara*] *seikansita*  
 Venusians-Top Martians-Gen all-Gen attack from survived  
 ‘(lit.) Venusians survived [**from** all attacks by Martians]’
- b. *Suiseizin-wa* [*doseizin-no hotondo* Δ **kara**] *toosoosita*  
 Mercurians-Top Saturnians most from run.away  
 ‘(lit.) Mercurians run away [**from** most Δ by Saturnians]’
- c. \**Suiseizin-wa* [*doseizin-no hotondo* Δ **e**] *taiousita*  
 Mercurians-Top Saturnians most to responded  
 ‘(lit.) Mercurians responded [**to** most Δ by Saturnians]’
- d. \**Suiseizin-wa* [*doseizin-no hotondo* Δ **de**] *hiheisita*  
 Mercurians-Top Saturnians most with got.exhausted  
 ‘(lit.) Mercurians got exhausted [**with** most Δ by Saturnians]’

(7a) is different from (5a) in that the order between *kinoo-no* ‘yesterday’ and *kaseizin-no* ‘Martian’ is switched. Accordingly, *doseizin-no* ‘Saturnians’, which is contrasted with *kaseizin-no* ‘Martians’, appears in front of *kyoo-no* ‘today’ in (7b-d). Similar changes are made for the examples in (8). Since multiple genitive remnants are allowed in Japanese N'-deletion (see Kimura 1994), the contrast between (7b-d) and (8b) on the one hand and (8c-d) on the other cannot be attributed to this factor. Since the speakers we have consulted find the contrast between (7) and (8) much stronger than the one between (5) and (6), we mainly use this word order pattern in the following discussion.<sup>5</sup>

<sup>5</sup> The string *doseizin-no hotondo* in (8c-d) has an alternative parse where the quantifier *hotondo* ‘most’ functions as the head of the whole expression and *doseizin-no* ‘Saturnians’ modifies it. Although (8c-d) are grammatical under this parse, it gives rise to a meaning which is clearly different from the intended interpretation involving *koogeki* ‘attack’.

The examples in (9) illustrate the same point with slightly different lexical items. Again, the minimal difference between (9a) and (9b) is the type of the N'-deletion remnant.

- (9) a. \*Kinzeizin-wa [kaseizin-no subete-no koogeki e] hangekisita-si,  
 Venusians-Top Martians-Gen all-Gen attack to struck.back-and  
 suiseizin-wa [doseizin-no hotondo Δ **kara**] kaihukusita  
 Mercurians-Top Saturnians-Gen most from recovered  
 '(lit.) Venusians struck back [**at** all attacks by Martians], and Mercurians recovered [**from** most Δ]'
- b. Kinzeizin-wa [kaseizin-no kinoo-no koogeki e] hangekisita-si,  
 Venusians-Top Martians-Gen yesterday-Gen attack to struck.back-and  
 suiseizin-wa [doseizin-no kyoo-no Δ **kara**] kaihukusita  
 Mercurians-Top Saturnians-Gen today-Gen from recovered  
 '(lit.) Venusians struck back [**at** yesterday's attack by Martians], and Mercurians recovered [**from** today's Δ]'

Therefore, the pattern found in (5)/(6), (7)/(8), and (9) indicates that N'-deletion is indeed blocked if both of the two conditions are satisfied, validating our claim made above. Note that these asymmetries with respect to the availability of N'-deletion is not expected under the standard analysis of N'-deletion briefly reviewed at the outset of this section. In the next section, we propose an analysis of the relevant observations.

### 3. Proposals and Analysis

The analysis to be proposed in this section involves the following two crucial ingredients: (i) Takahashi's (2011) analysis of N'-deletion, and (ii) a rigid identity requirement found in so-called V(erb)-stranding VP-ellipsis (McCloskey 1991, 2011, 2012, Goldberg 2005, Gribanova to appear, among others). We first introduce these two, paving the way for our analysis.

