Rule ordering is free: A case study of extraction out of ellipsis

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Abstract. This paper examines Bošković's (2014) idea that extraction out of an ellipsis site is impossible when a phase is elided. One of the empirical problems with this analysis is that there is a case, pointed out in Takahashi (2020), where focus movement out of an elided CP (a phase) is possible in Japanese. By reformulating Bošković's (2014) system in terms of Obata, Epstein and Baptista's (2015) view that that ordering of rule-application is underspecified in UG, we demonstrate that the ordering between Internal Merge (IM) and Bošković's 'Marking for Ellipsis' (ME) is crucial: in Bošković's system, ME needs to precede IM, which makes extraction out of CP impossible. If IM precedes ME, on the other hand, extraction out of CP should be equally possible, which enables us to generate Takahashi's (2020) focus movement case. As a consequence, our analysis clarifies what roles labels play in the interfaces, which supports Chomsky's (2013) view that labels are necessary for interface interpretation.

Keywords. syntax; ellipsis; extraction; internal merge; phase theory

1. Introduction. Extraction out of ellipsis is considered to be a viable option in syntax. For example, sluicing has most notably been analyzed as wh-movement out of an elided TP, as illustrated in (1).

(1)   They arrested someone, but I don't know [$_{CP}$ who$_i$ C ~~[$_{TP}$ they arrested t$_i$]~~].

Bošković (2014) claims that such extraction is possible when a phase complement (e.g. TP) is elided, but not in the case of ellipsis of a full phase (e.g. CP). (2) is an example of CP argument ellipsis in Japanese, where scrambling out of the elided C is impossible. According to Bošković, this is because the phase CP is 'marked for ellipsis' prior to scrambling and therefore resists further operations out of it.

(2)   * Hon-o$_i$ Taroo-wa [$_{CP}$ Hanako-ga t$_i$ katta   to]   itta   ga,
         book-ACC   Taro-TOP   Hanako-nom   bought   that   said   though
         zassi-o$_j$ ~~[$_{CP}$]~~ Ziroo-wa   itta.
         magazine-acc   Ziro-TOP   said
         'Taro said that Hanako bought a book, but Ziro said that she bought a magazine.'
         (Saito 2007)

There are, however, counterexamples to Bošković's generalization. Takahashi (2020) shows that focus movement (in the cleft construction) out of CP ellipsis is possible in Japanese. In (3b), the focused PP is extracted from the elided CP.

(3) a. [Harry-ga [CP Ginny-ga tPP detekuru no]-o mokugekisita no]-wa
    Harry-NOM Ginny-NOM come.out that-ACC witnessed that-TOP
    [PP kono biru kara] da.
    this building from be
    'It was from this building that Harry witnessed Ginny coming out.'

    b. [Ron-ga ~~[CP——]~~ mokugekisita no]-wa [PP ano biru kara] da.
    Ron-NOM witnessed that-TOP that building from be
    'lit. It was from that building that Ron witnessed Ginny coming out.' (Takahashi 2020)

This indicates that the possibility of extraction out of ellipsis should not depend on the type of the elided material, but rather on the type of movement, at least in the case of Japanese CP ellipsis[1]: focus movement on one hand, and scrambling on the other.

This paper proposes an analysis where feature-driven movement such as wh-movement and focus movement is possible out of ellipsis. Specifically, we assume that copies made by such movement continue to have common features (e.g. focus features and wh-features) even after the phonological features are gone because of ellipsis. Under Chomsky's (2013, 2015) labeling algorithm, such movement results in labeling by shared features <F, F>. We speculate that this label <F, F> helps to identify the copies in the chain that have the common feature (for example, focus). In the case of non-feature-driven movement such as scrambling, on the other hand, the information about the chain cannot be retrieved if phonological features of lower copies are elided, and this is why scrambling out of ellipsis is impossible.

Unlike Bošković's original idea, our analysis crucially allows movement to happen before the elided material gets 'marked for ellipsis.' Thus, the possibility of extraction out of an elided phase (i.e. CP), at least in some cases, gives some credence to the idea that ordering of rule-application is underspecified in UG (Obata et al. 2015), and there is no a priori reason to assume that, for example, ellipsis marking has to happen before extraction in the above cases.

2. Moving out of elided CP. Based on data including Japanese NP ellipsis and English VP ellipsis, Bošković (2014) concludes that possible ellipsis sites are limited to either a phase or the complement of a phase (although it obviously is not the case that every phase or phasal complement is elidable in any language).

