The Licensing Head $X^{o}_{[E]}$: Can It Be Deleted? If So, Why and How?

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1. The state of affairs

In this paper I will provide a novel way to shed light on the stranded status of the licensing heads of the ellipses within the clausal domain. In the literature the licensing head of ellipsis, which is represented below in boldface, is assumed to be pronounced at PF (1a) but sometimes unpronounced (1b).

(1) a. John ate caviars, and [$_{TP}$ Mary$_i$ [$_{T'}$ **T^o***did* ~~[$_{vP}$ *t$_i$* [$_{VP}$ eat caviars]]~~] too] (*VPE*)
b. A: Mary will see someone. B: [$_{CP}$ who$_i$ [$_{C'}$ **C^o***ø* [$_{TP}$ ~~Mary will see *t$_i$*~~]]]? (*Sluicing*)

Lasnik (1999) proposes that *do*-support applies to the context of ellipsis to avoid the Stranded Affix Filter (SAF) (Lasnik 1981), which states that the stranded affixes cannot survive on their own unless they have overt substances, so that they need to be rescued by some operation that provides them with another possible host. In (1a), for instance, T^o is rescued by *do*-support and thus does not cause the stranded affix problem. However, this strategy does not extend to the case of matrix sluicing in (1b), where the affixal C^o is still left stranded because ellipsis applies up to the TP. Merchant (2001) provides the so-called "Sluicing-COMP Generalization" which describes that in sluicing, no non-operator material may appear in C^o; [$_{CP}$ *wh*$_i$ [$_{C'}$ **C^o***ø* ~~[$_{TP}$ … *t$_i$*]~~]]. However, this generalization is not sufficient to elucidate the manifestation of null C^o in sluicing because in the surface it appears without its verbal host. Given this situation, the question is why only the affixal T^o cannot be stranded at PF, contrary to what happens in the affixal C^o. In what follows I will attempt to answer to this question.

2. A way to account for the issue

I will assume that only functional categories are eligible to be the licensors of ellipses (2), which bear the so-called "[E]-feature" (Merchant 2001) which instructs its complement to be deleted at PF (3).

(2) *Lobeck (1991, 1995)*

a. [$_{vP}$ **v^o**$_{[E]}$ ~~[$_{VP}$ …]~~] (*VP-deletion*)
b. [$_{TP}$ **T^o**$_{[E]}$ ~~[$_{vP}$ [$_{VP}$ …]]~~] (*vP-deletion*)
c. [$_{CP}$ **C^o**$_{[E]}$ ~~[$_{TP}$ [$_{vP}$ [$_{VP}$ …]]]~~] (*TP-deletion*)

(3) *Merchant (2001: 60-61)*

The [E]-feature triggers non-pronunciation of the complement of the head on which it is present.

Based on these assumptions, I propose that the licensing head $X^{o}_{[E]}$ has two possibilities of PF-realization, as illustrated in (4). For this proposal to properly work, I add a statement like (5) to the phonological function of the [E]-feature in (3).

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(4) *PF-realization of $X^o_{[E]}$*

a. In one, $X^o_{[E]}$ is pronounced by a rescuing strategy like *do*-support.
b. In the other, $X^o_{[E]}$ is deleted along with its complement, surfacing as "Ø" at PF.[1]

(5) …, *and such head itself should be also unpronounced unless it has an overt substance*.

In reality, the idea suggested in (4) is reminiscent of Lasnik's SAF,[2] and also suggestive of Bruening's (2015) proposal on ellipsis (6), which states that sluicing is obtained by deleting all but the most prominent syntactic sub-constituent of the CP; the material in [Spec,CP], as shown in (7). Thus in a strict sense, sluicing is not merely an instance of TP-ellipsis; i.e. deletion must include the C^o in order to avoid the SAF.

(6) a. Ellipsis targets a {syntactic/prosodic} unit XP and deletes all but the head of XP, where the head of XP is the most prominent {syntactic/prosodic} sub-constituent of XP.
b. The most prominent syntactic sub-constituent of XP is [Spec,XP] if X^o projects a specifier; otherwise, it is X^o.

