

Constraining Head-Stranding Ellipsis

Idan Landau

Ellipsis of a constituent whose head has moved out of it (“headless ellipsis”) is possible in some cases but not in others. Headless ellipsis is licensed only if the stranded head has not crossed a Spell-Out domain. The reason is that the silencing instruction responsible for ellipsis must be PF-visible on the *head* of the elided constituent, and PF-visibility is cut off at Spell-Out domain boundaries. A parallel effect is observed with remnants of head movement that are frozen for movement (“headless movement”). The two effects can possibly be united if ellipsis and copy deletion recruit the same silencing instruction at PF, hosted on the head of the deleted constituent. A third, mirror-image effect is observed with reprise fragments, which must be visibly headed. This time head movement removes the PF instruction that spares these fragments from ellipsis. Overall, these phenomena establish the significance of headedness for the syntax-PF interface.

Keywords: ellipsis, head movement, sluicing, headless constituents

1 Introduction: The Road Not Taken to Lasnik’s Puzzle

The starting point of this inquiry is a puzzle made famous by Lasnik (1999a,b), concerning the interaction of head movement and ellipsis in sluicing.

- (1) A: Mary has dated someone.
- B: Who (*has)?
- C: Who has Mary dated?
- D: *Who Mary has dated?

On the current syntactic understanding, two operations take place in the derivation of (1B). First, a *wh*-phrase is extracted to the interrogative position Spec,CP; second, the TP complement of the interrogative C from which the phase has moved undergoes ellipsis (here and throughout, shading represents ellipsis).

- (2) [_{CP} who_i C_[Q,wh] [_{TP} Mary_k [_{T'} has_j [_{AuxP} t_j [_{VP} t_k dated-v [_{VP} t_v t_i]]]]]]]

Lasnik observed that this derivation fails to exhibit T-to-C head movement (or Aux-inversion) that is otherwise obligatory in the nonelliptical variants. Comparing (1B) and (1D), it appears that the auxiliary in T must raise to C unless TP is elided. Lasnik broke this puzzle into two

Part of the research reported here was presented in the workshop “The Timing of Ellipsis,” at SLE 51, Tallinn University, in August 2018. I thank the audience for their helpful comments. Special thanks to Eric Reuland for his insightful editorial advice.

smaller questions: (a) What *allows* the head to stay in situ in the elliptical derivation? and (b) What *prevents* the head from raising in the elliptical derivation? The answer to (a) was summarized as “salvation by deletion.” The feature driving head movement was assumed to reside on the moving head itself, T in this case. Unchecked features are ill-formed at PF. Normal checking (via movement) removes them during the derivation, but PF deletion can achieve the same result: the offending feature is absent from the relevant output representation. Thus, ellipsis of a head with unchecked features is “as good as” raising that head to check the feature, as far as PF is concerned.

Note, though, that this only answers question (a). Why *can't* the head move out of the ellipsis site (note the asterisk in (1B))? Lasnik was careful not to invoke any economy-inspired reason, presumably due to undesirable look-ahead and globality complications. To prevent T-to-C movement in matrix sluicing, Lasnik (1999a:208n14) proposed that agreement between C and its specifier, necessary for ellipsis, is disrupted by T-to-C movement. This account is not fully convincing and indeed, subsequent studies have strengthened Lasnik's analysis into a full-blown bleeding account, where ellipsis simply bleeds head movement out of the elided constituent (Boeckx and Stjepanović 2001, Hein 2018).

I discuss the problems with the bleeding accounts in section 4. At this stage, it is important to point out that this incompatibility between T-to-C movement and TP-ellipsis has been documented in a variety of similar constructions and languages, suggesting that it is a quirk neither of English nor of sluicing per se (Merchant 2001:62–74, Van Craenenbroeck and Lipták 2008).¹

Right before adopting the “salvation by deletion” account, however, Lasnik (1999b) briefly considered and rejected an alternative idea. This idea is the conceptual ancestor of the analysis to be developed here. It focuses on the obvious correlation between the blocking of movement from an ellipsis site and the *status* of the element whose movement is blocked. (3) is how Lasnik (1999b:158) formulated this generalization.

(3) XP ellipsis is prohibited if XP has lost its head.

The core insight behind (3), I maintain, is just right. It is the fact that the attempted movement is by the *head* of the constituent targeted for deletion that causes the problem. This insight is lost in all other approaches to the problem. On the PF bleeding analysis, for example, head movement is phonological and so ellipsis, a PF operation, bleeds it. Headedness is incidental to the account; what matters is where (in which component of the grammar) movement takes place. In contrast, in

¹ Lasnik (1999b) grouped together with (1B) the ungrammaticality of (ii). This was motivated by his analysis of transitive clauses in terms of overt object shift and overt V-raising past the raised object. In the pseudogapping construction (i), this V-raising is bled by ellipsis of the source VP of the verb, explaining the “trapping” of V inside the ellipsis site parallel to the trapping of T in the ellipsis site of sluicing.

(i) Mary hasn't dated Bill, but she has Harry (*dated).

(ii) *She has Harry dated.

This analysis, however, is no longer tenable. There is considerable evidence that the pseudogapping remnant raises to a relatively high, clause-medial focus position (Gengel 2013), above VoiceP (Merchant 2013) and even above the Aux projections (Thoms 2016a). Thus, V-raising, even if real, occurs entirely *inside* the domain of pseudogapping ellipsis and cannot provide evidence for any bleeding relation between the two.

the analysis to be developed in section 2, the problem arises because the same head simultaneously mediates ellipsis (of its maximal projection) and movement (of itself).

Also implicit in Lasnik's generalization is the claim that bleeding works from head movement to ellipsis and *not* the other way round (as commonly assumed). It is head movement, *in the syntax*, that destroys the context for ellipsis (in the syntax or at PF, that is left open). This too will be a feature of the proposed analysis. Nevertheless, I will argue that (3) cannot be maintained in its present unrestricted form, for there are demonstrable instances of the kind of derivation depicted in (4).

- (4) *X-stranding XP-ellipsis*
 $[_{YP} ZP [_Y' [_Y X_i - Y] [_{XP} t_i [_{WP} \dots]]]]$

Understanding which grammatical contexts give rise to permissible X-stranding XP-ellipsis derivations and which do not, and crucially, why this is so, is the chief theoretical goal of this article.

Another instance of this type of derivation is verb-stranding VP-ellipsis (VSVPE), proposed for many languages.² Indeed, the main reason why Lasnik abandoned (3) was the alleged evidence that languages like Hebrew, Portuguese, and Irish abundantly employ VSVPE—in stark violation of (3)—to generate object gap sentences (and in Irish, bare-verb sentences). However, this evidence has now undergone critical reassessment. First, the Irish facts have been understood, for some time now, to involve *TP-ellipsis* under a polarity head, a process sufficiently distinct from VSVPE (see discussion and references in section 3.2). For Hebrew, VSVPE is a misanalysis, which should be replaced by argument ellipsis (AE), much in the spirit of current work on East Asian languages (Landau 2018). And Portuguese, together with Hindi and Russian, also fails to provide evidence for VSVPE, and in fact provides evidence against it (Landau 2020). Lasnik's reasons for not pursuing (3), then, have dissolved.

I end the discussion in Landau 2020 with the following puzzle: Why do languages that employ both V-raising out of VP and VP-ellipsis that strands auxiliaries (e.g., Hebrew, Chinese, Portuguese, and Russian) not combine these two operations into a single derivation? What is it that blocks VSVPE? Notice the striking parallelism to Lasnik's puzzle: What is it that blocks stranding of T in C when TP-ellipsis applies to produce matrix sluicing? Under the analysis to be developed below, these two puzzles coalesce into one.

The upshot is this: Universal Grammar indeed does not tolerate certain instances of X-stranding XP-ellipsis (Lasnik was right about this); matrix sluicing is such an example, but pseudogapping is not (Lasnik was right about the former, wrong about the latter). Finally, the absence of VSVPE is another instance of this Universal Grammar prohibition (Lasnik was wrong about it), but other cases do employ X-stranding XP-ellipsis, suggesting that we need to make the

² Van Craenenbroeck and Merchant (2013) observe that the popular bleeding account ("ellipsis bleeds head movement") for the absence of T-to-C movement in matrix sluicing would incorrectly rule out VSVPE derivations, which are presumably abundant. They conclude that "a unified account of all these cases is still lacking" (p. 721). If I am correct, the danger of inconsistency does not come from VSVPE (which does not exist); rather, it comes from other instances of X-stranding XP-ellipsis, discussed in section 3.

possibility of this derivation sensitive to certain features of the syntactic environment. In fact, an endeavor in this spirit has recently been made in Sailor 2018; I return to discuss it in section 4.³

The structure of this article is as follows. Section 2 develops a theoretical account with the goal of distinguishing between admissible and inadmissible X-stranding XP-ellipsis derivations. The account rests on three central ideas. First, the licensing relation for ellipsis is established with the *head* of the elided constituent, rather than with the sister of that constituent. Second, the head bearing the “ellipsis feature” must be PF-visible (a reformulation of Lasnik’s insight that the elided constituent should not “lose its head”). Third, PF-visibility is “cut off” at Spell-Out domain boundaries, such that those head movements that cross them are unable to trigger ellipsis, while those that do not cause no trouble.

Section 3 turns to two types of *legitimate* X-stranding XP-ellipsis derivations: ellipsis of AuxP following Aux-to-T raising in English, and ellipsis of TP following Aux- or V-raising to a polarity head in verb-echo answers, a common response strategy across languages, illustrated here in Finnish, Irish, and Hungarian. Section 4 asks whether existing accounts of the interaction between head movement and ellipsis can generate the pattern of selective availability of X-stranding XP-ellipsis, reaching a negative answer. Section 5 considers the possibility of understanding certain restrictions on fronting of headless constituents in terms of the same underlying PF operation that restricts headless ellipsis; it then extends the logic of head-bound PF-visibility to the analysis of reprise fragments, which similarly cannot be headed by a trace. Section 6 concludes the article.

2 The Limits of Head-Stranding Ellipsis

This section offers an explicit answer to the question of which types of X-stranding XP-ellipsis are syntactically admissible and which are not. Subsequently, it develops a theoretical account that explains the peculiar cut between the two types.

X-stranding XP-ellipsis is not available when T raises to C and TP is deleted, as in matrix sluicing.

- (5) A: He has found something interesting.
 B: *What has [he has found what]? / What [he has found what]?

X-stranding XP-ellipsis is also not available when V raises to Asp or T and VP is deleted; thus, so-called VSVPE does not exist, and object gaps like the one in the second sentence of (6a) (from Hebrew) are derived along the lines of (6b) and not along the lines of (6c) (Landau 2018).

- (6) a. Gil hizmin et axot-o. Yosi gam hizmin ____.
 Gil invited ACC sister-his Yosi too invited
 ‘Gil invited his sister. Yosi did too.’

³ Sailor’s (2018) work is exceptional in addressing the tension between the two conflicting bodies of evidence on X-stranding XP-ellipsis. On head-stranding ellipsis in general, see Lasnik 1995, 1997, 1999a,b, 2001, Potsdam 1997, Roberts 1998, Merchant 2001, 2015, Goldberg 2005, Van Craenenbroeck and Lipták 2008, Schoorlemmer and Temmerman 2012, Lipták and Saab 2014, Thoms 2015, Gribanova 2017, 2018, McCloskey 2017, Hein 2018.

b. *Argument ellipsis*

[_{TP} Yosi_i [_{T'} gam [_{T'} hizmin-v-T [_{vP} t_i [_{v'} t_v [_{VP} t_v [_{DP} et axoto]]]]]]]]

c. *VSVPE

[_{TP} Yosi_i [_{T'} gam [_{T'} hizmin-v-T [_{vP} t_i [_{v'} t_v [_{VP} t_v [_{DP} et axoto]]]]]]]]

Nevertheless, X-stranding XP-ellipsis is instantiated in two other environments: AuxP-ellipsis under T and TP-ellipsis under Pol, discussed in sections 3.1 and 3.2, respectively. An example of the former is given in (7a), and of the latter—also known as Polarity ellipsis—in (7b) (from Hungarian).

(7) a. Julie is working hard lately and Susan is too.

b. A: Meg hívta János a szomszédokat?

VM invited János the neighbors
 ‘Did János invite the neighbors?’

B: Meg hívta.

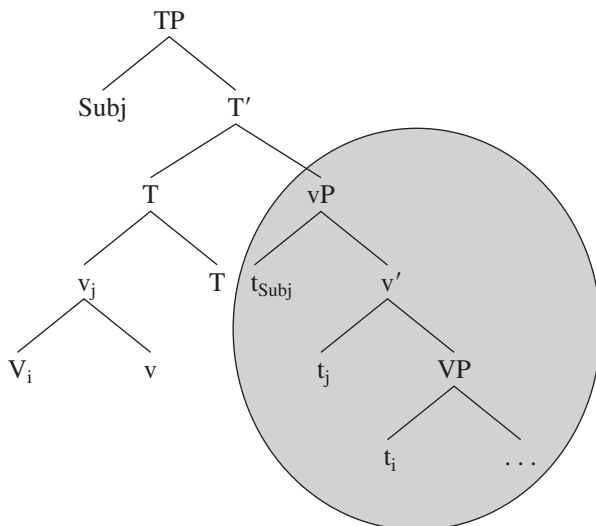
VM invited
 ‘He did.’