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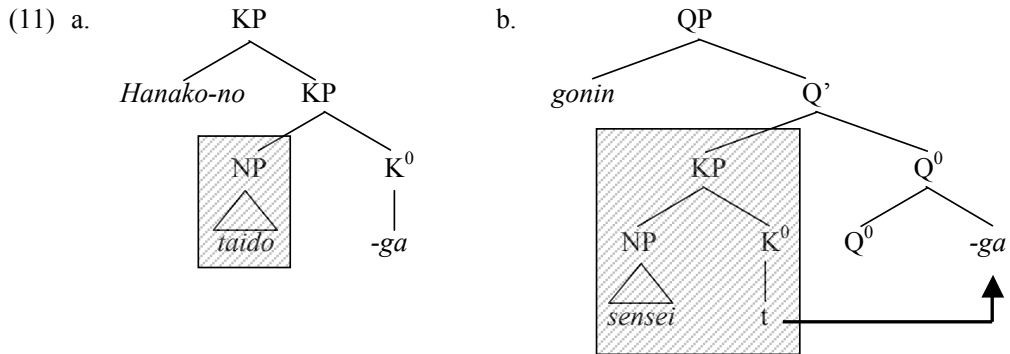
It is also worth noting here that the construction where a quantifier heads a nominal expression does not have to involve ellipsis. As shown in (i), such expressions can be used without any antecedents.

- (i) Gakusei-no {nanninka / itibu / ooku / hotondo / daibubun / zenin}-ga siken-ni ukatta  
 student-Gen some part many most large.part all -Nom test-Dat passed  
 'Some/A part/Many/Most/A large part/All of the students passed the exam'

Suppose then that *hotondo* 'most' in (6c-d) is modified by *pro*, instead of overt expressions like *gakusei-no* 'student' in (i), and the null pronoun refers to *kaseizin-no koogeki* 'attack by Martians'. Then, the examples can have the interpretation which is hard to be distinguished from the intended reading. We suggest that this makes (6c-d) slightly better than (8c-d) for many speakers.

Takahashi (2011) argues that in languages like Japanese, when an N'-deletion remnant is a non-quantifier as in (10a) (repeated from (1b)), the whole nominal has a structure like (11a), where the functional head  $K(ase)^0$  dominating the Case-marker *-ga* licenses ellipsis of its complement, namely, NP (see also Bošković to appear).<sup>6</sup> On the other hand, when a quantifier functions as a remnant as in (10b), Q(uantifier)P is projected on top of the KP. Takahashi (2011) further argues that  $K^0$  moves to  $Q^0$ , and from there it licenses ellipsis of its complement (i.e. KP), as schematically shown in (11b).

- (10) a. Taroo-no taido-ga yoi ippou Hanako-no Δ-ga yokunai (koto)  
 Taroo-Gen attitude-Nom good while Hanako-Gen -Nom not.good fact  
 '(lit.) (the fact that) Taroo's attitude is good while Hanako's is not good'
- b. Sannin-no sensei-ga kita ippou gonin Δ-ga kaetta (koto)  
 three.Cl-Gen teacher-Nom came while five.Cl -Nom left fact  
 '(lit.) (the fact that) three teachers came while five Δ left'



Let us turn to the second ingredients, the rigid identity requirement. In languages like Irish, objects can be missing in cases like (12a), although Irish is not a null-object language. McCloskey (1991) argues that Irish allows VP-ellipsis to target a VP whose head has evacuated the VP by head-movement, as schematically shown in (12b) (see also Doron 1999, Goldberg 2005 for Hebrew and Gribanova to appear for Russian). Since the missing object is contained in the elided VP, the resulting sentence appears to have a null object.