(7) John ate something, but I don't know [$_{CP}$ what$_i$ ~~**C** [$_{TP}$ John ate t_i]~~]

3. Some consequences

3.1. The licensing head $T^o_{[E]}$ in English

In English, $T^o_{[E]}$ has both options shown in (4), and each option produces a different output at PF. For instance, the licensing head $T^o_{[E]}$ can be either rescued by *do*-support (8a) or materialized as "Ø" by deleting the head itself (8b). The same can be applied to the derivations of pseudogapping (9a) and gapping (9b).[3]

(8) a. Mary ate apples, and John did ___ too. (*VPE*)
… [$_{TP}$ *John*$_i$ [$_{T'}$ **$T^o_{[E]}$** ~~[$_{vP}$ t_i [$_{VP}$ *eat apples*]]~~]]
↓
"did" at PF

b. Mary ate apples, and John ___ too. (*Stripping*)
… [$_{TP}$ *John*$_i$ [$_{T'}$ ~~**$T^o_{[E]}$**~~ ~~[$_{vP}$ t_i [$_{VP}$ *eat apples*]]~~] *too*][4]
↓
"Ø" at PF

(9) a. Mary ate bananas, and John did ___ apples. (*Pseudogapping*)
… [$_{TP}$ *John*$_i$ [$_{T'}$ **$T^o_{[E]}$** ~~[$_{vP}$ t_i [$_{VP}$ *eat* t_j]]~~] *apples*$_j$]
↓
"did" at PF

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[1] See Jung (2016a) and Messick and Thoms (2016).
[2] See Saab & Lipták (2015) who apply the SAF to the nominal ellipses. In fact, (4) is in part based on the "Non-Lexicalist Hypothesis" on verbal morphology (*contra* Chomsky 1970): in syntax, there is no such a fully realized form, e.g. *-ed* of the tense affix in the position of T^o. Instead, what we see is a "PF-realization of the features of T^o" in the sense of Distributed Morphology (Halle & Marantz 1993; Bobaljik 1997; Embick & Noyer 2001).
[3] In this paper I assume without further discussion that gapping is not the product of Across-The-Board movement (*contra* Johnson 1996/2004) but ellipsis by PF-deletion. I also assume that the second remnant undergoes rightward adjunction (Jayaseelan 1990; Lasnik 1999).
[4] I do not assume focus-movement (or something like that) for the remnants of the ellipsis constructions (see Jung 2016b for details of this objection).

b. Mary ate bananas, and John ___ apples. (*Gapping*)
… [TP *John*$_i$ [T′ ~~**T°**$_{[E]}$~~ [vP ~~t_i~~ [VP ~~*eat* t_j~~]]]] *apples*$_j$]
↓
"Ø" at PF

At this point the key issue to be explored is how such a licensing head T°$_{[E]}$ can be elided at PF. I have in mind at least two ways to delete the X°$_{[E]}$; by way of either (10) or (11). If we assume (11), what is actually elided for example in the context of gapping would be T' rather than the vP, as illustrated in (12).

(10) The licensing head X°$_{[E]}$ should be deleted independently from its complement YP, unless X°$_{[E]}$ has an overt substance; otherwise, it would be stranded at PF (violating the SAF).

(11) Both the licensing head X°$_{[E]}$ and its complement YP would be elided by means of "X'-deletion".

(12) *John ate the beans and [TP Mary*$_i$ ~~*[T′ T°$_{[E]}$ [vP t_i [VP eat t_j]]]*~~ *the potatoes*$_j$*]*

Such a X'-deletion may be reinterpreted in terms of Bare Phrase Structure (BPS) (cf. Chomsky 1995; Boeckx 2008, Fukui 2011, a.o.); e.g. under the BPS, there will be no (much) difference between X'-deletion and XP-deletion, like the non-distinctness between head-movement and phrasal movement (cf. Matushansky 2006). Assuming BPS, I sketch how X'-deletion can be reinterpreted as follows. In (13), for example, if X° remerges with [X° YP], X° is the label of the entire syntactic object [X° [X° YP]], as shown in (13b). Given this, the complement of X° would be the syntactic object [X° YP], ignoring X'-projection (13c).

(13) a. X° merges with YP, creating [X° YP]
b. X° remerges with [X° YP], creating [X° [X° YP]]
c. ZP merges with [X° [X° YP]], creating [ZP [X° [X° YP]]]

That is, from the perspective on "remerge for labeling", deletion of YP is actually deleting [X° YP]: because X° has remerged with [X° YP] in the earlier stage of the derivation by Merge. If so, deletion of the complement of X°$_{[E]}$ will include X° itself along with the YP, as illustrated in (14).