(Lipták 2013:73)

To facilitate the following discussion, I will schematize these four syntactic environments in (8) and (9) (the shaded areas represent the elided constituents).⁴

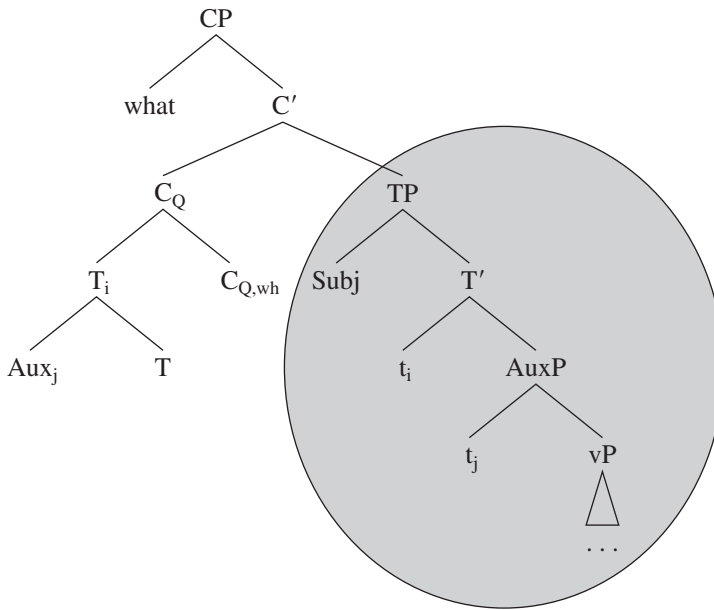
(8) *Prohibited X-stranding XP-ellipsis*

a. *VSVPE



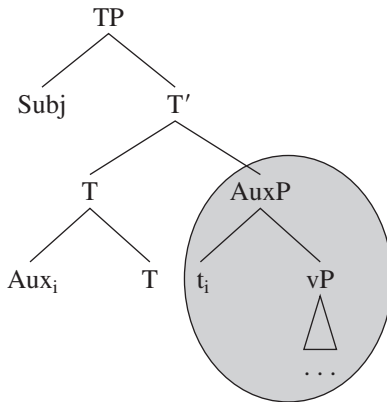
⁴ In VSVPE, the landing site of V may be Asp rather than T (Gribanova 2013); the derivation is still excluded. In polarity ellipsis, PolP may be elided under Foc (Holmberg 2016); the derivation is still excluded. The stranded head may be V or Aux, depending on which one has raised to T.

b. *Aux-stranding TP-ellipsis under C

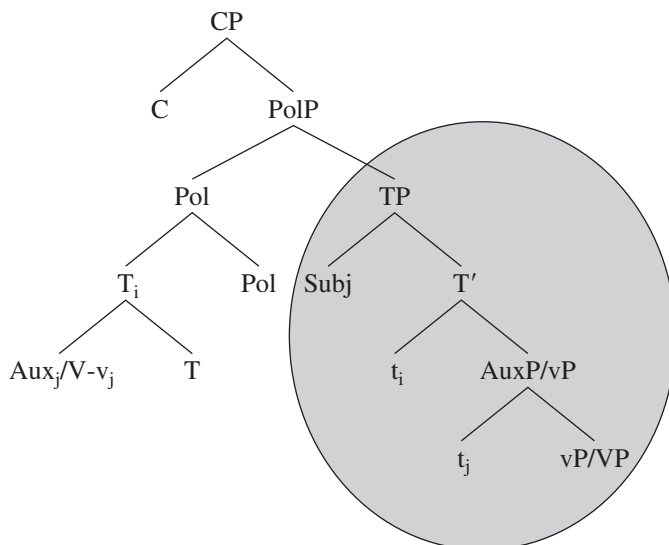


(9) Permitted X-stranding XP-ellipsis

a. Aux-stranding AuxP-ellipsis under T



b. V-stranding TP-ellipsis under Pol



The challenge is to isolate the grammatically relevant demarcation line between (8) and (9). The next section addresses this challenge.

2.1 Pronouncing Head Chains across a Spell-Out Domain

That phases, as the fundamental derivational units, are crucially implicated in ellipsis is a natural and appealing idea. The most straightforward way of implementing this idea is to state, quite simply, that ellipsis only targets phases—either the full phase or its complement, the Spell-Out domain.⁵ Appealing as it may be, this positive licensing idea faces considerable difficulties. A growing body of research on the crosslinguistic distribution of ellipsis has revealed that the licensing problem is far more intricate than initially suspected. In fact, it seems that any licensing theory of ellipsis must incorporate some irreducible, idiosyncratic parametric statements, amounting to a list of the functional heads (or even lexemes), in each language, that license ellipsis of their complements (the [E]-bearing heads, in Merchant’s (2001) influential framework).

Consider, for instance, the fact that VP-ellipsis (or TP-ellipsis) in French and Dutch occurs only under nonepistemic modals (Aelbrecht 2010); or the fact that VP-ellipsis in Capeverdean is licensed in polar questions but not in coordination, although in Portuguese it is licensed in both environments (Costa, Martins, and Pratas 2012); or the fact that NP-ellipsis is licensed under *each* but not under *every* in English. These and parallel distinctions inevitably motivate a degree of arbitrariness in ellipsis licensing that is not likely to be diminished by adding the “phase condition” on ellipsis targets. Furthermore, an attempt to pick out just the right targets for ellipsis

⁵ See Holmberg 2001, Gengel 2007, Van Craenenbroeck 2010, Gallego 2010, Baltin 2012, Rouveret 2012, Cheng 2013, Harwood 2013, Bošković 2014, Aelbrecht and Harwood 2015.

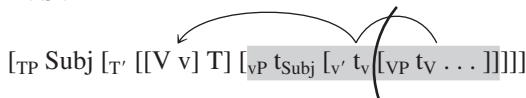
with the already fluid concept of “phase” risks circularity (often there are no independent criteria for establishing phasehood other than deletability).

Phasehood, then, does not seem to contribute to a *positive* licensing condition on ellipsis. However, it may still indirectly interact with a *negative* condition. In particular, it may well be that certain configurations resist ellipsis because of some grammatical condition that is keyed to phase boundaries. This is the intuition I would like to pursue below. This direction looks particularly promising for situations like (8)–(9), where ungrammaticality is not rooted in the *category* of the elided constituent. After all, VP-ellipsis and TP-ellipsis are both possible in principle (hence, satisfy whatever positive licensing conditions may be in place). Rather, it is the interaction of head movement with particular configurations of ellipsis that incurs the violation.

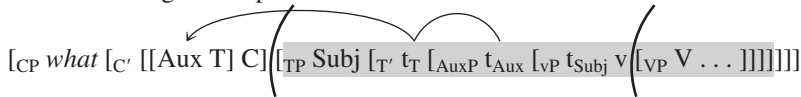
Let us return, then, to the structures in (8)–(9), now adding phasal information. In (10), shading marks the elided constituent and the arcs delineate Spell-Out domains. I adopt the most conventional assumptions regarding phases: the phase heads are *v* and *C* and their complements are Spell-Out domains.⁶

(10) *Prohibited X-stranding XP-ellipsis*

a. *VSVPE

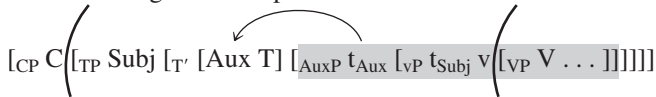


b. *Aux-stranding TP-ellipsis under C



(11) *Permitted X-stranding XP-ellipsis*

a. Aux-stranding AuxP-ellipsis under T



b. Aux-stranding TP-ellipsis under Pol



There is a structural distinction between the possible and the impossible cases of X-stranding XP-ellipsis that immediately stands out: in the ungrammatical cases (10a–b), V-movement crosses a Spell-Out domain, whereas in the grammatical cases (11a–b), it does not. Specifically, in (10a) V crosses the VP Spell-Out domain and in (10b) Aux crosses the TP Spell-Out domain.⁷ In

⁶ Illustrated in (11b) is Aux-stranding; V-to-T movement would result in V-stranding in Pol.

⁷ I assume that the edge (= C and Spec,CP) of the matrix clause is no different from the edge of any embedded clause in belonging to a different Spell-Out domain than its complement. Indeed, this should be the null hypothesis.

contrast, Aux-movement in (11a–b) begins and ends in the same Spell-Out domain: the complement of C (TP in (11a), PolP in (11b)). Note that in the VSVPE case I take V, rather than v, to be the substantive element to incur the violation (v-movement to T does not cross a Spell-Out domain, because the TP Spell-Out domain extends to the vP edge, including Spec,vP and v). The reasons for that decision will become clear in the next section.

This clear structural contrast holds the key to the constraint on the interaction between head movement and ellipsis. The constraint can be stated as follows:

(12) *Constraint on Head-Stranding Ellipsis (CHSE)*

If X-movement crosses a Spell-Out domain, XP cannot be the target of ellipsis.

It is important to see that the CHSE as such does not prevent X from crossing a Spell-Out domain whenever XP is deleted. It is only when XP is the *target* of ellipsis that such a combination is ruled out. Thus, a stranded [V-v-T-Pol] complex in polarity ellipsis has started its “derivational life” in a different Spell-Out domain (VP) from the one it ends up in (PolP). This is fine because VP is not the target of ellipsis—TP is. In contrast, in VSVPE the target of ellipsis, vP, is headed by [V-v], which crossed the VP Spell-Out domain en route to T. This violates the CHSE. In other words, there is an intimate link between being the head of an ellipsis target and being in the same Spell-Out domain as that target. Breaking that link is what causes trouble; the question is why.

Before we proceed to the explanation, let us note one further empirical consequence. The excluded derivation in (10a) has a simpler variant that should be just as impossible: V-to-v raising followed by VPE. This derivation should have been available for languages in which the lexical verb never leaves vP, such as English (Funakoshi 2012).

- (13) a. *John solved the problem, and Mary solved too.
 b. * $[_{TP} \text{Mary}_i \text{ T } [_{VP} [_{VP} \text{t}_i \text{ } [_{v'} \text{ solved}_j\text{-v } [_{VP} \text{t}_j \text{ the problem}]]]]]$ too].

One can rule out this derivation by brute force: for example, by stipulating that only vP, not VP, can be the target of VPE in English. This, however, seems particularly arbitrary in light of the different projections VPE may target in auxiliary constructions (Aelbrecht and Harwood 2015). In fact, I propose below that VP *is* the target of VPE in English; hence, excluding (13) is not that trivial. Even if vP is the target of ellipsis, it may be embedded under VoiceP (Aelbrecht 2010, Merchant 2013), in which case the question reemerges: why can the complex head [V-v-Voice] not be stranded after vP-ellipsis?⁸

With the CHSE at hand, however, the impossibility of (13a) falls together with all the other instances of impossible VSVPE discussed above (V-to-v movement crosses the VP Spell-Out

⁸ Discussing parallel Danish constructions, Gribanova and Mikkelsen (2018) rule out this derivation on morphological grounds. [V-v-Voice] amalgamation, they propose, occurs at PF by raising V to v and lowering Voice to v. vP-ellipsis thus eliminates all phonetic exponents of the verb. This account is less principled in that nothing guarantees this particular combination of morphological operations. Thus, if some language that employs vP-ellipsis were to amalgamate v with Voice by raising, either syntactically or at PF, that language should evidence VSVPE (more specifically, Voice-stranding vP-ellipsis). On the present account, such languages do not exist as a matter of principle.

domain). Therefore, this account contributes an important piece—often overlooked—to solving the puzzle of why English prohibits null objects.

Echoing Lasnik's original suggestion (3), the CHSE maintains that it is head movement that bleeds ellipsis (in the relevant ungrammatical cases) and not the other way around. In fact, the opposite direction, that ellipsis bleeds head movement, has had more currency in the past. The issue turns on whether head movement applies in the syntax or at PF; I return to it in section 4. Importantly, on the present account, the bleeding effect is not absolute but locally confined: only when crossing a Spell-Out domain does head movement block ellipsis. To understand why this should be so, we must be explicit about the mechanisms underlying ellipsis.⁹

2.2 PF-Visibility of [E]

As a general framework, I adopt the licensing theory of ellipsis pioneered in Merchant 2001, 2004 and later developed in Aelbrecht 2010. The operative component in that theory is the feature bundle [E], which instructs PF not to pronounce the elided constituent, introduces the presupposition that the semantic value of that constituent is e-GIVEN, and determines, by choice of a host functional head, which syntactic environments will allow ellipsis.

With Aelbrecht, I assume that the licensing head need not be a sister of the elided constituent; instead, the relation between the two is mediated by Agree (see Lasnik 1999a for an early version of nonlocal ellipsis). However, I depart from both Merchant and Aelbrecht in assuming that the licensing relation is established with the *head* of the elided constituent itself. The formal differences among the three implementations are displayed in (14); H is the licensing head and ZP the elided constituent, a complement of X.

(14) Licensing ellipsis: Three implementations

	Merchant 2001	Aelbrecht 2010	Present proposal
Syntactic configuration	$[_{XP} X_{[E]} [_{ZP} \dots Z \dots]]$	$H_{[F]} \dots X_{[E:uF]} [_{ZP} \dots Z \dots]$	$H_{[F]} \dots X [_{ZP} \dots Z_{[E:uF]} \dots]$
Licensing relation	X-ZP	H-X-ZP	H-Z

A number of technical as well as conceptual considerations motivate the changes in the present proposal.

As noted above, Aelbrecht's work (as well as subsequent studies) has established that the general licensing relation for ellipsis cannot be limited to sisterhood, as originally conceived by

⁹ Note that the CHSE covers only half of Merchant's (2001) Sluicing-Comp Generalization (SCG), which excludes *any* nonoperator material from the sluicing remnant (complementizers, particles, etc.), not just raised auxiliaries. Interestingly, Merchant himself kept the two subcases of the SCG apart, offering a bleeding account for the No-Aux-Raising-to-C part and leaving the No-External-Merge part unexplained. Recent evidence undermines the second part, thus supporting the distinction: sluicing remnants in Slovene may contain discourse particles along with the *wh*-phrase (Marušič et al. 2016).

Merchant. Given this result, it is no longer clear that the head *X* plays any substantive role in the syntax of ellipsis. Preserving it, Aelbrecht's analysis is effectively committed to the claim that ellipsis is a *ternary* relation among *H* (the licensing head), *X* (the "middleman"), and *ZP* (the elided constituent). Eliminating the middleman, we can simply take the licensing relation to hold directly between the licensing head *H* and *Z*, the head of the elided constituent.

This simplification also solves a technical problem in Aelbrecht's system. To handle the trivial case where $H = X$, Aelbrecht is forced to allow Agree to operate reflexively, between two features hosted on the same head. This unnatural extension of Agree (unattested otherwise) is avoided on the present proposal; the trivial case boils down to Agree (X, Z).¹⁰

As far as the lexical entry of [E] is concerned, a slight modification is all we need: [E] instructs PF not to spell out (or not to insert phonological features under) its *maximal projection*, rather than its sister. The e-GIVENNESS presupposition is introduced as before and projects from *Z* to *ZP*. I also keep to the derivational logic of Aelbrecht's analysis: as soon as *H* is introduced in the structure and Agree (H, Z) is established, [E] is activated and triggers ellipsis.