- (12) a. Dúirt mé go [gceannóinn é] agus [cheannaigh Δ]  
 said I C buy it and bought  
 'I said that I would buy it and I did' (based on McCloskey 1991:273)

<sup>6</sup> Takahashi (2011) argues that in structures like (11a), the N'-deletion remnants (*Hanako-no* in this case) are always adjoined to KP, but our analysis does not hinge on this point. Hence, we abstract away from the structural position of N'-deletion remnants in the following discussion.

- b. *Dúirt mé go* [IP ***gceannóinn***<sub>i</sub> [VP pro t<sub>i</sub> é]] agus [IP ***cheannaigh***<sub>j</sub> [VP pro t<sub>j</sub> é]]
- 

This kind of VP-ellipsis is dubbed as V-stranding VP-ellipsis.

One important property of V-stranding VP-ellipsis extensively discussed by Goldberg (2005) is that the remnant, namely the stranded verb, of the target clause must be identical to the verb of the antecedent to some extent. For instance, in (13a), the relevant verbs are not identical to each other, and the sentence cannot have a null object (see also McCloskey 2011 for more examples).

- (13) a. \*[Léigh mé an dán] ach níor [thuig Δ]  
 read I the poem but not understand

‘(intended) I read the poem, but I didn’t understand it’

(based on Goldberg 2005:168)

- b. \*[IP ***Léigh***<sub>i</sub> [VP *mé t<sub>i</sub> an dán*]] ach níor [IP ***thuig***<sub>j</sub> [VP *mé t<sub>j</sub> an dán*]]
- 

Goldberg (2005) argues (13a) is ungrammatical because ellipsis of VP depicted in (13b) is blocked due to the mismatch between the verb extracted from the ellipsis site and its counterpart in the antecedent.

Armed with these assumptions, let us now turn to our observations made in Section 2. Based upon Takahashi’s (2011) analysis of N’-deletion, we propose that (at least certain) postpositions in Japanese belong to the category Kase. Then, the relevant parts of the examples in (6) can be analyzed as having the structures given in (14).

- (14) a. Antecedent: [QP *subete-no* [KP [NP *kaseizin-no koogeki*] t<sub>K</sub><sup>0</sup>] Q<sup>0</sup>+ [K<sup>0</sup> *kara*]] (= (6a))
- 

- b. Target: [QP *hotondo* [KP [NP *kaseizin-no koogeki*] t<sub>K</sub><sup>0</sup>] Q<sup>0</sup>+ [K<sup>0</sup> *kara*]] (= (6b))
- 

- c. Target: \*[QP *hotondo* [KP [NP *kaseizin-no koogeki*] t<sub>K</sub><sup>0</sup>] Q<sup>0</sup>+ [K<sup>0</sup> *e/de*]] (= (6c/d))
- 

To capture the observations in question, we need to block the ellipsis only in (14c). Generalizing the rigid identity requirement from cases concerning verbs extracted from ellipsis sites to cases concerning heads extracted from ellipsis sites, we claim that the pattern depicted in (14) can be captured as an effect of the rigid identity requirement. To be more specific, in (14c), the head extracted from the ellipsis site (namely *e* ‘to’ or *de* ‘with’) is different from the one in the antecedent (namely *kara* ‘from’), hence ellipsis of the KP is blocked. On the other hand, the head extracted from the ellipsis site is identical to the one in the antecedent, so that ellipsis of KP is allowed.



By contrast, there is no extraction of heads in the case of (5), as shown in (15), making the rigid identity requirement irrelevant.

(15) a. Antecedent:  $[_{KP} \textit{kinoo-no} [_{NP} \textit{kaseizin-no koogeki}] \textit{kara}]$  (= (5a))

b. Target:  $[_{KP} \textit{kinoo-no} \cancel{[_{NP} \textit{kaseizin-no koogeki}]} \textit{kara}]$  (= (5b))

c. Target:  $[_{KP} \textit{kinoo-no} \cancel{[_{NP} \textit{kaseizin-no koogeki}]} \textit{e/de}]$  (= (5c/d))

Since the possibility of ellipsis of NP is not affected both in (15b) and (15c), the absence of the contrast between (5b) and (5c-d) can be captured.

