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A prosodic theory of possible ellipsis remnants

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We formulate a new generalization of the distribution of ellipsis remnants: Ellipsis cannot strand functional material to the exclusion of a potential prosodic host (*the Stranding Generalization*). Explaining the Stranding Generalization requires a theory of ellipsis in which the prosodic needs of ellipsis remnants can be taken into account. Drawing on Match Theory (Selkirk 2009; 2011), we develop an account which locates the computation of ellipsis in the syntax-prosody mapping. Specifically, ellipsis results from an optional reranking of a constraint Elide, which forces deletion of semantically recoverable material, over Match constraints governing the mapping of syntactic elements to prosodic structure. The Stranding Generalization is shown to follow from independently motivated prosodic well-formedness constraints, which in the relevant cases cannot be reconciled with the ranking responsible for ellipsis. The broader implications of our analysis, if successful, is that it motivates a view of ellipsis whereby any constraints on ellipsis beyond semantic recoverability are the result of competition between candidates for the possible phonological output of the syntactic input.

1 Introduction

In PF-deletion theories, ellipsis is commonly taken to involve non-pronunciation of a constituent which is 'given,' i.e. made salient in the discourse. For example, VP ellipsis (1a) is commonly taken to be deletion of a constituent in the verbal extended projection (Merchant 2013; Aelbrecht 2010), while NP ellipsis (1b) is commonly taken to be deletion of a constituent in the nominal extended projection (Merchant 2004; Saab & Lipták 2016).

(1) a. Hari has been to Nepal, and Lakshmi has ~~been to Nepal~~ too.
     b. Hari likes Arundhati's books, but Lakshmi likes Salman's ~~books~~.

In LF-copying theories, by contrast, the ellipsis site contains a null anaphor (Fiengo & May 1994; Chung, Ladusaw & McCloskey 1995; Lobeck 1995; Fortin 2007). In the place of the silent pieces of structure in (1) are null pronouns, which are anaphoric to an expression in the discourse.

(2) a. Hari has [been to Nepal]$_i$, and Lakshmi has *pro*$_i$ too.
     b. Hari likes Arundhati's [books]$_i$, but Lakshmi likes Salman's *pro*$_i$.

In neither kind of theory is material in the ellipsis site expected to be active in the prosodic component. In LF-copying theories, this is simply because the ellipsis site is a silent pronoun. In PF-copying theories, deletion of constituents marked for ellipsis is widely assumed to take place before the prosodic computation.[1] However, it is in principle possible for material in the ellipsis site to interact with the prosodic component, given different architectural assumptions. In this connection, we will argue that English obeys the following generalization, which directly implicates prosody in the computation of ellipsis:

(3) **The Stranding Generalization**:
     Ellipsis cannot strand functional material to the exclusion of a potential prosodic host.

This condition makes crucial reference to prosodic representations. If the Stranding Generalization holds, it motivates an architecture for ellipsis in which the prosodic status of ellipsis remnants can be taken into account. We propose therefore to implement 'PF-deletion' directly in the syntax-prosody mapping (Bennett, Elfner & McCloskey 2019). Candidates for the output of this mapping will be therefore evaluated with respect to independent prosodic well-formedness constraints. If these constraints include Tyler's (2019) SUBCAT constraint—which governs the realization of functional material—the Stranding Generalization follows.

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[1] Notable exceptions include Bennett, Elfner & McCloskey (2019); Bruening (2015); Weir (2012).

This analysis has several broader consequences. We show that functional items behave, in important respects, as though their hosts are present, though eventually deleted. This constitutes strong evidence not just for fully articulated syntactic structure inside the ellipsis site, but also prosodic structure. Our analysis also shows that in the right prosodic environments, non-contrastive material can survive ellipsis, contra Jayaseelan (1990); Gengel (2007); Boone (2014); Sailor & Thoms (2014); Weir (2015), among many others. Our analysis provides a way to account for the tendency of focused material to resist deletion in a way that does not require movement out of the ellipsis site. Taken together, we believe this supports a theory of ellipsis in which the syntax-prosody mapping, not movement, is responsible for the distribution of ellipsis remnants (Bennett, Elfner & McCloskey 2019).