Locating the [E] feature on *Z*, the head of the elided constituent, instead of on its sister, leads one to expect a tight dependency between [E] and properties of *Z*. One area where such dependencies are expected is the selectivity in types of *ZP* that are eligible for ellipsis. Restrictions that encode this selectivity (ProgP must be elided but PerfP must not, finite TP can be elided but nonfinite TP cannot, etc.) could be, and have been, attributed to selectional requirements of the sister head *X*; but they can equally, if not more naturally, be expressed as properties of the *head* of the elided constituent, which is also the host of [E] under the present proposal.¹¹

Another respect in which the properties of *Z* are crucial is PF-visibility, a notion of broader significance in the grammar, as we will see. PF-visibility is required of processes that apply at PF, such as ellipsis. A feature that is not PF-visible cannot effect a PF process. Note that the very same regime regulates the LF interface: only LF-visible (i.e., semantically contentful) elements can participate in LF operations. Applying this logic to [E], we obtain the following condition:

(15) *PF-visibility of [E]*

The host of [E] must be PF-visible in its Spell-Out domain.

I will return momentarily to the proviso "in its Spell-Out domain." The immediate consequence of (15) is that the host of [E] must be an overt head, whether a word or a morpheme.¹² I suggest

¹⁰ In fact, Merchant (2001:60) proposes that the [E] feature responsible for sluicing originates on *T* and then moves to *C* to check the appropriate features ([Q,wh]), establishing a "head-head" relation. Thus, the "endocentric" approach to ellipsis, advocated here, is already implicit in Merchant's theory. Given that Agree does not require movement, [E] may stay in situ. Given that the licensor need not be the closest c-commanding head, the present proposal follows in full.

¹¹ For example, the restriction of AE to definite DPs in Persian (Rasekhi 2016) cannot be easily stated as a property of the governing verb, given that definiteness is not a selectional feature.

¹² As usual, statements about PF must identify the proper level of abstraction from actual phonetic expression that is relevant. In the case at hand, it seems that as long as the morphological paradigm to which *Z*'s features belong is not entirely null, *Z* counts as PF-visible. What I have in mind are sluiced TPs whose head does not contain any overt morpheme, but still contains features registered at PF, like [PRESENT,3PL] (e.g., *I know they live around here, but I forget where*).

that for this reason, VPE in English is triggered by an [E] feature on V, not on *v*. American English does not lexicalize the *v* head, so it cannot *directly* effect ellipsis of *vP*. Nonetheless, there is good evidence that *vP* is indeed the category elided by English VPE (Merchant 2013). Why? Quite simply, because the [E]-bearing head, V, raises to *v*. Once the licensing head, a finite T, is merged and the external argument is extracted, ellipsis applies to the constituent headed by the derived head [V-*v*], namely, *vP*.

With this in mind, we can return to (10a) and justify the claim that it falls under the CHSE. The [E]-bearing head is V, which indeed crosses a Spell-Out domain (VP) en route to T. The category targeted for ellipsis is the maximal projection of V, but given its derived position as a sister of *v*, this maximal projection is *vP*.

We are finally in a position to understand the rationale behind the CHSE. The crucial link between the PF-visibility condition for [E] (15) and the CHSE (12) is provided by the proviso “in its Spell-Out domain,” included in the former. This proviso reflects the cyclicity of Spell-Out. In particular, a domain shipped to PF Spell-Out is no longer accessible to further operations. Current literature varies greatly on the degree of inaccessibility assumed. Can semantic interpretation access spelled-out domains? Can syntactic operations do it? Aelbrecht (2010), for example, argues that Spell-Out in general, and ellipsis in particular, makes a domain inaccessible to syntactic operations. I will not take a stand on this matter, because for present purposes it is sufficient to make the minimal, hence least controversial assumption: a domain shipped to Spell-Out is no longer PF-visible. That is, if cyclic PF Spell-Out means anything, it should mean that the material inside the domain is not available for the next cyclic PF Spell-Out.

Consider what this implies for head movement that crosses a Spell-Out domain. Suppose that ZP is a Spell-Out domain of the phase head X and its head Z moves out of it, stopping either at X or at some head above it. Once X is merged, ZP is shipped to Spell-Out. This makes the trace of Z inaccessible to further PF operations; let us call it *PF-invisible*. In normal circumstances, no problem ensues. The PF-visible position of the head chain created by Z will be one of the positions outside ZP—usually the topmost one.¹³

Suppose, however, that Z carries the [E] feature. By (15), this feature must be PF-visible to trigger ellipsis. Given the above considerations, it can only be PF-visible on the head of the chain, namely, *outside* ZP. Thus, it cannot effect ellipsis of ZP, because ZP is no longer its maximal projection. Moreover, even if it carries a copy of [E] (assuming that traces are full copies), the trace of Z in the base position is no longer PF-visible.

¹³ See Bošković 2001 and Corver and Nunes 2007 for discussion of interesting “abnormal” scenarios that force PF to privilege a nontopmost copy in a chain. Normally, PF-visibility exhibits “coherence” across chain links, so that a *single* copy is targeted for all PF operations, for economy reasons. Exceptions, like doubling or “scattered deletion,” arise by virtue of specific Spell-Out requirements that override economy (e.g., prosodic support). In a parallel fashion, coherence effects are observed at the LF interface (Fox 1999, Lebeaux 2009), with exceptions arising from specific scopal requirements (e.g., negative/positive-polarity-item licensing).

The explanation of the CHSE, then, boils down to a “communication breakdown” between the head and foot of the chain created by the [E]-bearing head. At the point in the derivation when the maximal projection of this head is ZP, the licensor of ellipsis ($H_{[E]}$ in (14)) is not yet in the structure. At the point in the derivation when the licensor is introduced, the foot of Z’s chain is no longer PF-visible to effect ellipsis. We thus exclude, on principled grounds, cases (10a–b): VSVPE and Aux-stranding TP-ellipsis under C. In particular, this account predicts VSVPE to be unavailable in principle: the reason it is not attested in Chinese, Hebrew, Russian, Hindi, and Portuguese (Landau 2020) is not parochial to any of these languages but instead is rooted in deep design features of syntactic derivations and the syntax-PF interface.

Turning to the legitimate derivations (11a–b), Aux-stranding AuxP-ellipsis under T and Aux-stranding TP-ellipsis under Pol, we can see that the head that escapes ellipsis does not cross any Spell-Out domain on its way. This means that at the point when the licensor is merged (T for (11a) and Pol for (11b)), the foot trace of the Aux chain is still PF-visible to effect ellipsis of its maximal projection.

This concludes the explanation of how the grammar negotiates derivations that manifest X-stranding XP-ellipsis, and on what basis it decides which ones are legitimate and which ones are not. Naturally, one would like to see empirical effects of the key notion of PF-visibility (15) elsewhere, with other phenomena located at the syntax-PF interface. Such further effects will be presented in section 5.

Before we turn to the empirical discussion, let me stress that the analysis makes no absolute claims or predictions about the interaction of head movement and ellipsis. The two may happily cooccur as long as the CHSE is respected. One case that comes to mind is v-stranding VPE, a construction identified in Persian (Toosarvandani 2009), British English (Aelbrecht 2010, Baltin 2012), Welsh (Rouveret 2012), and Hindi (Manetta to appear). Consider an example from Welsh.

- (16) Prynodd Siôn y llyfr hwn a gwnaeth Mair ___ hefyd.
 bought Siôn the book this and did Mair too
 ‘Siôn bought this book and Mair did too.’
 (Rouveret 2012:916)

The VP consists of the verbal noun and its object, *prynodd y llyfr hwn* ‘bought this book’. It is the complement of *gwnaeth* ‘did’, which, according to Rouveret (2012), lexicalizes an eventive v head. This v licenses ellipsis of its VP complement and subsequently raises to the canonical clause-initial position of finite verbs in Welsh. Since the raised head never was part of the elided constituent, the CHSE is not applicable. Parallel remarks hold for this construction in the other languages. Note that on the present proposal, all of these languages, *including* American English, locate the [E] feature on the lexical V. The difference lies in the identity of the licensor head: T for American English, v for the v-stranding languages.

3 Genuine V-Stranding Ellipsis

In this section, I describe two varieties of V/Aux-stranding constructions that do involve head movement out of an ellipsis site. Establishing that such cases are real is vital in order to define

the explanatory challenge we face: rather than explaining why headless ellipsis is always excluded, we should explain why it is sometimes excluded and sometimes not.

Section 3.1 discusses the configuration in (11a), Aux-stranding VP-ellipsis in English. Section 3.2 turns to the configuration in (11b), Aux/V-stranding TP-ellipsis in polarity contexts, exemplified in Irish, Finnish, and Hungarian. The CHSE (12) correctly allows both types.

3.1 AuxP-Ellipsis under T: English

The interaction of VPE and the auxiliary system of English produces an intricate set of data that has received much attention (Warner 1993, Lasnik 1995, 1997, Potsdam 1997, Roberts 1998). A comprehensive treatment of the facts is laid out in Thoms 2015, whose discussion I follow below.

Consider the following representative cases, which illustrate the range of permissible and impermissible mismatches between the verbal heads of the antecedent VP and the elided one.

- (17) a. John has [**fixed** the car] but now Mary has to [**fix** the car].
 b. I didn't [**steal** the cake], although I could have [**stolen** the cake].
 c. John may **be** lying to us but Mary might not [**be** lying to us].
 d. He might [**be** rude to the guests]; I know he has [**been** rude to the guests] in the past.
 e. John is [**being** examined], and Jack really should [**be** examined] also.
 f. Bill was_i [**was**_i [winning medals]] much before you were_i [_α **were**_i [_β winning medals]].
 g. He has_i [**has**_i [left school]] after she had_i [_α **had**_i [_β left school]].
 h. Mary might [**be** [home now]] as John surely is_i [_α **is**_i [_β home now]].
 i. John could [**have** [been more helpful]]; I know his sister has_i [_α **has**_i [_β been more helpful]].
 j. *John was_i [**was**_i fired], and Mary will [**be** fired] too.
 k. *Chris has_i [**has**_i been to Rome], and his wife might [**have** been to Rome] as well.

Let us call the verbal heads of the antecedent and the elided VPs V_A and V_E , respectively. (17a–b) show that although stem identity is required for lexical verbs, inflectional morphology (expressing tense, aspect, and agreement) may differ between V_A and V_E . (17c) shows that ellipsis may target an AuxP (specifically, ProgP; whether PerfP can be elided is debatable (see Aelbrecht and Harwood 2015 for discussion)). Similarly to lexical verbs, an auxiliary V_A and an auxiliary V_E may differ inflectionally when both are *unmoved*, as in (17d–e), or when both are *moved*, as in (17f–g). Similarly, an *unmoved* auxiliary V_A can successfully antecede a trace that is bound by an inflectionally distinct auxiliary (17h–i).

The one outstanding exception to the general tolerance for inflectional mismatch appears with a *moved*, inflected auxiliary V_A that antecedes an *unmoved*, uninflected auxiliary V_E ; this mismatch is not possible (17j–k).

Quite reasonably, Thoms (2015) argues that no simple identity condition on V_A and V_E can derive this complex array of facts, and specifically the asymmetric nature of the tolerable mismatches with auxiliary verbs. More striking mismatches that Thoms cites from VPE in Scottish

Gaelic (where V_A is an auxiliary trace and V_E is a lexical trace) cast further doubt on this direction. Instead, Thoms proposes a general constraint on ellipsis to the effect that a variable (like the trace of verb movement) cannot provide an antecedent for a nonvariable (like an unmoved verb). This constraint, in turn, is derived from the idea that accommodated antecedents may not be more complex than the actual syntactic antecedent (with variables being the least complex entities).¹⁴

The significance of these data to the present discussion is twofold. First, they indicate that the Verb Identity Requirement (Goldberg 2005:171) is deeply problematic even before we turn to falsifying data involving lexical verbs (see footnote 21), that is, even when we carefully examine just the English Aux-stranding VPE data. Second, they suggest that the X-stranding XP-ellipsis configuration in (11a) is a real grammatical possibility, which cannot be excluded in principle.

To see why, consider (17f–i) again. In these cases, ellipsis targets the category labeled α , which is an AuxP—either PerfP or ProgP. Crucially, the head of that AuxP has escaped ellipsis by prior raising to T. Note that the same category undergoes ellipsis *with* its auxiliary head in (17c), so there is no reason to assume a different derivation for (17f–i) (indeed, Thoms (2015) assumes AuxP-ellipsis throughout). However, one might suggest that what is elided in (17f–i) is a smaller projection, the one labeled β , which excludes the base position of Aux; for cases like (17h), this would involve bare predicate ellipsis (as suggested in Merchant 2015). On this analysis, the English data would not instantiate (11a).

However, Aux-excluding ellipsis cannot provide a fully general account for English, even when restricted to target clauses in which Aux-to-T movement has applied. The argument rests on the observation that whenever present, a progressive form *being* must be elided (Akmajian and Wasow 1975, Sag 1976). Aelbrecht and Harwood (2015) take this fact to indicate that VPE in English minimally targets the AuxP associated with the progressive vP (when present), reflecting its status as a phase.

- (18) a. Ted was being noisy, and Robin was (*being) too.
 b. Ted was being arrested at that time, and Barney was (*being) too.

Given this minimal bound on VPE, any stranded progressive auxiliary must have escaped the elided vP_{prog} —otherwise, it would have been captured and deleted with it as it is in (18). The target clauses in (19), then, must be derived as in (20).¹⁵

¹⁴ It is questionable whether the generalization holds for A-movement and \bar{A} -movement out of ellipsis sites, though. Merchant (2018) cites VPE under voice mismatch, where an A-trace antecedes a full DP, and sluicing examples, where a trace antecedes an unbound pronoun.

¹⁵ For reasons that need not concern us here, Aelbrecht and Harwood (2015) adopt a paired-layering analysis of aspectual projections: a low layer where the aspectual interpretation resides (Prog or Perf) and a high one where the appropriate auxiliary (*be* or *have*) is merged. I follow this configuration in (20); importantly, even on a single-layering approach (e.g., Bjorkman 2011), the combination of (18) and (19) forces the conclusion that be_{prog} undergoes Aux-stranding AuxP-ellipsis. See Thoms 2010 for the claim that *all* ellipsis targets are remnants (since it is extraction out of them that licenses the ellipsis).