Regarding extraction out of ellipsis, he claims that only phasal complement ellipsis, not phasal ellipsis, allows something to be moved out of it, as we have already seen in the introduction. Sluicing is analyzed as wh-movement out of TP-ellipsis, that is, ellipsis of a phasal complement. Such a derivation is possible, as illustrated in (1).

Although English does not allow CP ellipsis, Japanese embedded CP is elidable, as exemplified by (4). (For Japanese argument ellipsis in general, see Oku 1998; Saito 2004; Takahashi

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[1] Bošković (2014) also gives the following contrast to illustrate that movement out of phasal ellipsis is worse than movement out of phasal complement ellipsis.

(i) a. ?*You wonder by whom Betsy must have been being hassled, and I wonder by whom Jane must have.
    b. ?You wonder by whom Betsy must have been being hassled, and I wonder by whom Jane must have been.

Under his analysis, (ia) involves ellipsis of AspectP, which he assumes to be a phase, and in (ib), only its complement VP is elided. Unfortunately, our account in Section 3, which relies on the difference between feature-driven movement and non-feature-driven movement, cannot handle the difference in acceptability between these examples, although it accounts for the contrast between (2) and (3). Since the contrast is subtle, as Bošković (2014) admits, we would like to leave open how to account for the data in (i) under our system.

2008; Takita 2011, among many others.) Nevertheless, scrambling out of an elided CP is prohibited, as we have seen in (2).

(4) Hanako-wa [CP zibun-no teian-ga   saiyoosareru to]   omotteiru   ga,
     Hanako-TOP   self-GEN proposal-NOM   accepted.be   that think   though
     Taroo-wa   [CP————]   omotte   inai.
     Taro-TOP   think   not
     'Hanako_i thinks that her_i proposal will be accepted, but Taro_j does not think that her_i/ his_j proposal will be accepted.' (Saito 2007)

These data lead Bošković to argue that phasal complement ellipsis tolerates extraction, while phasal ellipsis does not. Under his analysis, this difference is derived from the ways the two types of ellipsis are implemented. Following Chomsky (2001), he assumes that a phase YP gets activated only when the next higher phase head X is merged into the structure. In the case of phasal ellipsis, the whole phase YP gets 'marked for ellipsis' at this time, which makes YP impervious to any further syntactic operations. This is why extraction out of an elided phase is impossible.

On the other hand, phasal complement ellipsis happens when YP undergoes the usual transfer (rather than getting marked for ellipsis) when X is merged. In that situation, only the complement of YP is transferred and thus gets frozen for further operations. Movement out of the phasal complement, however, is still possible, if the moving element has been merged to the edge of YP prior to the merger of X.

However, as has been mentioned in the introduction, Takahashi (2020) shows that the focalized PP can be extracted out of the elided CP, as seen in (3), unlike in the case of scrambling in (2) [2]. Since Bošković's system predicts that extraction out of the elided CP is uniformly ruled out, (3) is not explicable. The next section presents our analysis of these seemingly contradictory facts by appeal to the timing of being marked for ellipsis (ME) and Internal Merge (IM) (i.e. extraction).

3. Analysis: Rule-Order is free. Under Bošković's (2014) system, once a phase is 'marked for ellipsis' (ME), no element can be extracted out of it, as illustrated in the previous section. This is why scrambling out of CP is disallowed in (2). What is crucial here is that ME happens before IM. If ME takes place after IM, a scrambled element can escape from CP, which goes against the facts. This implies that the order of ME before IM needs to be fixed in Bošković's system.

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[2] Takahashi (2020) also acknowledges the fact that scrambling out of CP ellipsis is degraded, as shown in (2). Unlike our account here, he attributes the unacceptability of (2) to the fact that the contrastive reading between the two scrambled objects ('book' and 'magazine') is hard to obtain, and claims that extraction out of Japanese CP ellipsis is generally allowed.

He also points out that topicalization out of CP ellipsis in (i) is as acceptable as the focus movement example in (3). We assume that topicalization is another instance of feature-driven movement and treat it on a par with focus movement.

(i) a. Kono   biru   kara-wa_i   Harry-ga   [Ginny-ga t_i   detekuru   no]-o
        this   building from-TOP   Harry-NOM   Ginny-NOM   come.out   that-acc
        mokugekisita.
        witnessed
        'From this building, Harry witnessed Ginny coming out.'
    b. Ano   biru   kara-wa   Ron-ga   [CP——]   mokugekisita.
        that   building from-top   Ron-nom   witnessed
        'lit. From that building, Ron witnessed.' (Takahashi 2020)

However, there is no a priori reason to exclude the other order. With respect to this issue, Obata, Epstein and Baptista (2015) suggest that ordering of rule-application is unspecified in UG, and thus parameters can be replaced. By implementing all the possible orderings of rule-application, the computational system can generate varied outputs. In fact, focus movement out of the elided CP is possible in (3), implying that possibility of ordering ME after IM is actually necessary.