In section 2, we will exemplify the Stranding Generalization; explain why it is a puzzle for many theories of ellipsis; and show that it cannot be explained by conditions on information structure, such as a requirement that ellipsis remnants contrast. In section 3, we will argue for a theory that locates ellipsis at the syntax-prosody interface, and show that it derives the Stranding Generalization. In section 4, we explore some potential crosslinguistic consequences of this theory, and in section 5 we conclude with theoretical implications.

2 The Stranding Generalization

Pronouns, like most functional items, do not usually map to full prosodic words by themselves (Selkirk 1996; 2011; Truckenbrodt 1999; Elfner 2012). They commonly appear in 'weak' form, diagnosed in English by their lack of stress and corresponding vowel reduction, as in for example *seen-[əm]* ('seen them').[2] Itô & Mester (2009) argue that weak pronouns map to bare syllables, and phonologically cliticize[3] to adjacent prosodic words. In English, object pronouns cliticize to their left, for example to the verb in (4a): *called-[ər]*. What we observe in the gapping construction in (4b) is that verb deletion cannot 'strand' the pronoun without its potential host.[4] Here and below adverbials like *on Tuesday* are used to ensure the underlying presence of the verb in the second conjunct.

(4)   a.   I called Sheryl on Monday, and called her on Tuesday too.
        b.   *I called Sheryl on Monday, and ~~called~~ her on Tuesday too.

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[2] Depending on the pronoun and the speaker, there may also be consonant deletion, as in this example.

[3] See section 3.2 for the details of phonological cliticization, which is not to be confused with syntactic cliticization.

[4] The data in this paper was collected via informal judgement tasks elicited from 9 speakers of American, British and Australian English. Speakers were asked for relative judgements of acceptability between pairs of utterances.

Contrastively focused pronouns behave differently. When pronouns are contrastively focused, they do not cliticize, since they must themselves bear stress. This means that object pronouns can only appear in gapping constructions when contrastively focused.

(5)   I called SHERYL$_i$ on Monday, and ~~called~~ HER$_j$/HIM$_k$ on Tuesday.

Note that 'it', which for most speakers of English cannot bear stress (Cardinaletti & Starke 1999), is therefore not able to be stranded in this environment:

(6)   I drove the CAR$_i$ on Monday, and ~~drove~~ *IT$_i$ on Tuesday.

It might be objected that these facts are reducible to a requirement that remnants of ellipsis must contrast. In section 2.2 we return to this point, and conclude that a putative Contrast condition cannot account for the full range of facts.

Verb-particle constructions behave in the same way as object pronouns. When the verb and particle are adjacent, verb deletion cannot strand the particle.[5]

(7)   a. *Turn off the computer, and ~~turn~~ off the lights.
       b.   Turn OFF the computer, and ON the lights.[6]

The Stranding Generalization also holds in NP ellipsis. Possessor pronouns cliticize to the right, as most easily demonstrated by vowel reduction in non-rhotic Englishes (thus *[hə]-book* = 'her book'). The Stranding Generalization then leads us to expect that NP ellipsis cannot strand an unstressed possessor pronoun.[7] This is correct:

(8)   a. I played Nina Simone$_i$'s album in the car. Mei played her$_i$ album at home.
       b. I played Nina Simone$_i$'s album in the car. *Mei played her(s)$_i$ ~~album~~ at home.

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[5] Here we don't have evidence from vowel reduction that the particle has cliticized to the verb. Harley (2007), however, offers intriguing evidence in favor of a close prosodic relationship. She notes that particles are impossible with verbs—mostly Latinate in origin—with a weak-strong stress pattern, hence the contrast between *write up* and **compose up.* This requirement is crisply illustrated by the minimal pair **confess up/*'fess up).

[6] There is a preference for the object-particle order in these cases, but all speakers we consulted reported a clear contrast between (7a) and (7b).