- (19) a. Julie is working hard lately and Susan is too.
 b. Julie must be working hard lately and Susan must be too.
 c. Julie has been working hard lately and Susan has been too.
- (20) a. [_{TP} Susan [_{T'} is_j-T [_{vP}(prog) t_j [_{ProgP} Prog [_{vP} VP]]]]]
 b. [_{TP} Susan [_{T'} must_i-T [_{ModP} t_i [_{InfP} be_j-Inf [_{vP}(prog) t_j [_{ProgP} Prog [_{vP} VP]]]]]]]
 c. [_{TP} Susan [_{T'} has_i-T [_{vP}(perf) t_i [_{PerfP} been_j-Perf [_{vP}(prog) t_j [_{ProgP} Prog [_{vP} VP]]]]]]]

A similar argument cannot be made for the perfect auxiliary *have*, which, according to Aelbrecht and Harwood, always originates outside the VPE site. However, the auxiliary *be* is involved in another context of Aux-stranding AuxP-ellipsis, namely, expletive constructions.

- (21) a. One moment there were squirrels outside my window, and the next moment there weren't ____.
 b. . . . [_{TP} there [_{T'} were_i-T [_{NegP} not [_{AuxP} t_i [_{SC} squirrels outside my window]]]]]
 c. A: Yesterday, I saw squirrels outside my window.
 B: *I saw [_{SC} squirrels outside my window] too.

Examples like (21a) are frequently cited to illustrate the syntactic activity of elided material, that is, its ability to trigger agreement on the stranded auxiliary. But they are also revealing in another sense. English has no productive process of AE or small clause ellipsis, as seen in the ungrammatical (21c). Therefore, the elided category in (21b) must be the AuxP projection from which the verb *be* has raised to T. This would make it a normal case of VPE in English.¹⁶

The bottom line is that genuine Aux-stranding AuxP-ellipsis exists—hence, X-stranding XP-ellipsis is possible. Unlike VSVPE, which does not seem to be a true option in the grammar, nothing in principle bans Aux-stranding AuxP-ellipsis. This contrast is explained by the present analysis (see (10a) vs. (11a)).

3.2 TP-Ellipsis under Pol: Finnish, Irish, and Hungarian

On the basis of extensive typological work, Holmberg (2016:69) estimates that roughly half of the world's languages use *verb-echo answers*—that is, bare verbs optionally accompanied by a polarity particle—in response to polar questions. However, the structure of such verbal answers has been closely studied in only a handful of languages. The following is a representative sample of some languages where ellipsis has been a key ingredient in the analysis.¹⁷

¹⁶ A less obvious case of AuxP-ellipsis under T may involve possessive *have* in British English (*I haven't a dependable friend. Have you?*). Assuming Kayne's (1993) influential analysis, possessive *have* is constructed from an underlying P incorporated into a copular BE. It is the latter's projection, then, that is elided following *have*-raising to T. Indeed, this compositional analysis must be favored over the lexical analysis of *have*, which implies a VSVPE derivation, against (8a). I thank an anonymous reviewer for pointing out this implication.

¹⁷ For studies of other languages, see Yaisomanang 2012 (Thai), Martins 2016 (Portuguese), Villa-García 2016 (Spanish), and Gribanova 2017 (Russian).

In Finnish, answers to polarity questions can consist of the finite verb only. In case the finite verb is an auxiliary, a modal, or a restructuring verb, it may be followed by the same sequence of nonfinite verbs that appears in the question (Holmberg 2001, 2016).

- (22) A: Osaako Liisa puhua ranskaa?
 can-Q Liisa speak French
 ‘Can Liisa speak French?’
 B: Osa (puhua).
 can speak
 ‘Yes, she can.’
 (Holmberg 2001:150)

Concentrating on the bare-Aux answer first, Holmberg (2016) proposes that these replies are full sentential structures, in which V raises through T to Pol and finally to a Foc head above PolP. Ellipsis applies to the entire PolP, whose specifier hosts the subject. In simpler implementations, V raises through T to Pol and the TP complement of Pol is then elided (Martins 2016, Gribanova 2017). Since on both variants the elided category is at least as big as TP, I will refer to both with the cover term *V-stranding TP-ellipsis*. The differences between these two versions will turn out not to matter for our purposes.

For Aux-V replies, Holmberg assumes that Aux raises to Foc as before, and V undergoes short head movement to an Asp head above vP. vP-ellipsis ensues, crucially capturing the in-situ vP-internal subject, leaving only the two verbal heads as remnants. Exactly why a lexical subject escapes the vP in the polar question but cannot escape the vP in the verbal response (yielding an ungrammatical *Aux-Subj-V utterance) is a puzzle Holmberg leaves unsolved. Since the analysis of these variants is less clear, I focus on the bare-V constructions, which lend themselves to a V-stranding TP-ellipsis treatment. Finally, although Holmberg (2016:58) claims that verb-echo answers in Finnish observe the Verb Identity Requirement, Gribanova (2018:3n2) cites a grammatical question-answer pair with different verbs (antonyms) in the antecedent and the target clause.

One of the first declared cases of V-stranding ellipsis came from Irish (McCloskey 1991). In the context of arguing for VSO order as resulting from V-to-T movement past the VP-internal subject, McCloskey discussed examples of the following sort, in which all arguments and VP-internal material must be missing in the response (later dubbed *responsive ellipsis*).

- (23) A: Ar chuir tú isteach ar an phost?
 INTERR.PAST put.PAST you in on the job
 ‘Did you apply for the job?’
 B: Chuir.
 put.PAST
 ‘Yes.’
 (McCloskey 2011:ex. (48))

McCloskey initially analyzed these bare verbal responses as VSVPE. However, subsequent work on subject positions in Irish (McCloskey 1996) has made it clear that the subject in such cases

does raise outside VP; hence, ellipsis must target a larger phrase (McCloskey 2005, 2011). The analysis developed in McCloskey 2012, 2017 converges on V-stranding TP-ellipsis. McCloskey also points out that the Verb Identity Requirement is observed in Irish without exceptions.

Finally, V-stranding TP-ellipsis is attested in Hungarian too (Lipták 2012, 2013, 2019). When a verbal modifier (VM) occurs in the antecedent, the verbal response may consist of VM alone or VM and the verb (24a). As in Finnish, the finite verb can be stranded along with a series of infinitival verbs (a “verbal complex”), corresponding to the heads in the complementation structure of the antecedent (24b).

- (24) a. A: Meg hívta János a szomszédokat?
 VM invited János the neighbors
 ‘Did János invite the neighbors?’
 B: Meg (hívta).
 VM invited
 ‘He did.’
- b. A: Bea nem fogja akarni fel hívni a szüleit.
 Bea not FUT.3SG want.INF PV invite.INF the parent.POSS.3SG.PL.ACC
 ‘Bea will not want to call her parents.’
 B: De, fel fogja (akarni (hívni)).
 DE PV FUT.3SG want.INF invite.INF
 ‘That’s not right, she will.’

Lipták (2012) analyzed V-stranding ellipsis as TP-ellipsis, following V-to-T-to-Pol raising. However, on the basis of cases like (24b), Lipták (2013, 2019) proposes instead a VSVPE analysis, where VPE freely applies to VPs of different sizes, licensed at a distance from a peripheral Pol head (for a similar proposal, see Martins 2016). (24a) is analyzed as ellipsis of the entire PolP phrase (from which VM has been evacuated); this accounts for the fact that a VM-stranding response cannot reverse the polarity of the question (given that Pol and its value are included in the parallelism domain).

A problem with the VSVPE analysis is the obligatory absence of the subject—at least for the majority of Hungarian speakers.¹⁸ This can only be guaranteed by preventing the subject from evacuating VP prior to VPE (thus undergoing elision with the rest of the VP). However, given

¹⁸ According to Lipták (2013), a minority (roughly 20%) of Hungarian speakers allow the subject to be present in neutral (nonpolar) object gap sentences.

- (i) %János meg evett egy banánt. Mary is meg evett ____.
 János VM ate a banana Mary also VM ate
 ‘János ate a banana. Mary also did.’

Lipták takes this to be a case of VSVPE as originally proposed for Portuguese, licensed by T (and not Pol). While the licensing part may be correct, these sentences may well involve AE rather than VSVPE. Short of careful testing that can tease apart these two options (see Landau 2020), the VSVPE analysis is not favored (Lipták rules out the *pro* analysis but not the AE one). Alternatively, (i) could involve a V-stranding TP-ellipsis derivation in which the subject has moved to Spec,PolP (as VM does when stranded, according to Lipták) or above it, an option to be microparameterized.

that such subject raising is commonplace in VPE constructions crosslinguistically—indeed, even within Hungarian it is found in Aux-stranding VPE—it is a mystery why it may not occur under VSVPE. An alternative account, along the lines of Finnish and Irish, is to take the correlated absence of the subject and all other VP material (except the verb) as straightforward evidence for TP-ellipsis. The possibility of stranding a verbal sequence can be accommodated by remnant VP-movement to a TopP projection above TP, as Holmberg (2001) originally proposed for Finnish.

As to verb identity, it is defeasible as in all other languages (except Irish and possibly Scottish Gaelic; Thoms 2016b). Lipták (2019) shows that even synonymous but distinct verbs are allowed when a polarity particle (*yes* or *no*) is included in the response.¹⁹

4 Limitations of Existing Approaches

In this section, I discuss currently popular approaches to the interaction of head movement and ellipsis and demonstrate that they all fall short of accounting for the observed distribution of head-stranding ellipsis as summarized in (8)–(9).

One can discern two strands of theorizing on the interaction of head movement and ellipsis. The first strand, call it the *trace-asymmetry strand*, focuses on cases where the elided category is headed by a lexical head but its antecedent is headed by a verbal trace; this configuration yields ungrammaticality under certain circumstances. The second strand, call it the *PF bleeding strand*, focuses on cases where an otherwise expected head movement fails to occur because the base position of the head is contained in an ellipsis site; the result is grammatical without head movement and ungrammatical with it.

The trace-asymmetry strand is primarily concerned with capturing the pattern of AuxP-ellipsis under T in English (see section 3.1) in ways that capitalize on the asymmetry between the head positions of the elided category and its antecedent (Warner 1993, Lasnik 1995, 1997, Potsdam 1997, Roberts 1998, Merchant 2015, Thoms 2015). On this approach, (25) is ungrammatical because a verbal trace cannot be the antecedent of an elided verb (Potsdam, Roberts) (unless the latter is an identical verbal trace, for Potsdam); or because auxiliary verbs are inserted fully inflected and ellipsis requires strict inflectional identity (Lasnik); or because a variable (like a verbal trace) cannot provide an antecedent for a nonvariable (Thoms).

(25) *John was; [**was**; here], and Mary will [**be here**] too.

¹⁹ Hebrew also employs ellipsis of a clausal constituent from which the verb has raised, not only in polarity contexts but also in “triggered inversion” contexts, that is, XP-V-S-O sequences. As observed by Doron (1999), verb identity is not required. Note that the antecedent clause may but need not involve inversion—a fact of interest to discussions on the status of variables in parallelism considerations.

- (i) be-yemey šabat ha-hanhala mašbita / mašbita ha-hanhala et tnu’at ha-rakavot,
 in-days Saturday the-management shuts.down / shuts.down the-management ACC traffic the-trains
 u-vi-yemey rišon mexadešet ____.
 and-in-days Sunday renews
 ‘On Saturdays the management shuts down the operation of trains and on Sundays they open it.’

Given that Hebrew bans subject *pro*-drop in present tense, the second conjunct must involve ellipsis.

While these different proposals offer genuine insights into the restrictions on AuxP-ellipsis under T, they cannot provide an answer to our central problem: What rules out VSVPE? The problem is fundamental. If my proposal in Landau 2020 is correct, VSVPE is not a possible derivation, *regardless* of matching considerations. Even when both the antecedent head and the elided head are traces of identical verbs (both are variables), VSVPE fails. It fails *before* parallelism constraints are consulted. In that respect, the challenge of explaining the failure of VSVPE is quite unlike the challenge of explaining what deviations from strict identity are permitted and what deviations are not in AuxP-ellipsis under T.

Consider next the PF bleeding strand. On this approach, the incompatibility of head movement (or certain kinds of it) and ellipsis reflects a bleeding relation: ellipsis is said to remove the feature that normally triggers certain types of head movement. While this was originally conceived as a syntax-PF interaction (Lasnik 1999a,b, 2001, Merchant 2001, Van Craenenbroeck and Lipták 2008), the growing consensus on the PF deletion account of ellipsis implied that the entire interaction is internal to PF. Specifically, it has been proposed that head movement applies at PF after ellipsis does, so that the latter destroys the structural context needed for the former: having been deleted with its maximal projection XP, the head X can no longer move (Boeckx and Stjepanović 2001, Hein 2018). A related proposal (Messick and Thoms 2016) assumes that ellipsis bleeds any movement that is “motivated by PF conditions.” A centerpiece argument in favor of the PF view of head movement out of ellipsis sites is the alleged Verb Identity Requirement: unlike syntactic movement, which generated traces accessible to rebinding by a new antecedent in the ellipsis clause, PF movement does not yield any syntactic variable. As far as LF is concerned, then, it is as if PF movement never applied, and the extracted verb is expected to fully reconstruct, ruling out any mismatch with the antecedent verb.

This line of thought, however, fails to provide a coherent account for the empirical pattern in (8)–(9). If ellipsis bleeds head movement in matrix sluicing (by removing a PF-offending feature), why does it permit head movement in AuxP-ellipsis or polarity ellipsis?

A different but no less fundamental issue concerns the nature of head movement. In fact, head movement has demonstrable scope effects (Lechner 2006, 2017, Iatridou and Zeijlstra 2013, Keine and Bhatt 2016, Sato and Maeda 2017), which require it to occur at least early enough to feed LF—hence, not at PF. It is also well-known that T-to-C movement alters the licensing environment for positive and negative polarity items.

- (26) a. Someone isn't listening to me.
 b. *Isn't someone listening to me?
 c. *Why did anyone not help her?
 d. Why didn't anyone help her?