(14) If X°$_{[E]}$ is covert, then, [ZP [X°$_{[E]}$ ~~[X°$_{[E]}$ YP]~~]] → [ZP ~~[X°$_{[E]}$ [X°$_{[E]}$ YP]]~~]

For this kind of deletion mechanism to appropriately operate, I have to make another assumption: if X°$_{[E]}$ has an overt substance *α*, deletion applies up to the YP, leaving the licensing head X°$_{[E]}$ intact; e.g. [ZP [X°$_{\alpha[E]}$ [X°$_{\alpha[E]}$ ~~YP~~]]]. This kind of deletion would be the case of VPE (or pseudogapping), where the licensing head T°$_{[E]}$ has an overt material such as *do* (or other auxiliary verb). In any case, such a technical issue on deleting X°$_{[E]}$ can be accommodated in either of two ways mentioned above.

3.2. The licensing head T°$_{[E]}$ in other languages

The two possibilities of PF-realization of X°$_{[E]}$ suggested in (4) are not universal because languages like Spanish allow only the option shown in (4b), and as a consequence, they display stripping (15b) and gapping (16b), but not VPE (15a) and pseudogapping (16a).

(15) a. *María comió manzanas, y Juan hizo ___ también. (**VPE*)
Mary ate apples and John did too
… [TP *Juan*$_i$ [T′ **T°$_{[E]}$** [vP ~~t_i~~ [VP ~~*comió manzanas*~~]]] *también*]
↓
"hizo" at PF

b. María comió manzanas, y Juan ___ también (*Stripping*)
Mary ate apples and John too
… [TP *Juan*$_i$ [T′ ~~**T°**[E]~~ [vP ~~*t*$_i$~~ [VP ~~*comió manzanas*~~]]] *también*]
↓
"Ø" at PF

(16) a. *María comió plátanos, y Juan hizo ___ manzanas. (**Pseudogapping*)
Mary ate bananas and John did apples
… [TP *Juan*$_i$ [T′ **T°**[E] [vP ~~*t*$_i$~~ [VP ~~*comió t*$_j$~~]]] *manzanas*$_j$]
↓
"hizo" at PF

b. María comió plátanos, y Juan ___ manzanas. (*Gapping*)
Mary ate bananas and John apples
… [TP *Juan*$_i$ [T′ ~~**T°**[E]~~ [vP ~~*t*$_i$~~ [VP ~~*comió t*$_j$~~]]] *manzanas*$_j$]
↓
"Ø" at PF

How can this be explained under the present analysis? I suggest that the availability of the option shown in (4a) is "language-specific". In English, as is well-known, *do*-support is a "Last Resort" operation (Chomsky 1991; Hagstrom 1996),[5] which occurs in a number of different contexts like (17) (from Bruening 2010: 44, (1)).

(17) a. This theory dominates generative grammar. (*Simple declarative*; **do*)
b. Does this theory dominate generative grammar? (*Subject-Auxiliary Inversion*)
c. This theory does not dominate generative grammar. (*Negation*)
d. This theory DOES (so/too) dominate generative grammar! (*Emphasis*)
e. That theory dominates generative grammar, and this one does too. (*VPE*)
f. Dominate generative grammar though it does, this theory makes a number of wrong predictions. (*VP displacement*)

In Spanish, by contrast, none of these contexts requires the presence of the light verb *hacer*, which is roughly corresponding to English *do*. That is, in the general cases, Spanish does not resort to the employment of *hacer* as "Last Resort". Given this, it can be suggested that the absence of a strategy like *do*-support in a language makes somehow unable to produce VPE and pseudogapping. In view of that, these two elliptical constructions can be considered as "special" instances of verbal ellipsis allowed in English, but not in Spanish as well as many other languages that do not have recourse to *do*-support (or something like that) in the context of ellipsis.

3.3. Unification of various types of verbal ellipses in one single deletion site

According to the present analysis, the clausal ellipsis constructions mentioned above differ (only) in how the licensing head T°$_{[E]}$ is materialized in each construction. One potential motivation of this 'unified' analysis could be the fact that all those constructions show island-sensitivity (18a-c), contrary to what happens in sluicing (18d); while island violations in sluicing can be repaired by ellipsis (cf. Ross 1967; Chung *et al* 1995; Merchant 2001, a.o.), they cannot be in VPE, stripping, and gapping.