The contrast found in (7) and (8) and in (9), which have a slightly different word order pattern from (5) and (6), can be accommodated in a similar way. Let us take (9) as a representative. Assuming that *kaseizin-no* ‘Martians’ and *doseizin-no* ‘Saturnians’ are base-generated within NP and moved to a higher position, the relevant parts of (9) are analyzed as having structures in (16).

(16) a. Antecedent:  $[_{QP} \textit{kaseizin-no}_i \textit{subete-no} [_{KP} [_{NP} t_i \textit{koogeki}] t_K^0] Q^0+[_{K^0} \textit{e}]]$

Target:  $*[_{QP} \textit{doseizin-no}_j \textit{hotondo} \cancel{[_{KP} \cancel{[_{NP} t_j \textit{koogeki}]} t_K^0]} Q^0+[_{K^0} \textit{kara}]]$  (= (9a))

b. Antecedent:  $[_{KP} \textit{kaseizin-no}_i \textit{kinoo-no} [_{NP} t_i \textit{koogeki}] [_{K^0} \textit{e}]]$

Target:  $[_{KP} \textit{doseizin-no}_j \textit{kyoo-no} \cancel{[_{NP} t_j \textit{koogeki}]} [_{K^0} \textit{kara}]]$  (= (9b))

Ellipsis of the KP is licensed in (16b) but not in (16a), because the rigid identity requirement is relevant only for the former.<sup>7</sup>

In this way, our analysis supports Takahashi’s (2011) analysis, gaining wider empirical coverage. Furthermore, it suggests that the rigid identity requirement is operative not only in a clausal domain but also in a nominal domain, implying that it is not just a property specific

<sup>7</sup> It should be noted here that the rigid identity requirement is operative only in extraction of heads out of ellipsis sites, because the difference between *kaseizin-no* ‘Martians’ and *doseizin-no* ‘Saturnians’ does not affect the possibility of ellipsis; otherwise, there would be no contrast between (7) and (8) and between (9a) and (9b). That is, there is an asymmetry between phrasal elements and heads with respect to extractions out of ellipsis sites. In fact, it is well-known that in other elliptical constructions such as VP-ellipsis and sluicing, an XP which is different from its counterpart in the antecedent can be readily extracted from ellipsis sites. To derive this difference between heads and phrasal elements, Goldberg (2005) suggests that head-movement but not phrasal movement undergoes obligatory reconstruction, assuming that the former is not a narrow syntactic operation (cf. Chomsky 2000, Boeckx & Stjepanović 2001, among others). See also McCloskey (2012) and Takita (2012) for other attempts to derive the difference.

to V-stranding VP-ellipsis but a more general property of ellipsis involving extraction of heads.<sup>8</sup>

#### 4. Further Data

In this section, we expand the data set to cases involving Case-markers, and discuss how the proposed analysis can accommodate such cases. Specifically, we argue that the proposed analysis can indeed accommodate them by claiming that the nature of the rigid identity requirement is essentially semantic. Then, we show that various predictions made by this modification of the proposed analysis are indeed borne out.

First consider the examples in (17). In (17a), N'-deletion targets an accusative object, taking a nominative subject as the antecedent, and in (17b), it targets a nominative subject, taking an accusative object as the antecedent.<sup>9</sup>

- (17) a. [Kaseizin-no subete-no koogeki-**ga**] kinseizin-o nayamaseta-ga,  
Martians-Gen all-Gen attack-Nom Venusians-Acc annoyed  
suisseizin-wa [doseizin-no hotondo  $\Delta$ -**o**] yarisugosita  
Mercurians-Top Saturnians-Gen most -Acc withstood  
'(lit.) [All attacks by Martians] annoyed Venusians, but Mercurians withstood  
[most  $\Delta$  by Saturnians]'
- b. Suisseizin-wa [kaseizin-no subete-no koogeki-**o**] yarisugosita-ga,  
Mercurians-Top Martians-Gen all-Gen attack-Acc withstood-but  
[doseizin-no hotondo  $\Delta$ -**ga**] kinseizin-o nayamaseta  
Saturnians most -Nom Venusians-Acc annoyed  
'(lit.) Mercurians withstood [all attacks by Martians], but [most  $\Delta$  by Saturnians  
annoyed Venusians]'