Similarly, a modal preceding a frequency adverb can take scope below it, indicating reconstruction to a lower position (Lechner 2006). However, once it has undergone T-to-C movement, it must take wider scope (explaining the oddity of (27b)).

- (27) a. He can always be wrong.
 [always >> ◇]

b. Can he always be wrong?

[◇ >> *always*]

Such facts are particularly challenging for the claim that ellipsis bleeds T-to-C movement. For this to be possible, it is not enough for T-to-C movement to be “motivated by a PF condition”; it must *occur* at PF. If T-to-C movement is syntactic, a PF operation like ellipsis simply cannot bleed it—applying, as it were, too late. On the other hand, if T-to-C movement does apply at PF, it should leave no mark on interpretation or LF licensing, contrary to the evidence in (26)–(27) and in the cited works.²⁰

The second pillar on which the PF view of head movement rests—the Verb Identity Requirement—is by now seriously undermined. Despite initial claims to the contrary, V-stranding ellipsis constructions allow mismatch between the antecedent and the target verbs if they form a natural contrast; this is true for both clausal (polarity) ellipsis and subclausal ellipsis (allegedly targeting VP, but in fact an instance of argument ellipsis).²¹ In fact, Irish is the only language left in which the Verb Identity Requirement *unquestionably* holds without exception. While further investigation is needed to uncover the roots of this language-particular constraint, no far-reaching conclusions about the nature of head movement are warranted.²²

A syntactic version of the bleeding account has been defended by Sailor (2018). Following Aelbrecht’s (2010) derivational account of ellipsis licensing, Sailor assumes that once ellipsis is triggered, the material inside the elided constituent becomes syntactically inaccessible. Thus, if the trigger for V-raising is merged *after* the licenser of ellipsis, the verb will be “trapped” inside the elided constituent, giving rise to the bleeding scenario. Indeed, this situation arises in Mainland Scandinavian languages, as Sailor shows. In these languages, as in English, T licenses VP-ellipsis and V-to-C movement applies in verb-second clauses, but there is no independent V-to-T movement. Thus, the trigger for V-raising (matrix C) is merged after the trigger for ellipsis (T). Predictably, VSVPE is not attested. Sailor uses this argument to counter Lipták and Saab’s (2014) explicit claim that X-raising and XP-ellipsis are jointly sufficient for X-stranding XP-ellipsis in any given language.

²⁰ In fact, it is not clear that Messick and Thoms’s (2016) proposal for the PF interaction of T-to-C movement and sluicing is consistent with their (well-supported) claim, following Hartman 2011, that T-to-C movement creates operator-variable chains that affect the LF parallelism condition on ellipsis. Recent skepticism toward the scope effects of head movement (Hall 2015, McCloskey 2016) does not cover the entire range of evidence, and has been addressed by Lechner (2017), who offers still more arguments that head movement is semantically active. In section 5.1, I discuss how V-raising can sometimes create a “headless” VP, which is subsequently fronted. This feeding relation requires head movement to be syntactic too.

²¹ Verbal mismatch is documented in many languages, among them Serbo-Croatian (Lasnik 1997), Swahili (Ngonyani 1998), Hebrew (Doron 1999, Landau 2018), Portuguese (Santos 2009), Malayalam, Bangla, and Hindi (Simpson, Choudhury, and Menon 2013), Scottish Gaelic (Thoms 2015), Russian (Gribanova 2017), Finnish (Gribanova 2018), Greek (Merchant 2018), and Hungarian (Lipták 2019).

²² Expanding on Harizanov and Gribanova 2019, Gribanova (2017) develops a dual theory: *syntactic* head movement is nonlocal, leaves a variable, has interpretive effects, and licenses verbal mismatch in ellipsis; *phonological* head movement is local, leaves no variable, has no interpretive effects, and forces verbal matching in ellipsis. As the two can be combined in the same derivation (e.g., in Russian), intricate conditions must guarantee that all the different pieces of the head (root, Asp, T, Pol) are pronounced as a unit. It is not entirely clear to me what the crosslinguistic predictions of this dual analysis are, so I will not try to compare it with the present proposal.

While I share Sailor's (2018) view that head movement is syntactic, and his modification may well be necessary, it cannot explain the facts under discussion. The reason is that in case the ellipsis licensor and the head attractor happen to be one and the same head, Sailor's analysis predicts that head-stranding ellipsis will be grammatical (presumably, operations triggered by the same head are not ordered). In languages like Hebrew, Portuguese, and Russian, this rules VSVPE in, the relevant head being T or Asp. However, if such a construction does not in fact exist in these languages (Landau 2020), Sailor's system overgenerates. There is still a missing constraint: even when XP-ellipsis exists, X-raising exists, and the attractor of X is not merged after the licensor of XP-ellipsis is, X-stranding XP-ellipsis may still be impossible.

It is fair to say that the split between admissible and inadmissible configurations of head-stranding ellipsis in the grammar goes beyond the explanatory reach of existing proposals. The lacuna is filled by the CHSE, proposed in section 2.

(28) *Constraint on Head-Stranding Ellipsis (CHSE)*

If X-movement crosses a Spell-Out domain, XP cannot be the target of ellipsis.

Together with the cyclic notion of PF-visibility (29) and a head-based theory of ellipsis licensing (dispensing with the sisterhood relation), this constraint correctly predicts where head-stranding ellipsis will be possible and where it will not.

(29) *PF-visibility of [E]*

The host of [E] must be PF-visible in its Spell-Out domain.

Obviously, the credibility of (29) will increase in proportion to the range of other facts it can successfully explain. In the next section, I explore two other empirical domains in which head-based PF-visibility is critically important.

5 Headless Ellipsis Meets Headless Copies and Fragments

It is tempting to relate the "No headless ellipsis" (partial) generalization to two other generalizations: "No headless movement" (first formulated in Takano 2000)²³ and "No headless reprise fragments" (Griffiths, Güneş, and Lipták 2018). In this section, I discuss these in turn.

5.1 Restricting Headless Movement

The PF-visibility condition (29) implies that what goes wrong with certain head-stranding ellipsis derivations is the fact that XP is "headless" in the relevant sense. Recall that this was the intuition behind Lasnik's (1999b) generalization (3); Lasnik discarded it in the face of VSVPE, but we now have removed this objection (assuming VSVPE does not exist). Permitted instances of X-stranding XP-ellipsis exploit the "visibility window" afforded within a given Spell-Out domain.

²³ Indeed, Funakoshi (2012) is explicitly concerned with unifying the constraints on headless ellipsis and headless movement. While I think the project is well worth pursuing, Funakoshi's argumentation is problematic, for reasons to be discussed below. I also return to the challenge of apparent instances of headless movement.

Consider the three examples of illicit headless movement in (30). In English (30a), a VP-shell cannot be fronted after its head has undergone V-to-v movement (Jackendoff 1990). In French (30b), an NP introduced by a numeral cannot undergo A-movement after its nominal head has cliticized to [v-T]. And in Scottish Gaelic (30c), a vP cannot be fronted after V-to-T-to-Fin movement. Importantly, movement of the *headed* constituents (i.e., the constituents when their head stays in situ) is possible in all these constructions.²⁴

- (30) a. * $[_{VP}$ The book t_i to Mary] $_j$, John gave $_{i-v}$ t_j .
- b. * $[_{NP}$ Trois t_i] $_j$ en $_i$ ont été publiés t_j .
 three of.them have been published
 ('Three of them have been published.')
- (Boivin 2005:544)
- c. *S ann $[_{VP/vP}$ t_i leabharaichean bho Fheargais] $_j$ a fhuair $_i$
 COP.PRES EXPL books from Fergus.DAT COMP get.PST.IND
 Se'onag t_j .
 Se'onag
 ('What Se'onag did was get books from Fergus.')
- (Thoms 2014:2)

Let us compare, side by side, the violations of headless ellipsis and headless movement (we will return below to legitimate instantiations of these processes).

- (31) a. *Headless ellipsis*
 $[_{YP} (ZP) [_Y' [_Y X_i Y] [_{XP} t_i [_{WP} \dots]]]]$
- b. *Headless movement*
 $[[[_{XP} t_i [_{WP} \dots]]]_j \dots [_{YP} [_Y X_i Y] [_{XP} t_i [_{WP} \dots]]]]$

To unify these cases, Funakoshi (2012) adopts Johnson's (2001) proposal that VPE reduces to VP-fronting, followed by "topic-drop" of the fronted VP. VP-fronting, in turn, is blocked if V raised out of VP by adjunction to the next higher head (e.g., T). The reason is that this raised V counts as equally local to the probe (say, a Top head), thus intervening for VP-fronting. V, already part of the [V-T] complex head, cannot be fronted itself, however, due to the ban on excorporation. The result is ungrammaticality.

This analysis is problematic in a number of respects. The very reduction of VPE to VP-fronting is questionable, as their distribution is quite different (Aelbrecht and Haegeman 2012).

²⁴ Takano's (2000) original English example used clefting, but as Funakoshi (2012) observes, even headed VPs resist clefting in English. In Scottish Gaelic, however, in periphrastic verbal constructions the auxiliary satisfies the verb-first requirement and the headed vP can be clefted (McCloskey (2011) presents a similar contrast with TP-fronting in Irish). The French examples were discussed early on (see Ruwet 1972, Kayne 1975, Rizzi 1990). The basic challenge was to account for the contrast between partitive *en*-cliticization, which produces a frontable remnant, and quantitative *en*-cliticization, which produces ungrammaticality under remnant fronting, as in (30b). I follow the standard assumption that the former clitic is a complement but the latter is the nominal head. Note that the numeral, which could be phrasal, occupies a specifier position.

In any event, the reduction has never been seriously substantiated for non-VP cases (e.g., NP-ellipsis), which we would also like to fall under the unification. Further aspects of Funakoshi's proposal, especially the hypothetical distinction between head substitution and head adjunction, along with its crosslinguistic consequences, are critiqued in Vicente 2015.

Instead, let us pursue the idea expressed in the PF-visibility condition for [E] (29), now abstracting away from the differences between ellipsis and movement and focusing on their shared core. This core, as Chomsky (1995:253) points out, seems to be the instruction to PF not to pronounce a certain constituent—an ellipsis site, or a nontopmost copy in a chain. Let us call this feature [S↑], where “S” stands for silence and “↑” indicates that the instruction applies to the maximal projection of the host head.

(32) *Silencing at PF*

- a. $X_{[S\uparrow]}$ is visible at PF \rightarrow XP is unpronounced
- b. XP is elided $\rightarrow X_{[S\uparrow]}$
- c. XP is a nontopmost chain copy $\rightarrow X_{[S\uparrow]}$

(32b) is just the silencing instruction of ellipsis, factored out of Merchant's [E] feature. (32c) is just the silencing instruction for (normally) nontopmost chain copies, needed on any theory that negotiates chains at the syntax-PF interface.²⁵ Together with (32a), this system embodies the claim that ellipsis and chain reduction recruit the very same elementary PF silencing operation. And precisely because this operation is subject to PF-visibility—the head responsible for silencing must itself be visible to PF in order for [S↑] to be detected—both processes display “headless” effects. Thus, the desired unification of (31a) and (31b) is achieved.²⁶

The idea that copy deletion and ellipsis recruit the same PF operation is not only conceptually appealing, but also empirically advantageous. It is an old observation that both movement and ellipsis gaps block contraction of a preceding auxiliary (King 1970). The two contexts are unified if silencing by [S↑] produces a prosodic boundary, an obstacle to proclisis of the contracted auxiliary (Wilder 1997).

- (33) a. Bill's proud of his daughter, Mary is/*'s ___ of her son.
 b. How proud do you think Mary is/*'s ___ of her son?

Furthermore, as Bošković (2011) argues convincingly, the familiar rescue-by-PF-deletion effect that ellipsis has on island violations (Ross 1969, Merchant 2001, Fox and Lasnik 2003) can be

²⁵ For head chains, [S↑] would have to be replaced with [S], that is, a nonprojecting silencing instruction. The distinction between head and phrasal movement is independently needed and so this choice would have to follow from it.

²⁶ Note that this unification, if successful, would indirectly support eliminating the sisterhood relation from the licensing of ellipsis (see (14)): deletion of copies in an XP chain is not triggered by the sister head of XP (which may not even have a sister head—for example, when XP is a specifier or adjunct), so it should not be so triggered in ellipsis, being one and the same deletion operation.

fruitfully extended to cases where traces of movement or null arguments fail to trigger Relativized Minimality effects. Bošković proposes that the “violation mark” is operative at PF, so that removing it removes the violation. The fact that both traces and ellipsis sites have the same rescuing effect supports the idea that they involve the same silencing instruction at PF.

This account throws new light on a broad range of cases that I have termed *EPP extensions*. In Landau 2007, I develop a view of a generalized EPP as “selection at PF”: a head-head relation that requires PF-visibility in certain specifier positions (usually, Spec,TP or Spec,TopP). Interestingly, the requirement is imposed on the *head* of the specifier, with the result that headless phrases, which nonetheless contain overt material, fail to meet it. Under this conception, it is possible to unify constraints against complementizerless subject clauses, constraints against bare noun subjects (i.e., with a null D) in Romance languages, freezing effects with applied objects, and the curious requirement that initial adjuncts be introduced by an otherwise optional preposition (so-called bare-NP adverbs), as in (34) (see Landau 2007 for further crosslinguistic evidence and some nuances).

- (34) a. They slept (for) an hour and then went to work.
 b. *(For) an hour, they slept, and then went to work.
 c. She has lived (in) few places with so much sunlight.
 d. *(In) few places with so much sunlight has she lived.

The crucial factor that unifies all these impossible constructions, I claimed, was the inability of a headless constituent to satisfy an EPP requirement imposed in the *target* position. The present proposal, however, suggests a different perspective: headless phrases cannot move not because their top copy incurs a violation in the target position, but because their foot copy incurs a violation in the *base* position. That is, the silencing instruction cannot be executed on the foot copy, as its head is not PF-visible.

Finally, I would like to address exceptions to Takano’s (2000) generalization, namely, cases where headless movement has been claimed to occur. On the present analysis, the first type of “exception” is, in fact, not an exception at all. Funakoshi (2012) presents verb doubling in predicate cleft/VP-topicalization across many languages as a grammatical instance of headless movement: V raises to T and subsequently VP is fronted.