[7] We will not provide an account of the distinction between what are traditionally known as possessive determiners (*her/my/your*) and possessive pronouns (*hers/mine/yours etc*), which is the form we see when ellipsis succeeds. What is important for us is that when the Stranding Generalization applies—i.e. cases where there would be phonological cliticization in the absence of ellipsis—neither kind of possessor can appear.

Again, contrastive focus on the pronoun allows it to survive ellipsis (9a). But if other lexical material (such as a numeral) provides a host, a pronoun can appear even in the absence of contrastive focus (9b).

(9) a. I played Nina Simone$_i$'s album in the car, and HERS$_j$ ~~album~~ at home.
     b. I played Nina Simone$_i$'s first album in the car, and her$_i$ second ~~album~~ at home.

'Portmanteau' function complexes—like *usedta, wanna, and shoulda*—also conform to the Stranding Generalization. Itô & Mester (2009) argue—from the distribution of *r*-insertion—that they cliticize rightward, as feet. The Stranding Generalization predicts that they cannot be stranded by ellipsis of their host verb.

(10) a. I wanna leave. Do you {*wanna/want to} ~~leave~~?
     b. I shoulda left, and you {*shoulda/should have} ~~left~~ too.[8]

2.1 Why is this a puzzle?

Although the Stranding Generalization seems at first glance unsurprising, it constitutes a genuine puzzle for many theories of ellipsis. The generalization seems to be that non-contrastive functional items require a prosodic host. But in other contexts, they are perfectly able to appear without such a host. Consider object pronouns again. The pronoun in (11a) has a verb to its left, and therefore cliticizes.[9] But the pronouns in (11b–11c) have no material to their left. When the syntax delivers a structure with no possible prosodic host, an unreduced stress-bearing form is used. (11d–11e) shows the same pattern with possessor pronouns: when there is nothing to its right, the possessor pronoun appears in unreduced (in this case suppletive) form.

(11) a. I remember-im leaving very vividly.
     b. Q: Do you think Malcolm will leave?
         A: Him/*-im leaving would surprise me.
     c. Him/*-im leaving, I remember very vividly.
     d. This is [hə] book (=her book).
     e. This book is hers.

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[8] Roger Schwarzschild (p.c) reports that *shoulda/usedta* can for him be stranded by ellipsis, though not *wanna*. One possible explanation is that *shoulda/usedta* in these cases are not portmeanteau words, but contain very reduced auxiliaries *-a* ('have') and *-ta* ('to'). *Wanna* might then be unstrandable because it is unambiguously a portmeanteau word, perhaps because reduction of *to* cannot delete the consonant.

[9] Here and below, we'll use notations like *-im* as a mnemonic for phonological cliticization. This is not intended as an accurate phonetic representation, since some speakers display vowel reduction without consonant deletion.

So non-contrastive functional items have two possible realizations: a weak/reduced form when there is an available host; and a strong/unreduced form when there is no available host. The puzzle of the Stranding Generalization, then, is that the strong/unreduced form cannot be used, even when ellipsis has deprived functional material of a potential host.

This is a problem for LF-copying theories of ellipsis. According to these theories, ellipsis involves insertion of a null pronoun, which retrieves its meaning anaphorically from the discourse. Consider (8b), repeated here as (12). According to LF-copying theories, the ellipsis site consists of a null pronoun, anaphorically related to the noun in the antecedent. Since there is no appropriate prosodic host for the pronoun, the prediction is that the unreduced form is used.

(12)   I played Nina Simone$_i$'s [album]$_j$ in the car. *Mei played her(s)$_i$ *pro$_j$ at home.

The same problem arises, though, for any PF-copying theory in which ellipsis precedes prosody. According to PF-copying theories, ellipsis sites contain syntactic structure, including potential prosodic hosts for functional material. But ellipis is widely assumed to take place before the prosodic computation takes place. If this is the case, then the input to the prosodic component will not contain the potential prosodic host in cases like (13). The prediction again is that the unreduced form will be used.