The grammaticality of these examples indicates that N'-deletion is indeed possible in these cases, even though the deleted noun is modified by the quantifier *hotondo* 'most', and the Case-maker following the ellipsis site is different from the one in the antecedent.

The same point can be shown by using so-called nominative object constructions. As shown in (18), Japanese allows an object to be marked with either the accusative Case-marker or the nominative Case-maker when elements like *-tai* 'want' attach to the main verb, forming

<sup>8</sup> See also Takita (2010), who argues that the rigid identity requirement is also operative in what is called V(erb)-stranding sluicing.

<sup>9</sup> Given the analysis proposed in Section 3, we assume that *kaseizin-no* 'Martians' and *doseizin-no* 'Saturnians' are moved from the projection of *koogeki* 'attack', but we do not represent this point in (17) and the subsequent examples for simplicity.

a complex predicate (see, among others, Sano 1985, Tada 1992, Koizumi 1994, 1998, Takano 2003, Nomura 2005, and Takahashi 2010, 2011).

- (18) Kinseizin-wa kaseizin-no koogeki-**o/-ga** yarisugosi-tai  
 Venusians-Top Martians-Gen attack-Acc/-Nom withstand-want

‘Venusians want to withstand Martian’s attack’

The examples in (19) and (20), where the objects can be marked either accusative or nominative, show that N'-deletion is possible no matter whether the Case-maker attached to the deleted noun is identical to the one attached to its antecedent or not.

- (19) a. Kinseizin-wa [kaseizin-no subete-no koogeki-**o**] husegi-tai  
 Venusians-Top Martians-Gen all-Gen attack-Acc stop-want

‘(lit.) Venusians want to stop [all attacks by Martians]’

- b. Suseizin-wa [doseizin-no hotondo Δ-**ga/-o**] yarisugosi-tai  
 Mercurians-Top Saturnians-Gen most -Nom/-Acc withstand-want

‘(lit.) Mercurians want to withstand [most Δ by Saturnians]’

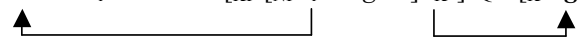
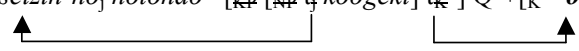
- (20) a. Kinseizin-wa [kaseizin-no subete-no koogeki-**ga**] husegi-tai  
 Venusians-Top Martians-Gen all-Gen attack-Nom stop-want

‘(lit.) Venusians want to stop [all attacks by Martians]’

- b. Suseizin-wa [doseizin-no hotondo Δ-**o/-ga**] yarisugosi-tai  
 Mercurians-Top Saturnians-Gen most -Acc/-Nom withstand-want

‘(lit.) Mercurians want to withstand [most Δ by Saturnians]’

Under the analysis proposed in Section 3, the relevant parts of examples like (17a) should be analyzed as having structures like (21).

- (21) Antecedent:  $[_{QP} \textit{kaseizin-no}_i \textit{subete-no} [_{KP} [_{NP} t_i \textit{koogeki}] t_{K^0}] Q^0+[_{K^0} \textit{-ga}]]$   
  
 Target:  $[_{QP} \textit{doseizin-no}_j \textit{hotondo} [_{KP} [_{NP} t_j \textit{koogeki}] t_{K^0}] Q^0+[_{K^0} \textit{-o}]]$   