(35) *Hebrew*

lištof, hu kvar **šataf** et ha-kelim.
 to.wash he already washed ACC the-dishes
 ‘As for washing, he already washed the dishes.’
 (Landau 2006:39)

However, the fact that the fronted VP is headed by an *overt* copy of the base verb (in some default morphological form; see Landau 2006 for details) classifies this construction as *headed* movement, at least on the present terms. Indeed, Takano’s and Funakoshi’s analyses are based on syntactic feature checking, which is somehow impeded by head traces or head intervention. Under the present proposal, in contrast, the headedness required in (32) concerns PF-visibility. The paramet-

ric option of V-doubling, then, enables the grammar to overcome the crippling effect head movement has on the movability of the remnant, by preserving the visibility of its head.²⁷

Consider next the often-discussed case of German, which in fact displays mixed evidence for headless vP-fronting. For instance, ditransitive examples are cited sometimes as grammatical (36a) and sometimes as ungrammatical (36b) (see Haider 1990, Fanselow 1993, G. Müller 1998, 2004, Wurmbrand 2004, Bildhauer and Cook 2010, S. Müller to appear).

- (36) a. [_{VP} Der Maria einen Ring t_i]_j glaube ich nicht, dass er je t_j schenken_i-T wird.
 the Maria a ring believe I not that he ever give will
 ‘I don’t think that he will ever give Maria a ring.’
 (Fanselow 1993:67)
- b. *_{[VP} Ihr ein Buch t_i]_j gab_i-T-C Hans t_j.
 her a book gave Hans
 ‘Hans gave her a book.’
 (Haider 1990:96)

In discussions of headless vP-fronting in German, the following factors have been mentioned as relevant to the overall acceptability of the construction: whether the two objects appear in their unmarked order, whether they are indefinite or plural, the phonological length of the arguments, whether the particle (in verb-particle constructions) is transparently predicative or idiomatic, whether case marking is overt, and possibly other factors. However, the generality of these criteria is far from evident (see Vicente 2015, S. Müller to appear).

It seems fair to say that we currently lack a systematic understanding of headless vP-fronting in German. Still, the gradual accumulation of acceptable examples over the years has made it clear that the construction is available, in principle (S. Müller (to appear) has collected over 3,200 attested examples of “multiple fronting,” involving combinations of two objects, object and particle, object and adverb, and so on). It is also not controversial that the fronted category is vP; indeed, there is evidence that both the external argument (when indefinite) and left-edge adverbs can be carried along with the fronted constituent. As we will shortly see, the fact that it is vP rather than VP that is fronted will make this case, too, unproblematic.

Two other instances of headless movement have been proposed for Japanese (Kuwabara 1996, Koizumi 2000) and Lokaa (Baker 2005). Clefing in Japanese can target a wide range of “surprising constituents,” consisting of a sequence of XPs excluding the verb (37a). In Lokaa, the canonical head-first order of the VP is inverted to head-final order in negative and gerundive clauses (37b).

²⁷ See Arano 2018 for an account similar in spirit to V-doubling as a “repair strategy” for a linearization failure.

Funakoshi’s broader typological claim is that only languages permitting multiple specifiers instantiate headless movement and ellipsis. Hebrew is supposed to be one such language, displaying V-doubling VP-fronting and VSVPE, because, presumably, it also has multiple specifiers (Doron and Heycock 1999). But this description is incorrect. VSVPE does not exist in Hebrew (Landau 2018); V-doubling VP-fronting is, strictly speaking, not “headless” movement; and multiple specifiers also do not exist in the language (rather, left-dislocation does, which has been misanalyzed; Landau 2009, 2011). See Vicente 2015 for further obstacles to Funakoshi’s typological claim.

- (37) a. Mary-ni ageta_i no wa [John-ga hon-o t_i] da.
 Mary-DAT gave NMZ TOP John-NOM book-ACC is
 (Lit.) ‘It is John a book that gave to Mary.’
 b. Úbì [t_i lì-póó ká è-pla]_j òó-kpèèyì t_j.
 Ubi 14-cup in 7-market NEG/1.AGR-sell
 ‘Ubi didn’t sell cups in the market.’

In (37a), Kuwabara and Koizumi maintain, V-to-T-to-C movement applies, as well as scrambling of the dative object above the subject. The remnant TP—consisting of the subject and the direct object only—is then moved to the cleft position.²⁸ In (37b), according to Baker, V-to-Infl raising is followed by headless VP-fronting to the specifier of a Mod(ality) head, which projects above InflP. The analysis of the Lokaa construction seems to be well-supported by language-internal evidence. The proper characterization of the Japanese construction, however, is far from clear; Takano (2002) points out a number of nontrivial difficulties with the headless movement account.

All and all, the empirical picture can be described as follows: English, French, and Scottish Gaelic display clear cases of impossible headless movement. Lokaa displays a clear case of possible headless movement. German appears to allow the construction, although open questions remain. And the nature of the construction in Japanese (which affects both VPs and TPs) remains undecided.²⁹

Why is headless movement selective in this way? An appealing possibility is to model the split in the realm of headless movement on the one in the realm of headless ellipsis (see (8)–(9)). In particular, one may capitalize on the qualification “in its Spell-Out domain” in (29), now replacing [E] with [S↑], the shared silencing feature responsible for both ellipsis and copy deletion.

- (38) *PF-visibility of [S↑]*

The host of [S↑] must be PF-visible in its Spell-Out domain.

Parallel to the CHSE, repeated in (39), there would be a *Constraint on Head-Stranding Movement (CHSM)* (40), crucially sensitive to Spell-Out domains.

- (39) *Constraint on Head-Stranding Ellipsis (CHSE)*

If X-movement crosses a Spell-Out domain, XP cannot be the target of ellipsis.

- (40) *Constraint on Head-Stranding Movement (CHSM)*

If X-movement crosses a Spell-Out domain, XP cannot be the target of movement.

For (40) to successfully exclude impossible headless movement, we will need to assume that both the English (30a) and Scottish Gaelic (30c) constructions involve VP-fronting, rather than vP-

²⁸ Or movement may apply to a duplicate of the focused constituent inside the topicalized clause, which is subsequently deleted under identity with the focus. The details do not matter, as both implementations invoke headless TP-movement.

²⁹ Note that the very existence of headless movement implies, contrary to Hein 2017:fn. 12, that head movement cannot be postsyntactic, for then it would not be able to feed the fronting of the remnant headless constituent (NP, VP, or TP), a syntactic operation. Arano (2018) argues that headless VPs may be fronted only in OV languages, not in VO languages, a consequence he derives from the cyclic linearization model proposed by Fox and Pesetsky (2005). However, Lokaa is clearly VO and yet allows the construction.

fronting (trivially true of English), and that NP is a Spell-Out domain, at least in French (30b), a natural consequence of the common assumption that DPs are phases. To rule in German (36a) and Lokaa (37b), we will need to assume that the fronted category is a vP, not a VP; this is well-established for German, and as yet unknown for Lokaa. These distinctions guarantee that the stranded head in the ungrammatical cases crosses a Spell-Out domain, in violation of (40), but the one in the grammatical cases does not.³⁰ Evidently, headless movement needs to be documented more extensively before one can draw any firmer conclusions, but the current state of knowledge is encouraging and seems to support the relevance of phase-based PF-visibility to this phenomenon.³¹

5.2 Restricting Headless Reprise Fragments

I will conclude with another context where “headlessness” appears to disrupt the proper flow of information from syntax to PF. Reprise fragments (RFs) are nonsentential questions that repeat a phrase, word, or morpheme from the most recent utterance. The repeated unit is either focused itself or contains a focused element (Griffiths, Güneş, and Lipták 2018; henceforth GGL). In (41a–c), italics represent pitch accent.

- (41) a. A: John’s bought a red car.
 B: A *red* car?
 b. A: Sally saw the man that fell with her binoculars.
 B: With her *binoculars*?
 c. A: Is John a neurophysiologist?
 B: *Neuro*?

On the basis of previous studies and their own original data, GGL show convincingly that RFs are derived by ellipsis of all of the sentential material surrounding the pronounced fragment. Importantly, they also demonstrate that at least in English, RFs are *not* derived by movement + ellipsis (as in sluicing or fragment answers; Merchant 2001, 2004); rather, they are derived by discontinuous ellipsis around the in-situ RF. I will not go through their evidence but simply assume this conclusion in what follows.³²

³⁰ Thus, ellipsis and movement of verbal projections will be licensed when [S↑] is hosted on v but barred when it is hosted on V. Note that the fact that the moved XP crosses a Spell-Out domain is irrelevant to the evaluation of (40); only the path of X matters.

³¹ Independent support for the general approach advocated here might come from an intriguing effect discussed by Bošković (2005, 2011): XP islands lose their islandhood upon X-movement. Bošković suggests that island violations are registered on the *head* of the island, and that copy deletion of the trace of X deletes the “violation mark”—another instance of rescue by PF deletion. An alternative perspective, more in line with (38), is to assume that what the head of an XP island registers is the very islandhood property—call it an [I] feature—and that this feature is no longer PF-visible on X’s trace. Thus, a headless XP is not an island to begin with. Note that X might still carry [I] to its landing site, but given that it does not project there, the island would not reemerge.

³² On the other hand, Hungarian RFs *are* derived by movement + ellipsis (e.g., their island sensitivity). GGL do not discuss whether headlessness effects show up in Hungarian RFs, but if they do, they may reduce to the CHSM in (40), operating on the foot copy of the moved RF.

The RF must contain a focused element, but other than that, it is pretty much unrestricted.

- (42) A: John spoke to the man that Pete introduced to Dracula.
 B: WHO?
 B: Introduced to WHO?
 B: That Pete introduced to WHO?
 B: The man that Pete introduced to WHO?
 B: To the man that Pete introduced to WHO?
 B: Spoke to the man that Pete introduced to WHO?

There is, however, one intriguing restriction. GGL observe that headless constituents—that is, constituents headed by a trace—make bad RFs.

- (43) a. A: John has given a vampire some garlic.
 B: [_{VP} Given-v [_{VP} a vampire [_{V'} t_v some GARLIC]]]?
 B': *[[_{VP} A vampire [_{V'} t_v some GARLIC]]]?
 b. A: Did Bo finagle a raise?
 B: [_{VP} FINAGLE a raise]?
 B': *[[_{TP} Bo t_{did} FINAGLE a raise]]?

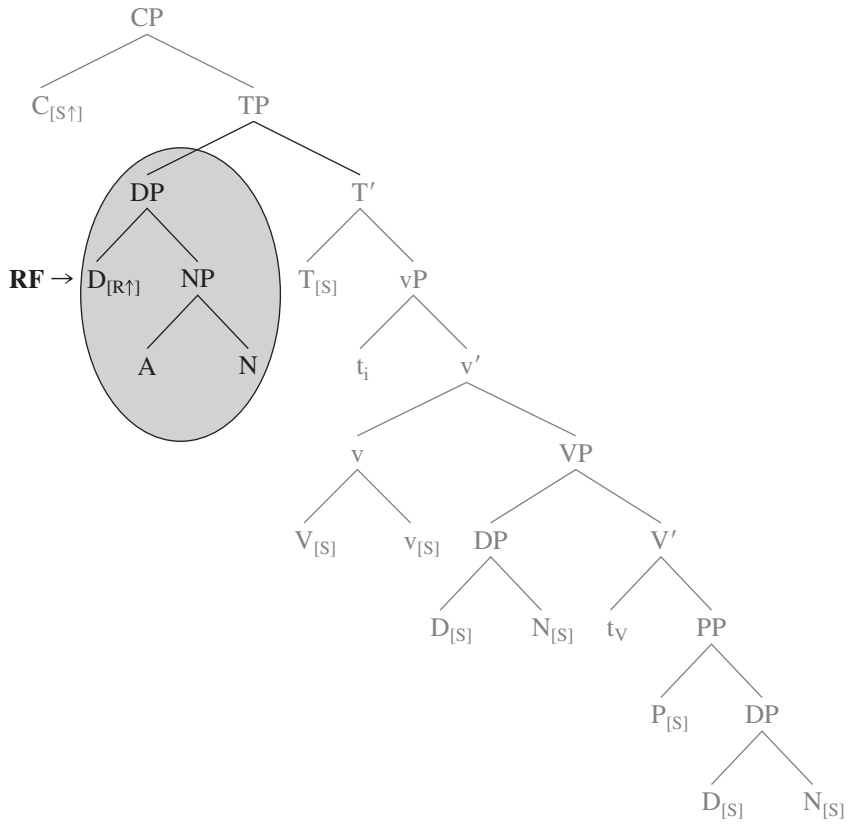
Note that the excluded targets for RF-formation are precisely the excluded targets for X-stranding XP-ellipsis: a VP under *v* headed by a trace and a TP under *C* headed by a trace, cases (10a–b). In both structures, head movement crosses a Spell-Out domain. This crucially blocks ellipsis due to the CHSE, (39); the question is why it also blocks RF-formation.

It seems intuitively clear that RF-formation should fall under the jurisdiction of PF no less than ellipsis, as the two closely interact. In fact, RF is just the result of sentential ellipsis *failing* to apply to one constituent within the sentence. If the silencing instruction [S↑] operates at PF, it must be the case that whatever prevents it from applying to the RF (inside a bigger constituent to which it *does* apply) should likewise be a PF-visible instruction.