Given that both orderings (i.e. ME before IM and ME after IM) are possible, why is only focus movement, not scrambling, out of an elided CP permissible? Let us see potential patterns of ME-IM ordering below:

(5)

	ME $\rightarrow$ IM	IM $\rightarrow$ ME
focus movement	*A	(3)
scrambling	*(2) no extraction	*B

These four patterns are potentially available, but A and B need to be excluded by independent factors so as not to cause overgeneration. With respect to focus movement, the pattern of ME after IM generates (3). (6) is the representation of the focus movement examples.

(6)   Focus movement:
$[_{<Focus, Focus>}$ PP$_{3[focus]}$ C$_{[focus]}$ $[_{CP(ME)}$ <PP$_{2[Focus]}$> $[_{TP}$ … <PP$_{1[Focus]}$> …]]

If ME takes place after IM, PP can move up to the matrix CP. The focused phrase agrees with C for focus features and the matrix CP is labeled as <Focus, Focus>, so (3) is generated. If ME takes place before IM, on the other hand, the focused PP can never move out of the embedded CP marked for ellipsis. In (6), PP$_2$ is the highest copy generated by focus movement in this derivation, so the focus feature on C is never valued without focus movement, leading to ungrammaticality. Therefore, A in (5) is successfully excluded. Next, let us turn to the scrambling case in (2), whose representation is illustrated in (7).

(7)   Scrambling:
$[_{CP}$ DP$_3$ C $[_{CP(ME)}$ <DP$_2$> $[_{TP}$ … <DP$_1$> …]]

If ME takes place before IM, the scrambled DP can never move out of the embedded CP. The whole CP marked for ellipsis (containing DP$_2$) is deleted, which explains why (2) is not generable. If ME takes place after IM, on the other hand, the scrambled DP can move out of the embedded CP, which is inconsistent with the facts. After IM of DP$_3$, however, the phonological features on DP$_3$ are visible, while those of DP$_1$ and DP$_2$ are invisible because of ME. This is why copy-identity cannot be established; SM never knows where DP$_3$ comes from and fails to decide on the proper intonation. Therefore, this representation (i.e. B in (5)) is excluded at SM.

By reformulating Bošković's (2014) phase-based analysis of ellipsis by means of free rule-ordering, (un)extractability out of elided CP illustrated in (2) and (3) can be properly explained.

4. Consequences: Labels at SM. This section discusses the issue of labels and copy-identity as a consequence obtained from the proposed analysis. In the derivation of IM before ME in scrambling (i.e. the case of B in (5)), copy-identity at SM was not established because of ME rendering phonological features invisible. However, one might wonder why focus movement under the

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pattern of IM before ME (i.e. (3)) does not cause the same problem. These two cases are crucially differentiated in terms of how the whole CP is labeled: <Focus, Focus> in focus movement but CP in scrambling (Saito 2014). In focus movement, focus agreement takes place and the resulting label clearly indicates the sentence type, which is visible at the SM and CI interfaces, so that all the copies can be identified for focus features. On the other hand, scrambling does not involve any agreement (i.e. there are functional features neither on C nor on the copies) and the resulting label (CP) does not indicate the sentence type at the interfaces. Although only phonological features are common to all the copies, those features on the copies within the ME domain are invisible at SM, which means that there is no way to identify all the copies in the case of scrambling. The view that labels determined through agreement contribute to copy-deletion at SM supports Chomsky's (2013) idea that labels are needed for interface interpretation. (See also Obata 2016, Obata and Nakao 2023 for relevant discussion.)

5. Conclusion. This paper examined Bošković's (2014) idea that extraction out of an ellipsis site is impossible when a phase is elided by considering a case pointed out in Takahashi (2020) where focus movement out of an elided CP (i.e. a phase) is possible in Japanese. In order to capture this case, we proposed based on Obata, Epstein and Baptista (2015) that the ordering between Internal Merge (IM) and Bošković's 'Marking for Ellipsis' (ME) is crucial: in Bošković's system, ME needs to precede IM, which makes extraction out of CP impossible. If IM precedes ME, on the other hand, extraction out of CP is possible, which enables us to generate Takahashi's (2020) focus movement case. In movement involving feature agreement such as focus movement (but not e.g. scrambling in Japanese), the resulting label by shared features <F, F> tells SM what type of sentence is derived and plays a crucial role in identifying copies. Our analysis helps clarify how labels work in the interfaces, supporting Chomsky's (2013) view that labels are necessary for interface interpretation.

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