(18) a. *They want to hire someone who speaks a Balkan language, but I don't remember which they do. (*VPE*: Merchant 2001:4-5)

[5] Grimshaw (2010) argues that *do*-support has the same grammatical status as verb movement, and the choice between two (and not *do*-support itself) is "language-particular". She states that the Last Resort status of *do*-support is both genuine and spurious: a *do*-support candidate will always have competitor(s) which satisfy constraints violated by the presence of *do*. In this sense, *do*-support is a genuine Last Resort: the candidate wins if and only if all the alternatives lose.

b. *We have interrogated the burglar who stole the car already, but not the diamonds.
(*Not-stripping*: Reinhart 1991: 374)
c. *John wondered [what to cook today] and Peter wondered [what to cook tomorrow].
(*Gapping*: Neijt 1979: 138, (73))
d. They want to hire someone who speaks a Balkan language, but I don't remember which (Balkan language). (*Sluicing*: Merchant 2001:4-5)

Thus, if gapping (or stripping) for example were another instance of TP-deletion, just like sluicing, then it would be unclear why island violations in the former cannot be repaired by ellipsis. Fox & Lasnik (2003) for example suggest that the ellipsis site of VPE is smaller than that of sluicing. I submit that the same can be said for stripping and gapping, and in so doing, island-sensitivity is expected in these ellipsis constructions.[6]

4. Some challenges

4.1. 'Unified' analysis but 'different' behavior

The analyses shown in (8) and (9) amount to saying that VPE, gapping, pseudogapping, and stripping are the same in that they are derived by vP-deletion, and thus they should behave in a similar way. However, this is not (quite) true because they show different properties, as seen in (19) (cf. Jackendoff 1971; Sag 1976; Hankamer & Sag 1976; Levin 1986; Lobeck 1995; Johnson 1996/2004, 2001, 2009).

(19)

	VPE	Gapping	Pseudogapping	Stripping
Non-linguistic antecedent	✓	×	×	×
Restriction to coordination	×	✓	×	✓
Backward deletion	✓	×	×	×
Voice mismatch	✓	×	×	×

Nonetheless, these differences do not seem to be conclusive enough to reject a possible 'unified' account; e.g. as shown above, VPE and pseudogapping behave differently, but they are claimed to be instances of vP-deletion as far as the missing portion is concerned. In addition, the fact that both gapping and stripping are restricted to coordination also suggests a sort of unification of both, as in Wurmbrand (2016) where English stripping and gapping are argued to be TP-deletion.[7]

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[6] Freidin (2012: 252) also represents gapping in a similar way: delete V and T. In any case, the resulting outputs of these two ellipsis constructions are roughly the same as TP-deletion; "T⁰ is involved in the deletion".

[7] One of the argument provided by Wurmbrand is that if the embedded complementizer *that* is omitted, both stripping and gapping are allowed supporting her analysis based on phase and spell-out domain.

(i) a. *Abby claimed Ben would ask her out, but she didn't think *that* Bill ___ too.
b. Abby claimed Ben would ask her out, but she didn't think Bill ___ too.

(ii) a. *Some will eat mussels and she claims *that* others ~~will eat~~ shrimp.
b. %Some will eat mussels and she claims others ~~will eat~~ shrimp.

But this kind of arguments cannot extend to languages like Spanish because the counterparts of (ia) and (iia) are basically grammatical, regardless of the presence of the embedded complementizer *que* 'that'. (iii-iv) illustrate such case of Spanish.

(iii) a. Abby afirmó que Ben le pediría a cabo, pero ella no creía *que* Bill ___ también.
b. Abby afirmó que Ben le pediría a cabo, pero ella no creía Bill ___ también.

(iv) a. Algunos van a comer hongos y ella afirma *que* otros ~~van a comer~~ gambas.
b. Algunos van a comer hongos y ella afirma otros ~~van a comer~~ gambas.

4.2. Verb movement

In reality, the present analysis must assume that in V-raising languages like Spanish, the ordinary verb movement is somehow blocked in the context of ellipsis (20).