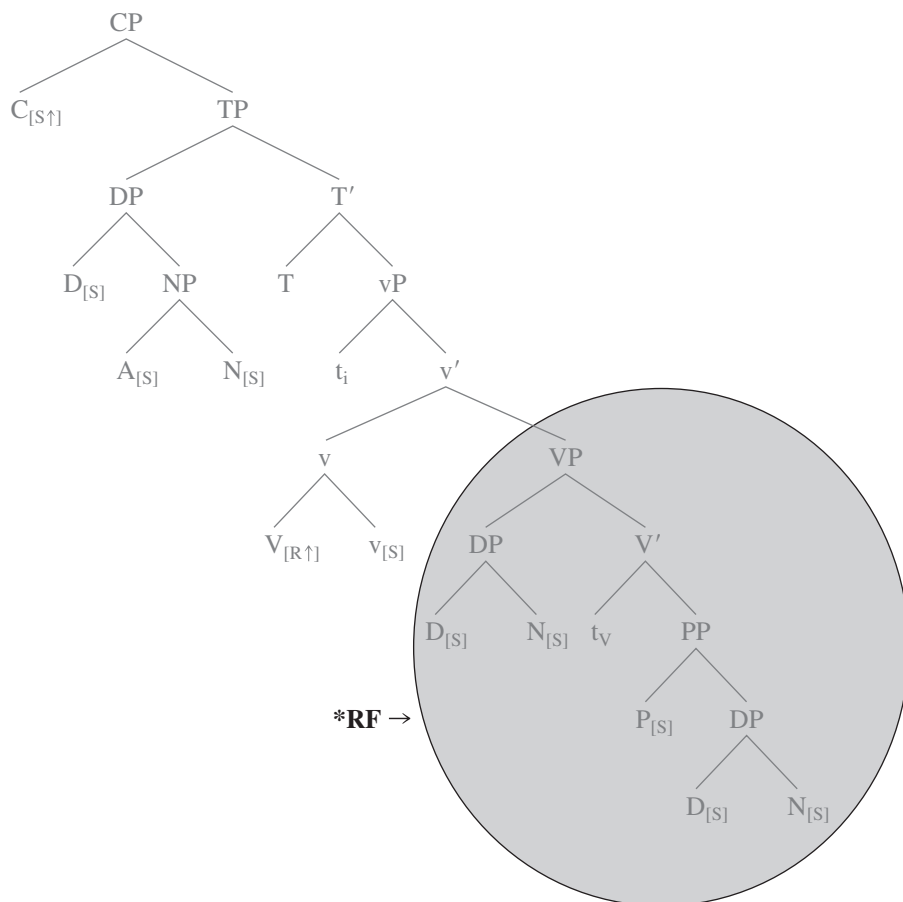
There are a number of possible executions at this point, all compatible with these ideas. I will sketch one, noting that the ultimate theory of the syntax-PF interface is very much an open research topic. The guiding principle behind this account is the idea that there is no designated “Pronounce!” feature. Rather, spell-out of syntactic trees is the default, which yields to nonpronunciation only under the duress of [S↑]. By this logic, the RF is exempted from ellipsis—hence, obligatorily pronounced—thanks to some device that shields it from the effect of [S↑].

Although this is rarely discussed in the ellipsis literature, the silencing feature—be it [E] or [S↑]—cannot simply remain at the nonterminal node where it is licensed. This is because morphological Spell-Out rules operate on *terminal* nodes. Thus, if a head *X* carries [S↑], all terminal nodes dominated by *XP* must inherit [S] (= “Don’t pronounce me!”) one way or another, so as to block Vocabulary Insertion under them. We can then envision the feature generating RFs, call it [R], as a shield on *X* that deactivates the inheritance of [S]. Parallel to [S] and [S↑], we can distinguish between [R], which shields its host *X* from silencing, and [R↑], which projects from *X* to *XP* and shields all terminal nodes dominated by *XP* from silencing.

(44) *Successful RF formation (RF = subject)*



(45) *Failed RF formation (RF = headless VP)*



In the successful derivation (44), the subject DP is marked with $[R↑]$. This feature shields the terminal nodes under this DP—D, A, and N—from inheriting the silencing feature $[S]$ that propagates throughout the CP from its $C_{[S↑]}$ head. Consequently, all terminal nodes in the CP except those belonging to the subject DP are elided.

In the failed derivation (45), V carries $[R↑]$, which normally would spare the entire VP from ellipsis. However, V -to- v raising carries that feature outside its Spell-Out domain, VP. In this situation, just as with VSVPE, features on the head of the verbal chain are not PF-visible on its foot. Not being PF-visible at the VP level, $[R↑]$ fails to shield VP from $[S]$ -inheritance, resulting in full-blown ellipsis. Thus, although the functions of $[S↑]$ in VSVPE and $[R↑]$ in VP RFs are opposite—one regulates ellipsis, the other regulates exemption from ellipsis—the grammar constrains their effects in identical ways, both reducing to the cyclic logic of PF-visibility.

Admittedly, this account should be further fleshed out as we learn more about these phenomena. One issue that certainly calls for further analysis is the nature of $[R↑]$ —so far a rather abstract

feature. As it stands, nothing connects it to the most salient property of RFs—namely, the fact that they contain an F(ocus)-marked constituent. Unlike GGL’s analysis, which is based on focus projection via the head, the present proposal keeps [R↑] independent of F-marking. There are two reasons for this decision. First, as Büring (2006) has shown, focus projection to XP need not pass through its head X, and in fact, that head may undergo ellipsis when it is discourse-given. Second, while F-marking tracks the current focus (by answering the current QUD), projection of [R↑] does not seem to carry any interpretive import. The different choices of RF in (42) all seem to address the same QUD (namely, *Who was the X such that John spoke to the man that Pete introduced to X?*). In that respect, [R↑] projects more like the *wh*-feature does in pied-piped XPs (where different pied-piping options do not correlate with different QUDs).

No doubt, further research will shed more light on RFs and their relation to focus, pied-piping, and ellipsis. Yet it is already evident that the striking parallelism between movement, ellipsis, and RF-formation with respect to headlessness effects points to an underlying unity of mechanism.

6 Conclusion

From a crosslinguistic perspective, the interaction of ellipsis and head movement poses fascinating challenges to theories that address both processes. Recurring lacunas demand our attention: Why can T-to-C movement not cooccur with TP-ellipsis? Why can V-to-v-to-T movement not cooccur with vP-ellipsis? Why can V-to-v movement not cooccur with VP-ellipsis? Unselective responses, such as the common “bleeding” account, fail to explain why other instances of head-stranding ellipsis are acceptable (Aux-to-T movement cooccurs with AuxP-ellipsis, T-to-Pol movement cooccurs with TP-ellipsis). These are theoretical lacunas insofar as robust evidence suggests that the ingredients needed for each derivation are in place, yet their cooccurrence is unattested.

The structural distinction between attested and unattested cases of head-stranding ellipsis turns out to be whether or not the head of the elided XP crosses a Spell-Out domain. When it does, ellipsis is bled. To understand this restriction, I have introduced the notion of “PF-visibility,” which is relevant to all PF operations, including ellipsis. Once the head of a to-be-elided XP is separated from the XP by a Spell-Out domain, the silencing instruction cannot be executed. This account requires an adjustment in the Merchant/Aelbrecht theory of ellipsis licensing (advantageous on conceptual grounds as well): the silencing feature is hosted on the *head* of the elided XP, not on its sister.

In the final sections of the article, I have argued that PF-visibility of heads is crucial in explaining a host of other ECP/EPP-type effects; thus, it is not a quirk of head-stranding ellipsis. It should be stressed that the paramount role of heads is taken for granted in considering the syntactic and semantic properties of their projections; for example, an NP is case-marked or animate if its head noun is. PF-visibility is just the analogue at the PF interface: properties of XP as a whole that are relevant to PF must be encoded on X.

Finally, I applied this idea to headless movement and headless reprise fragments. To the extent that freezing effects are found with XPs that have lost their head, they can be profitably united with the ban on headless ellipsis. This would reflect a shared, underlying operation of PF

deletion, recruited for copy deletion and ellipsis alike. Similarly, to the extent that the same headless constituents cannot surface as RFs, a “mirror-image” effect of ellipsis *bleeding* can be similarly tied to PF-visibility of moved heads. Hopefully, “headlessness effects” traceable to PF-visibility extend even further into the syntax-PF interface, a topic I leave for future research.

References

- Aelbrecht, Lobke. 2010. *The syntactic licensing of ellipsis*. Amsterdam: John Benjamins.
- Aelbrecht, Lobke, and Liliane Haegeman. 2012. VP-ellipsis is not licensed by VP-topicalization. *Linguistic Inquiry* 43:591–614.
- Aelbrecht, Lobke, and William Harwood. 2015. To be or not to be elided: VP ellipsis revisited. *Lingua* 153: 66–97.
- Akmajian, Adrian, and Thomas Wasow. 1975. The constituent structure of VP and Aux and the position of BE. *Linguistic Analysis* 1:205–245.
- Arano, Akihiko. 2018. On the distribution of headless vP/VP-movement. In *University of Pennsylvania Working Papers in Linguistics* 24.1, article 3. <https://repository.upenn.edu/pwpl/vol24/iss1/3/>.
- Baker, Mark. 2005. On verb-initial and verb-final word orders in Lokaꞑ. *Journal of African Languages and Linguistics* 26:125–164.
- Baltin, Mark. 2012. Deletion versus pro-forms: An overly simple dichotomy? *Natural Language and Linguistic Theory* 30:381–423.
- Bildhauer, Felix, and Philippa Helen Cook. 2010. German multiple fronting and expected topichood. In *Proceedings of the 17th International Conference on Head-Driven Phrase Structure Grammar*, ed. by Stefan Müller, 68–79. Stanford, CA: CSLI Publications.
- Bjorkman, Bronwyn A. M. 2011. BE-ing default: The morphosyntax of auxiliaries. Doctoral dissertation, MIT, Cambridge, MA.
- Boeckx, Cedric, and Sandra Stjepanović. 2001. Head-ing toward PF. *Linguistic Inquiry* 32:345–355.
- Boivin, Marie-Claude. 2005. Case theory, DP movement, and interpretation: A new approach to the distribution of French subnominal clitic *en*. *Natural Language and Linguistic Theory* 23:543–593.
- Bošković, Željko. 2001. *On the nature of the syntax-phonology interface: Cliticization and related phenomena*. Oxford: Elsevier Science.
- Bošković, Željko. 2005. On the locality of left branch extraction and the structure of NP. *Studia Linguistica* 59:1–45.
- Bošković, Željko. 2011. Rescue by PF deletion, traces as (non)interveners, and the *that*-trace effect. *Linguistic Inquiry* 42:1–44.
- Bošković, Željko. 2014. Now I’m a phase, now I’m not a phase: On the variability of phases with extraction and ellipsis. *Linguistic Inquiry* 45:27–89.
- Büring, Daniel. 2006. Focus projection and default prominence. In *The architecture of focus*, ed. by Valéria Molnár and Susanne Winkler, 321–346. Berlin: Mouton de Gruyter.
- Cheng, Hsu-Te. 2013. Argument ellipsis, classifier phrases, and the DP parameter. Doctoral dissertation, University of Connecticut, Storrs.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- Corver, Norbert, and Jairo Nunes. 2007. *The copy theory of movement*. Amsterdam: John Benjamins.
- Costa, João, Ana Maria Martins, and Fernanda Pratas. 2012. VP ellipsis: New evidence from Capeverdean. In *Romance languages and linguistic theory 2010*, ed. by Irene Franco, Sara Lusini, and Andrés Saab, 155–175. Amsterdam: John Benjamins.
- Craenenbroeck, Jeroen van. 2010. *The syntax of ellipsis: Evidence from Dutch dialects*. New York: Oxford University Press.

- Craenenbroeck, Jeroen van, and Anikó Lipták. 2008. On the interaction between verb movement and ellipsis: New evidence from Hungarian. In *WCCFL 26*, ed. by Charles B. Chang and Hannah J. Haynie, 138–146. Somerville, MA: Cascadilla Press.
- Craenenbroeck, Jeroen van, and Jason Merchant. 2013. Ellipsis phenomena. In *The Cambridge handbook of generative syntax*, ed. by Marcel den Dikken, 701–745. Cambridge: Cambridge University Press.
- Doron, Edit. 1999. V-movement and VP-ellipsis. In *Fragments: Studies in ellipsis and gapping*, ed. by Elabbas Benmamoun and Shalom Lappin, 124–140. Oxford: Oxford University Press.
- Doron, Edit, and Caroline Heycock. 1999. Filling and licensing multiple specifiers. In *Specifiers: Minimalist approaches*, ed. by David Adger, Susan Pintzuk, Bernadette Plunkett, and George Tsoulas, 69–89. Oxford: Oxford University Press.
- Fanselow, Gisbert. 1993. Die Rückkehr der Basisgenerierer. *Groninger Arbeiten zur germanistischen Linguistik* 36:1–74.
- Fox, Danny. 1999. Reconstruction, binding theory and the interpretation of chains. *Linguistic Inquiry* 30: 157–196.
- Fox, Danny, and Howard Lasnik. 2003. Successive-cyclic movement and island repair: The difference between sluicing and VP-ellipsis. *Linguistic Inquiry* 34:143–154.
- Fox, Danny, and David Pesetsky. 2005. Cyclic linearization of syntactic structure. *Theoretical Linguistics* 31:1–45.
- Funakoshi, Kenshi. 2012. On headless XP-movement/ellipsis. *Linguistic Inquiry* 43:519–562.
- Gallego, Ángel J. 2010. *Phase theory*. Amsterdam: John Benjamins.
- Gengel, Kirsten. 2007. Phases and ellipsis. In *NELS 37*, ed. by Emily Elfner and Martin Walkow, 233–246. Amherst: University of Massachusetts, Graduate Linguistic Student Association.
- Gengel, Kirsten. 2013. *Pseudogapping and ellipsis*. Oxford: Oxford University Press.
- Goldberg, Lotus M. 2005. Verb-stranding VP ellipsis: A cross-linguistic study. Doctoral dissertation, McGill University, Montreal.
- Gribanova, Vera. 2013. Verb-stranding verb phrase ellipsis and the structure of the Russian verbal complex. *Natural Language and Linguistic Theory* 31:91–136.
- Gribanova, Vera. 2017. Head movement and ellipsis in the expression of Russian polarity focus. *Natural Language and Linguistic Theory* 35:1079–1121.
- Gribanova, Vera. 2018. Head movement, ellipsis and identity. Ms., Stanford University, Stanford, CA.
- Gribanova, Vera, and Line Mikkelsen. 2018. On the interaction of head movement and ellipsis in Danish. In *A reasonable way to proceed: Essays in honor of Jim McCloskey*, ed. by Jason Merchant, Line Mikkelsen, Deniz Rudin, and Kelsei Sasaki, 105–123. Santa Cruz: University of California, Linguistics Research Center.
- Griffiths, James, Güliz Güneş, and Anikó Lipták. 2018. Reprise fragments in Minimalism: An in-situ analysis. Handout for a poster presented at GLOW 41, Budapest.
- Haider, Hubert. 1990. Topicalization and other puzzles of German syntax. In *Scrambling and barriers*, ed. by Günther Grewendorf and Wolfgang Sternefeld, 93–112. Amsterdam: John Benjamins.
- Hall, David. 2015. Spelling out the Noun Phrase: Interpretation, word order and the problem of ‘meaningless movement’. Doctoral dissertation, Queen Mary College.
- Harizanov, Boris, and Vera Gribanova. 2019. Whither head movement? *Natural Language and Linguistic Theory* 37:461–522.
- Hartman, Jeremy. 2011. The semantic uniformity of traces: Evidence from ellipsis parallelism. *Linguistic Inquiry* 42:367–388.
- Harwood, William. 2013. Being progressive is just a phase: Dividing the functional hierarchy. Doctoral dissertation, Ghent University.
- Hein, Johannes. 2017. Doubling and *do*-support in verbal fronting: Towards a typology of repair operations. *Glossa* 2(1):67.