Given the rigid identity requirement, N'-deletion should be blocked since the head extracted from the deleted KP is different from the one in the antecedent, contrary to fact. Then, we propose to accommodate these *prima facie* counterexamples by resorting to Goldberg’s (2005) original insight about the nature of the rigid identity requirement: It follows from the general condition that deleted XP to be identical to its antecedent in their meanings. Since (structural) Case-markers are semantically vacuous, unlike postpositions, it

follows that their differences do not affect the possibility of N'-deletion.<sup>10</sup> Put differently, the deleted KP in (21) can be taken as identical to the KP in the antecedent due to the semantic vacuity of Case-markers. On the other hand, for instance in (16a), the deleted KP cannot be regarded as identical to its antecedent KP because the former has the meaning of the NP *kaseizin-no koogeki* 'attack by Martians' *plus* the meaning of *kara* 'from' while the latter has the meaning of the NP *plus* the meaning of *e* 'to'.

This modification then leads us to the following predictions: Suppose that a quantifier functions as the N'-deletion remnant; then, (i) N'-deletion is allowed for the cases involving a pair of postpositions which are *morphologically distinct* from but *semantically identical* to each other; (ii) conversely, N'-deletion is *not* allowed for the cases involving a pair of postpositions which are *morphologically identical* to but *semantically distinct* from each other. These predictions are indeed borne out, as shown in (22) and (23).

- (22) a. Kinseizin-wa [kaseizin-no subete-no koogeki **yor**i] seikansita  
 Venusians-Top Martians-Gen all-Gen attack from survived  
 '(lit.) Venusians survived [**from** all attacks by Martians]'
- b. Suiseizin-wa [doseizin-no hotondo  $\Delta$  **kara**] toosoosita  
 Mercurians-Top Saturnians-Gen most from run.away  
 '(lit.) Mercurians run away [**from** most  $\Delta$  by Saturnians]'
- (23) a. Kinseizin-wa [kaseizin-e-no subete-no koogeki **de**] misairu-de hangekisita  
 Venusians-Top Martian-to-Gen all-Gen attack at missile-with struck.back  
 '(lit.) Venusians struck back [**at** all attacks to Martians] with missiles'
- b. \*Suiseizin-wa betu-no tatakai-de [doseizin-e-no hotondo  $\Delta$  **de**]  
 Mercurians-Top another battle-at Saturnians-to-Gen most with  
 kunsyoo-o moratta  
 decoration-acc received  
 '(lit.) Mercurians received a decoration [**with** most  $\Delta$  by Saturnians] at another battle'

First, (22a) involves the postposition *yor*i, while (22b) does the postposition *kara*. Although these postpositions are morphologically different, they are essentially synonymous: Both of them have the meaning of 'from'.<sup>11</sup> Hence N'-deletion is allowed, rendering (22b) grammatical. Turning now to (23), the postposition *de* is attached to the locative expression in

<sup>10</sup> Although we are claiming that the elements traditionally called "postpositions" are indeed of the category K, we keep calling them postpositions for ease of reference.

<sup>11</sup> We thank an anonymous reviewer of FAJL6 for pointing out the synonymy of *yor*i and *kara*.

(23a), while the same morpheme marks the instrumental expression in (23b). Hence, N'-deletion is blocked in (23b), despite of the morphological identity of the postpositions.

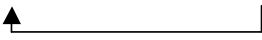

Finally, let us consider (24) and (25). In (24), the accusative-marked nominal antecedes the postposition-marked one, and in (25) the antecedent-target relation is reversed.