(13)   I played Nina Simone$_i$'s album in the car. *Mei played her(s)$_i$ ~~album~~ at home.

Thus, under many current theories, ellipsis is expected to derive a structure in which any potential prosodic host of functional material is absent, whether through deletion/non-pronunciation or insertion of a null element. Functional items have an unreduced form that is used when there is no appropriate host to cliticize to, whether as a result of movement or base-generation. These theories therefore fail to predict the Stranding Generalization: an unreduced form is predicted to be available, in the absence of material to cliticize to.

2.2 Contrast and Newness

In this section we argue that information structural constraints on ellipsis cannot, by themselves, explain the Stranding Generalization. As we will see, a requirement that all ellipsis remnants contrast is too strong, ruling out stranded pronouns but also a number of possible non-contrastive elements. On the other hand, a requirement that ellipsis remnants be merely new/non-given is too weak; ruling in non-contrastive elements in certain contexts will also allow non-contrastive pronouns, violating the Stranding Generalization.

We have seen that one way for a functional item to avoid the Stranding Generalization is to be contrastively focused. It is therefore tempting to attribute the effects of the Stranding Generalization to a generalization like that in (14):

(14)   **Contrast Generalization** (to be rejected): Remnants of gapping must contain a contrastively focused element.

For example, a number of linguists have argued that gapping remnants must contrast with parallel antecedents (Kuno (1976); Féry & Hartmann (2005); Gengel (2007); Winkler (2011), among others). It might then be that the pronoun cannot appear in (15a) because it doesn't satisfy the Contrast Generalization. This would be supported by the impossibility of a non-contrastive lexical noun phrase appearing in the same position (15b). The effects of the Stranding Generalization would then be attributed not to the prosodic needs of function words, but an independent requirement on their information structure. We argue that this move will not work.

(15)   a. *I called Sheryl on Monday, and ~~called~~ her on Tuesday too.
       b. %I called Sheryl on Monday, and ~~called~~ Sheryl on Tuesday too.[10]

Firstly, as indicated by the diacritic, not all speakers find a non-contrastive lexical noun phrase unacceptable out of the blue in (15b), in contrast to the robust unacceptability of (15a) across speakers. More importantly, the speakers we consulted uniformly accept it in contexts like the following:

(16)   a. Q: Who did you call this week, and when?
           A: I called Sheryl on Monday, and ~~called~~ **Sheryl** on Tuesday too.

       b. Last week, I called Li on Monday, and Jian on Tuesday. This week, I called Sheryl on Monday, and ~~called~~ **Sheryl** on Tuesday too.

Crucially, although non-contrastive lexical noun phrases can appear in these contexts, pronouns cannot (17).

(17)   a. Q: Who did you call this week, and when?
           A: I called Tim on Monday, and ~~called~~ Tim/*him[11] on Tuesday too.

       b. Last week, I called Li on Monday, and called Jian on Tuesday. This week, I called Tim on Monday, and ~~called~~ Tim/*him on Tuesday too.[12]

Thus, (17) shows that a pronoun cannot be stranded by ellipsis of the verb, even in a context where a non-contrastive noun phrase can appear. The Stranding Generalization therefore does not fall out of the Contrast Generalization: pronouns are, in some sense, special. Note that it will

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[10] We will assume in what follows that gapping involves low coordination at the vP level (Johnson 2017; Toosarvandani 2013). Any constituent that appears in the second conjunct is a remnant of gapping.

[11] Here and below, marking a pronoun as unacceptable means either in weak or strong form.

[12] Thanks to Roger Schwarzschild (p.c) for suggesting these very minimal pairs.

not help to treat *Sheryl* in (16a–16b) as contrastive. This would incorrectly predict that pronouns can appear in this position, since focused pronouns can be stranded by ellipsis.

The same divergence between pronouns and non-pronouns is found in NP-ellipsis cases.