(20) a. *Juan* [$_{T'}$ **T°***comío*$_i$ [$_{vP}$ [$_{VP}$ t_i *manzanas*]]]. (*'V-to-T' movement*)

b. … [$_{TP}$ *Juan*$_i$ [$_{T'}$ **T°$_{[E]}$** [$_{vP}$ t_i [$_{VP}$ *comió* t_j]]] *manzanas*$_j$] (*Gapping* (=16b))

"Ø" at PF

However, there is a solution for this matter: it has been assumed that in matrix sluicing, where C° is the licensing head, 'T-to-C' movement is blocked (Lasnik 2001). In fact, Merchant's (2001) analysis of sluicing also assumes this kind of "bleeding" head-movement, as illustrated in (21). I suggest that the same applies to (20b) in which 'V-to-T' movement will be blocked by the licensing head T°, and in so doing, verb movement is not problematic for my analysis (see also van Craenenbroeck 2008 and Aelbrecht 2010).

(21) A: Max invited someone.
B1: Really? Who did$_C$ invite Max? (*T-to-C movement*)
B2: Really? Who (*did$_C$)? (*Sluicing*)

4.3. Subject movement

For a language like Spanish, it has been widely claimed that the EPP-feature of T° is satisfied by verb movement itself (cf. Alexiadou and Anagnostopoulou 1998, a.o.). Given this, the problem is that according to the present analysis, the subject DP must move to [Spec,TP] (22).

(22) … [$_{TP}$ *Juan*$_i$ [$_{T'}$ **T°$_{[E]}$** [$_{vP}$ t_i [$_{VP}$ *comió* t_j]]] *manzanas*$_j$]

However, there is a way to circumvent this matter: assuming that the EPP-feature of T° is universal and thus must be satisfied by either subject movement or verb movement (Chomsky 1998), I argue that on the lack of verb movement (cf. (20b)), subject movement to [Spec,TP] becomes obligatory; otherwise, there will be no way to fulfill the EPP-requirement.

4.4. Verb-stranded VPE (VVPE)

There are cases where verb movement happens prior to (VP-)ellipsis, namely in contexts of VVPE (cf. Goldberg 2005; Gribanova 2013; Funakoshi 2016). This kind of verbal ellipsis goes against the idea given in (4b), where T° is assumed to bear the [E]-feature that blocks head-movement (23).

(23) a. T°$_{[E]}$ *but still* V-raising (e.g. European Portuguese, Hebrew, Irish, Japanese/Korean …)
b. T°$_{[E]}$ *and thus* not V-raising (e.g. Spanish, Italian …)

The current analysis cannot elucidate VVPE because T°$_{[E]}$ does not block head-movement in this case, though in the previous section I have claimed that the [E]-feature of T° blocks verb movement (in Spanish gapping). Nevertheless, the issue with VVPE is still under debate; e.g. it has to be clarified the reason why only European Portuguese allows VVPE within the Romance language family since Spanish

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In any case, if Wurmbrand's claim is right, Johnson's (1996/2004) ATB-movement analysis fails to unify gapping with stripping because the latter does not involve low-coordination. Of course, my analysis also suggests a 'unified' analysis of gapping and stripping, but in a different way: both constructions are restricted to coordination because they involve an 'extra' deletion of T°$_{[E]}$ along with the ellipsis of the vP, in contrast to VPE and pseudogapping, which have only the vP-deletion under my analysis.

and Italian do not allow it. In addition, it is not so clear whether VVPE is a *bona fide* instance of verbal ellipsis such as TP-deletion; i.e. the missing material in VVPE may be considered as (an instance of) null object, which has been analyzed in terms of either *pro* (Saito 1985; Hoji 1998; Oku 1998; Kim 1999) or PF-deletion of a (substructure of) DP (Takahashi 2008, 2014; Duguine 2013). I will leave this issue for future research.

5. Concluding remarks

In this paper I have argued that the licensing head $X^{o}_{[E]}$ of the ellipsis cannot be stranded at PF: without having an overt substance, it must be elided in order to avoid the SAF. I have proposed that there are two options of materializing $X^{o}_{[E]}$; e.g. the licensing head $T^{o}_{[E]}$ can be realized either overtly by *do*-support (or other auxiliaries) or covertly by way of 'extra' deletion of $T^{o}_{[E]}$. The analysis I have offered brings together different types of verbal ellipsis constructions in a 'single' derivation; namely vP-deletion, though it faces some (non-)trivial challenges. Nonetheless, there might be feasible ways to differentiate some verbal ellipses from the others, even preserving the same ellipsis site. I leave this issue for future research.

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