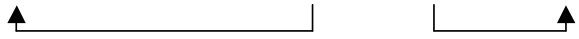
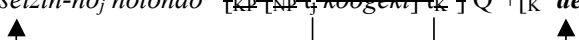
- (24) a. Kinseizin-ga [kaseizin-no kinoo-no koogeki-**o**] hihansita ippou,  
 Venusians-Nom Martians-Gen yesterday-Gen attack-Acc criticized while  
 suiseizin-ga [doseizin-no kyoo-no  $\Delta$ -**de**] hiheisita  
 Mercurians-Nom Saturnians-Gen today-Gen -with got.exhausted  
 '(lit.) While Venusians criticized [yesterday's attack by Martians], Mercurians got exhausted [**with** today's  $\Delta$  by Saturnians]'
- b. \*Kinseizin-ga [kaseizin-no subete-no koogeki-**o**] hihansita ippou,  
 Venusians-Nom Martians-Gen all-Gen attack-Acc criticized while  
 suiseizin-ga [doseizin-no hotondo  $\Delta$ -**de**] hiheisita  
 Mercurians-Nom Saturnians-Gen most -with got.exhausted  
 '(lit.) While Venusians criticized [all attacks by Martians], Mercurians got exhausted [**with** most  $\Delta$  by Saturnians]'
- (25) a. Kinseizin-ga [kaseizin-no kinoo-no koogeki-**de**] hiheisita  
 Venusians-Nom Martians-Gen yesterday-Gen attack-with got.exhausted  
 ippou, suiseizin-ga [doseizin-no kyoo-no  $\Delta$ -**o**] hihansita  
 while Mercurians-Nom Saturnians-Gen today-Gen -Acc criticized  
 '(lit.) While Venusians got exhausted [**with** yesterday's attack by Martians], Mercurians criticized [today's  $\Delta$  by Saturnians]'
- b. \*Kinseizin-ga [kaseizin-no subete-no koogeki-**de**] hiheisita  
 Venusians-Nom Martians-Gen all-Gen attack-with got.exhausted  
 ippou, suiseizin-ga [doseizin-no hotondo  $\Delta$ -**o**] hihansita  
 while Mercurians-Nom Saturnians-Gen most -Acc criticized  
 '(lit.) While Venusians got exhausted [**with** all attacks by Martians], Mercurians criticized [most  $\Delta$  by Saturnians]'

The contrast between the a-examples and the b-examples indicates that N'-deletion is blocked only when a quantifier functions as a remnant. The examples in (26) and (27) show the same point with a different pair of Case-marker and postposition.

- (26) a. Kinseizin-ga [kaseizin-no kinoo-no koogeki-**ga**] husegi-takatta ippou,  
 Venusians-Nom Martians-Gen yesterday-Gen attack-Nom stop-wanted while  
 suiseizin-ga [doseizin-no kyoo-no  $\Delta$ -**kara**] nige-takatta  
 Mercurians-Nom Saturnians-Gen today-Gen -from escape-wanted  
 ‘(lit.) While Venusians wanted to stop [yesterday’s attack by Martians], Mercurians  
 wanted to escape [**from** today’s  $\Delta$  by Saturnians]’
- b. \*Kinseizin-ga [kaseizin-no subete-no koogeki-**ga**] husegi-takatta ippou,  
 Venusians-Nom Martians-Gen all-Gen attack-Nom stop-wanted while  
 suiseizin-ga [doseizin-no hotondo  $\Delta$ -**kara**] nige-takatta  
 Mercurians-Nom Saturnians-Gen most -from escape-wanted  
 ‘(lit.) While Venusians wanted to stop [all attacks by Martians], Mercurians wanted  
 to escape [**from** most  $\Delta$  by Saturnians]’
- (27) a. Kinseizin-ga [kaseizin-no kinoo-no koogeki-**kara**] nige-takatta  
 Venusians-Nom Martians-Gen yesterday-Gen attack-from escape-wanted  
 ippou, suiseizin-ga [doseizin-no kyoo-no  $\Delta$ -**ga**] husegi-takatta  
 while Mercurians-Nom Saturnians-Gen today-Gen -Nom stop-wanted  
 ‘(lit.) While Venusians wanted to escape [**from** yesterday’s attack by Martians],  
 Mercurians wanted to stop [today’s  $\Delta$  by Saturnians]’
- b. \*Kinseizin-ga [kaseizin-no subete-no koogeki-**kara**] nige-takatta  
 Venusians-Nom Martians-Gen all-Gen attack-from escape-wanted  
 ippou, suiseizin-ga [doseizin-no hotondo  $\Delta$ -**ga**] husegi-takatta  
 while Mercurians-Nom Saturnians-Gen most -Nom stop-wanted  
 ‘(lit.) While Venusians wanted to escape [**from** all attacks by Martians],  
 Mercurians wanted to stop [most  $\Delta$  by Saturnians]’