(18)   a.   Q: Whose album did you listen to this week, and when?
A: I listened to Cher's album on Monday, and Cher's/*hers ~~album~~ on Tuesday too.

   b.   Last week, I listened to Beyonce's album on Monday, and Madonna's on Tuesday. This week, I listened to Cher's album on Monday, and Cher's/*hers ~~album~~ on Tuesday too.

The way the Stranding Generalization is formulated predicts that when pronouns do have an appropriate host, they can appear as gapping remnants, even when non-contrastive. This is correct: when a preposition is available for the pronoun to cliticize to, it can appear as a gapping remnant (19a–19b). Note the minimal pair of (19a) and (19c): although the pronouns are both non-contrastive, the pronoun in the double object construction violates the Stranding Generalization, while the pronoun in the *to*-dative construction does not.

(19)   a.   Q: What did you send to whom, and when?
A: I sent a cake to Jian$_i$ on Monday, and ~~sent~~ some wine **to-im**$_i$ on Tuesday.

   b.   Q: What did you get from whom, and when?
A: I got a book from Jian$_i$ on Monday, and ~~got~~ a letter **from-im**$_i$ on Tuesday.

   c.   Q: Who did you sent what, and when?
A: I sent Jian$_i$ a cake on Monday, and ~~sent~~ Jian/*him$_i$ some wine on Tuesday.

Similarly, possessor pronouns can serve as ellipsis remnants when provided with an appropriate host, even when that host—like the numeral in (20)—does not contrast.

(20)   Q: Which Cher album did you listen to, and when?
A: I listened to her first album on Monday, her third ~~album~~ on Tuesday, and her third ~~album~~ again on Wednesday.

The depictive in (21a) and the adverb in (21b) are further examples of non-contrastive remnants. They do not violate the Stranding Generalization because they do not require a prosodic host.

(21)   a.   Q: What did the chef serve, how did she serve it, and when?
A: She served the meat raw on Monday, and ~~served~~ the fish **raw** on Tuesday.

   b.   Q: Where did she run, how fast, and when?
A: She ran to the park quickly on Monday, and ~~ran~~ to the lake **quickly** on Tuesday.

One potential response is to suggest that the above non-contrastive remnants are actually part of a larger constituent that contains contrastive focus. For example, it might be argued that in (21a), the object and depictive form a constituent, [*the fish raw*]. Because this constituent contains the contrastively focused object *the fish*, the Contrast Generalization is satisfied. But even if such a constituent structure could be motivated in all the above examples, it could not explain the Stranding Generalization. If the Contrast Generalization could be satisfied by these putative constituents, then putting the contrast on the other element in these constituents should allow a pronoun to survive ellipsis. This is not the case: in (22a), contrasting the depictive does not allow an object pronoun to appear. The same logic carries over to the ditransitive example in (22b).

(22)   a.   Q: What did the chef serve, how did she serve it, and when?
            A: She served the meat RAW on Monday, and ~~served~~ the meat/*it COOKED on Tuesday.

       b.   Q: Who did you sent to whom, and when?
            A: I sent Jian to MAŠA on Monday, and ~~sent~~ Jian/*him to MEI on Tuesday.

The same pattern holds in other varieties of ellipsis. It is possible to construct counterexamples to the Contrast Generalization in pseudogapping (23a) and fragment answers (23b). Mirroring the gapping pattern precisely, a given pronoun cannot appear where a given lexical noun phrase can. (23a–23b) are therefore further instances of the Stranding Generalization.

(23)   a.   Jian will see Li more than Mona will Sheryl, Mary will ~~see~~ Tim, or Bob will ~~see~~ Tim/*him.

       b.   Q: Who did you see, and when?
            A: On Monday, ~~I saw~~ Sheryl. On Tuesday, ~~I saw~~ Tim. On Wednesday, ~~I saw~~ Tim/*him again.

Again, in accordance with the Stranding Generalization, non-contrastive material can appear when provided with a prosodic host.