- Hein, Johannes. 2018. On the interaction of head movement, ellipsis and copy deletion: The case of Mainland Scandinavian. Handout of a talk given at the 33rd meeting of the Comparative Germanic Syntax Workshop, Georg-August Universität Göttingen.
- Holmberg, Anders. 2001. The syntax of yes and no in Finnish. *Studia Linguistica* 55:141–174.
- Holmberg, Anders. 2016. *The syntax of yes and no*. Oxford: Oxford University Press.
- Iatridou, Sabine, and Hedde Zeijlstra. 2013. Negation, polarity, and deontic modals. *Linguistic Inquiry* 44: 529–568.
- Jackendoff, Ray. 1990. On Larson's treatment of the double object construction. *Linguistic Inquiry* 21: 427–456.
- Johnson, Kyle. 2001. What VP-ellipsis can do, and what it can't, but not why. In *The handbook of contemporary syntactic theory*, ed. by Mark Baltin and Chris Collins, 439–479. Oxford: Blackwell.
- Kayne, Richard S. 1975. *French syntax: The transformational cycle*. Cambridge, MA: MIT Press.
- Kayne, Richard S. 1993. Toward a modular theory of auxiliary selection. *Studia Linguistica* 47:3–31.
- Keine, Stefan, and Rajesh Bhatt. 2016. Interpreting verb clusters. *Natural Language and Linguistic Theory* 34:1445–1492.
- King, Harold V. 1970. On blocking the rules for contraction in English. *Linguistic Inquiry* 1:134–136.
- Koizumi, Masatoshi. 2000. String vacuous overt verb raising. *Journal of East Asian Linguistics* 9:227–285.
- Kuwabara, Kazuki. 1996. Multiple *wh*-phrases in elliptical clauses and some aspects of clefts with multiple foci. In *Formal Approaches to Japanese Linguistics* 2, ed. by Masatoshi Koizumi, Masayuki Oishi, and Uli Sauerland, 97–116. MIT Working Papers in Linguistics 29. Cambridge, MA: MIT, MIT Working Papers in Linguistics.
- Landau, Idan. 2006. Chain resolution in Hebrew V(P) fronting. *Syntax* 9:32–66.
- Landau, Idan. 2007. EPP extensions. *Linguistic Inquiry* 38:485–523.
- Landau, Idan. 2009. Against broad subjects in Hebrew. *Lingua* 119:89–101.
- Landau, Idan. 2011. Alleged broad subjects in Hebrew: A rejoinder to Doron and Heycock. *Lingua* 121: 129–141.
- Landau, Idan. 2018. Missing objects in Hebrew: Argument ellipsis, not VP ellipsis. *Glossa* 3(1):76.
- Landau, Idan. 2020. On the nonexistence of verb-stranding VP-ellipsis. *Linguistic Inquiry*. https://doi.org/10.1162/ling_a_00346.
- Lasnik, Howard. 1995. Verbal morphology: *Syntactic Structures* meets the Minimalist Program. In *Evolution and revolution in linguistic theory*, ed. by Héctor Campos and Paula Kempchinsky, 251–275. Washington, DC: Georgetown University Press.
- Lasnik, Howard. 1997. A gap in the ellipsis paradigm: Some theoretical implications. *Linguistic Analysis* 27:166–185.
- Lasnik, Howard. 1999a. On feature strength: Three Minimalist approaches to overt movement. *Linguistic Inquiry* 30:197–217.
- Lasnik, Howard. 1999b. Pseudogapping puzzles. In *Fragments: Studies in ellipsis and gapping*, ed. by Shalom Lappin and Elabbas Benmamoun, 141–174. Oxford: Oxford University Press.
- Lasnik, Howard. 2001. A note on the EPP. *Linguistic Inquiry* 32:356–362.
- Lebeaux, David. 2009. *Where does binding theory apply?* Cambridge, MA: MIT Press.
- Lechner, Winfried. 2006. An interpretive effect of head movement. In *Phases of interpretation*, ed. by Mara Frascarelli, 45–71. Berlin: Mouton de Gruyter.
- Lechner, Winfried. 2017. In defense of semantically active head movement. Handout of a talk presented at the Workshop for Martin Prinzhorn, Technical University of Vienna.
- Lipták, Anikó. 2012. Verb-stranding ellipsis and verbal identity: The role of polarity focus. *Linguistics in the Netherlands* 29:82–96.
- Lipták, Anikó. 2013. The syntax of emphatic positive polarity in Hungarian: Evidence from ellipsis. *Lingua* 128:72–94.

- Lipták, Anikó. 2019. Hungarian. In *The Oxford handbook of ellipsis*, ed. by Jeroen van Craenenbroeck and Tanja Temmerman, 815–840. Oxford: Oxford University Press.
- Lipták, Anikó, and Andrés Saab. 2014. No N-raising out of NPs in Spanish: Ellipsis as a diagnostic of head movement. *Natural Language and Linguistic Theory* 32:1247–1271.
- Manetta, Emily. To appear. Verb-phrase ellipsis and complex predicates in Hindi-Urdu. *Natural Language and Linguistic Theory*.
- Martins, Ana Maria. 2016. VP and TP ellipsis: Sentential polarity and information structure. In *Manual of grammatical interfaces in Romance*, ed. by Susann Fischer and Christoph Gabriel, 457–486. Berlin: De Gruyter.
- Marušič, Franc, Petra Mišmaš, Vesna Pleničar, and Tina Šuligoj. 2016. Surviving sluicing. In *Advances in formal Slavic linguistics 2016*, ed. by Denisa Lenertová, Roland Meyer, Radek Šimík, and Luka Szucsich, 193–215. Berlin: Language Science Press.
- McCloskey, James. 1991. Clause structure, ellipsis and proper government. *Lingua* 85:259–302.
- McCloskey, James. 1996. Subjects and subject positions in Irish. In *The syntax of the Celtic languages: A comparative perspective*, ed. by Robert D. Borsley and Ian Roberts, 241–283. Cambridge: Cambridge University Press.
- McCloskey, James. 2005. A note on predicates and heads in Irish clausal syntax. In *Verb first: On the syntax of verb-initial languages*, ed. by Andrew Carnie, Heidi Harley, and Sheila Ann Dooley, 155–174. Amsterdam: John Benjamins.
- McCloskey, James. 2011. The shape of Irish clauses. In *Formal approaches to Celtic linguistics*, ed. by Andrew Carnie, 143–178. Newcastle upon Tyne: Cambridge Scholars Publishing.
- McCloskey, James. 2012. Polarity, ellipsis, and the limits of identity in Irish. Handout of a talk given at the Workshop on Ellipsis, Nanzan University, Japan.
- McCloskey, James. 2016. Interpretation and the typology of head movement: A reassessment. Handout for a presentation at the Workshop on the Status of Head Movement in Linguistic Theory, Stanford University.
- McCloskey, James. 2017. Ellipsis, polarity and the cartography of verb-initial orders in Irish. In *Elements of comparative syntax: Theory and description*, ed. by Enoch Aboh, Eric Haeberli, Genoveva Puskás, and Manuela Schönenberger, 99–151. Berlin: De Gruyter Mouton.
- Merchant, Jason. 2001. *The syntax of silence: Sluicing, islands, and the theory of ellipsis*. Oxford: Oxford University Press.
- Merchant, Jason. 2004. Fragments and ellipsis. *Linguistics and Philosophy* 27:661–738.
- Merchant, Jason. 2013. Voice and ellipsis. *Linguistic Inquiry* 44:77–108.
- Merchant, Jason. 2015. On ineffable predicates: Bilingual Greek-English code-switching under ellipsis. *Lingua* 166:199–213.
- Merchant, Jason. 2018. Verb-stranding predicate ellipsis in Greek, implicit arguments, and ellipsis-internal focus. In *A reasonable way to proceed: Essays in honor of Jim McCloskey*, ed. by Jason Merchant, Line Mikkelsen, Deniz Rudin, and Kelsei Sasaki, 229–270. Santa Cruz: University of California, Linguistics Research Center.
- Messick, Troy, and Gary Thoms. 2016. Ellipsis, economy, and the (non)uniformity of traces. *Linguistic Inquiry* 47:306–332.
- Müller, Gereon. 1998. *Incomplete category fronting: A derivational approach to remnant movement in German*. Dordrecht: Kluwer.
- Müller, Gereon. 2004. Verb-second as vP-first. *Journal of Comparative Germanic Linguistics* 7:179–234.
- Müller, Stephan, with contributions by Felix Bildhauer and Philippa Cook. To appear. *German clause structure: An analysis with special consideration of so-called multiple frontings*. Language Science Press.
- Ngonyani, Deo Gratias. 1998. V-to-I movement in Kiswahili. In *Swahili Forum V*, ed. by Rose Marie Beck, Thomas Geider, and Werner Graebner, 129–144. Cologne: Universität zu Köln, Institut für

- Afrikanistik. <http://afrikanistik.gko.uni-leipzig.de/swafo/index.php/archives/10-swahili-forum-5-1998>.
- Potsdam, Eric. 1997. English verbal morphology and VP ellipsis. In *NELS 27*, ed. by Kiyomi Kusumoto, 353–368. Amherst: University of Massachusetts, Graduate Linguistic Student Association.
- Rasekhi, Vahideh. 2018. Ellipsis and information structure: Evidence from Persian. Doctoral dissertation, Stony Brook University, Stony Brook, NY.
- Rizzi, Luigi. 1990. *Relativized Minimality*. Cambridge, MA: MIT Press.
- Roberts, Ian. 1998. *Have/Be* raising, Move F, and Procrastinate. *Linguistic Inquiry* 29:113–125.
- Ross, John R. 1969. Guess who. In *Papers from the 5th Regional Meeting, Chicago Linguistic Society*, ed. by Robert I. Binnick, Alice L. Davison, Georgia M. Green, and Jerry L. Morgan, 252–286. Chicago: University of Chicago, Chicago Linguistic Society.
- Rouveret, Alain. 2012. VP ellipsis, phases and the syntax of morphology. *Natural Language and Linguistic Theory* 30:897–963.
- Ruwet, Nicolas. 1972. *Théorie syntaxique et syntaxe du français*. Paris: Editions du Seuil.
- Sag, Ivan. 1976. Deletion and Logical Form. Doctoral dissertation, MIT, Cambridge, MA.
- Sailor, Craig. 2018. The typology of head movement and ellipsis: A reply to Lipták and Saab (2014). *Natural Language and Linguistic Theory* 36:851–875.
- Santos, Ana Lúcia. 2009. *Minimal answers: Ellipsis, syntax and discourse in the acquisition of European Portuguese*. Amsterdam: John Benjamins.
- Sato, Yosuke, and Masako Maeda. 2017. Syntactic head movement in Japanese: Evidence from verb-echo answers and negative scope reversal. Ms., National University of Singapore and Kyushu Institute of Technology.
- Schoorlemmer, Erik, and Tanja Temmerman. 2012. Head movement as a PF-phenomenon: Evidence from identity under ellipsis. In *WCCFL 29*, ed. by Jaehoon Choi, E. Alan Hogue, Jeffrey Punske, Deniz Tat, Jessamyn Schertz, and Alex Trueman, 232–240. Somerville, MA: Cascadilla Press.
- Simpson, Andrew, Arumina Choudhury, and Mythili Menon. 2013. Argument ellipsis and the licensing of covert nominals in Bangla, Hindi and Malayalam. *Lingua* 134:103–128.
- Takano, Yuji. 2000. Illicit remnant movement: An argument for feature-driven movement. *Linguistic Inquiry* 31:141–156.
- Takano, Yuji. 2002. Surprising constituents. *Journal of East Asian Linguistics* 11:243–301.
- Thoms, Gary. 2010. ‘Verb floating’ and VP-ellipsis: Towards a movement account of ellipsis licensing. *Linguistic Variation Yearbook* 10:252–297.
- Thoms, Gary. 2014. Another argument for the V1-analysis of Gaelic VSO. Ms., University of Glasgow.
- Thoms, Gary. 2015. Syntactic identity, parallelism and accommodated antecedents. *Lingua* 166:172–198.
- Thoms, Gary. 2016a. Pseudogapping, parallelism, and the scope of focus. *Syntax* 19:286–307.
- Thoms, Gary. 2016b. Short answers in Scottish Gaelic and their theoretical implications. *Natural Language and Linguistic Theory* 34:351–391.
- Toosarvandani, Maziar. 2009. Ellipsis in Farsi complex predicates. *Syntax* 12:60–92.
- Vicente, Luis. 2015. On the distribution of headless XP movement and ellipsis: A reply to Funakoshi. Ms., Universität Potsdam.
- Villa-García, Julio. 2016. TP-ellipsis with a polarity particle in multiple-complementizer contexts in Spanish: On topical remnants and focal licensors. *Borealis* 5:135–172.
- Warner, Anthony W. 1993. *English auxiliaries: Structure and history*. Cambridge: Cambridge University Press.
- Wilder, Chris. 1997. English finite auxiliaries in syntax and phonology. In *Clitics, pronouns and movement*, ed. by James R. Black and Virginia Motapanyane, 321–362. Amsterdam: John Benjamins.
- Wurmbrand, Susi. 2004. No TP fronting meets nearly headless Nick. Ms., University of Connecticut, Storrs.
- Yaisomanang, Somphob. 2012. The syntax of yes-no questions in Thai. Doctoral dissertation, Newcastle University.

Department of Foreign Literatures and Linguistics
Ben Gurion University
P.O. Box 653
Beer Sheva 84105
Israel
idanl@bgu.ac.il