These observations also fall within what is predicted by the proposed analysis. Taking (24) as a representative, we claim that the relevant parts of have the following structures:

- (28) a. Antecedent: [<sub>KP</sub> kaseizin-no<sub>i</sub> kinoo-no [<sub>NP</sub> t<sub>i</sub> koogeki] [<sub>K</sub><sup>0</sup> o]]  
  
 Target: [<sub>KP</sub> doseizin-no<sub>j</sub> kyoo-no [<sub>NP</sub> t<sub>j</sub> koogeki] [<sub>K</sub><sup>0</sup> de]] (= (24a))  


- b. Antecedent:  $[_{QP} \textit{kaseizin-no}_i \textit{subete-no} [_{KP} [_{NP} t_i \textit{koogeki}] t_K^0] Q^0+[_{K^0} \textit{o}]]$   
  
 Target:  $*[_{QP} \textit{doseizin-no}_j \textit{hotondo} [_{KP} [_{NP} t_j \textit{koogeki}] t_K^0] Q^0+[_{K^0} \textit{de}]]$  (= (24b))  


In (28a), what is elided is NP, and no head is extracted from the NP, so that ellipsis is allowed. On the other hand, what is elided (28b) is KP. Since the postposition *de* ‘with’ have moved to  $Q^0$ , the rigid identity requirement dictates whether the elided KP is semantically identical to the antecedent KP. In this case, the antecedent KP is semantically equivalent to its complement NP, due to the semantic-vacuity of the accusative Case-marker. On the other hand, the elided KP has the meaning of its complement NP *and* that of *de* ‘with’, so that the elided KP does not count identical to the antecedent. Therefore, ellipsis is blocked, giving rise to the ungrammaticality of (24b).

To sum up, the proposed analysis can accommodate the intricate patterns of N'-deletion within PPs. In particular, we argued that the idea that the rigid identity requirement demands semantic identity between the elided element and its antecedent plays a crucial role.

## 5. Conclusion

In this paper, we provided a novel set of data regarding N'-deletion within PPs. Specifically, we showed that N'-deletion within PPs is blocked, although it is generally possible, if a quantifier functions as the N'-deletion remnant, *and* the postposition following the deleted noun is different from the corresponding postposition in the antecedent. Then, proposing that certain postpositions in Japanese belong to the category *Kase*, we argued that our observations can be captured as an instance of the rigid identity requirement found in V-stranding VP-ellipsis, based upon Takahashi's (2011) analysis of N'-deletion. We then examined the cases involving Case-markers, and argued for the idea that claims the rigid identity requirement is essentially semantic. Finally, we offered sets of further data which support the proposed analysis.

Let us conclude this paper by discussing the implications of our analysis. First, our analysis supports Takahashi's (2011) analysis with a wider empirical coverage. Second, it follows that not only lexical heads like  $V^0$  but also functional ones like  $K^0$  are subject to the rigid identity requirement, as long as they are contentful (see also Takita 2010 for the argument that  $T^0$  is subject to the rigid identity requirement). Finally, N'-deletion can serve as a new diagnostic test that distinguishes Case-markers from postpositions: From a broader perspective, this further implies that the distinction between Case-markers and postpositions is necessary (Kuroda 1965, Miyagawa 1989, Sadakane & Koizumi 1995), which is sometimes overlooked in traditional and/or descriptive Japanese linguistics.

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