(24)   a.   Mary spent more time with John last week than Bill did ~~spend time~~ with-im all year.

       b.   Q: Who did you give the prize to, and when?
            A: On Tuesday, ~~I gave the prize~~ to Tim. On Wednesday, ~~I gave the prize~~ to-im again.

We conclude that the Contrast Generalization does not hold. It is too strong: it correctly rules out the unacceptable remnants covered by the Stranding Generalization, but also rules out a number of acceptable remnants.

Two reviewers suggest that, although the Contrast Generalization cannot be sustained, a weaker requirement might do the job. They argue that the non-contrastive remnants in the above examples are not given, but constitute new information. The Contrast Generalization, then, could be replaced with (25):

(25)   **Newness Generalization**: Remnants of gapping must contain a new (non-given) element, or a contrastive element.

We think this is descriptively correct, and will adopt it in what follows. Note that the appearance of non-contrastive elements is improved by the richer discourses we provided above. For example, while only some speakers accepted the non-contrastive name as an ellipsis remnant in (15b), repeated as (26a), all speakers accepted it in a context like (16a), repeated as (26b).

(26)   a.   %I called Sheryl on Monday, and ~~called~~ Sheryl on Tuesday too.[13]
       b.   Q: Who did you call this week, and when?
            A: I called Sheryl on Monday, and ~~called~~ **Sheryl** on Tuesday too.

Building on reviewers' comments, we suggest that the name/pronoun in richer contexts like these (e.g. 19, 21, 24, 26b) can be treated as new information, not Given, even though its reference is salient in light of the first conjunct. The reason, we hypothesize, is that the relevant DP is part of a *pair*, which serves as an answer to the salient question under discussion, one of whose elements does contrast across the two conjuncts. For example, the answer in (26b) replies to a question under discussion (QUD) which makes salient pairs of names and days, such as <Li, on Monday> and <Sheryl, on Tuesday>. We suggest that *Sheryl* in (26b) can be considered new information in the context of the pair <Sheryl, on Tuesday>, because the pair itself contrasts with <Sheryl, on Monday>. We take the difficulty some speakers found in accepting (26a) in out of the blue contexts to result from a difficulty in accommodating a QUD which contrasts these pairs.

With this perspective in mind, the Newness Generalization indeed allows non-contrastive ellipsis remnants that the Contrast Generalization ruled out. However, allowing merely new ellipsis remnants can only be part of the solution. The problem is that the Newness Generalization by itself would also rule *in* all the remnants that the Stranding Generalization shows to be impossible. As we saw in (16)-(17), the richer contexts allow a non-contrastive name to appear as an ellipsis remnant but not a non-contrastive pronoun. (27) gives another illustration of this point. If the richer context allows *Jian* to be treated as new, it should allow the same possibility for *him*, contrary to fact.

(27)   Q: Who did you send what, and when?
       A: I sent Eve some cake on Monday, $Jian_i$ some cookies on Tuesday, and ~~sent~~ Jian/*him_i some wine on Wednesday.

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[13] We will assume in what follows that gapping involves low coordination at the vP level (Johnson 2017; Toosarvandani 2013). Any constituent that appears in the second conjunct is a remnant of gapping.

The moral of this section is that the Stranding Generalization shows a split in behaviour, between functional and lexical elements, that manifests independently of information structure. Even when information structure is held constant—as in the richer contexts that allow non-contrastive ellipsis remnants—functional elements are still subject to the Stranding Generalization. A condition on information structure, though necessary in any account of ellipsis, is therefore not sufficient to explain the Stranding Generalization. Any explanation will have to invoke additional factors.

In section 3 we will argue that the Stranding Generalization follows from independently motivated prosodic constraints, if ellipsis is computed together with prosody. We will first show that the patterns we have just described pose a significant problem for *Move and Delete* theories of ellipsis.

2.3 Move-and-Delete theories

Many current theories analyze ellipsis as involving deletion of a syntactic constituent at PF. The ability of constituents to survive ellipsis is then tied to prior movement out of the deleted constituent. In many cases, this requires so-called 'exceptional' movements, which do not occur in corresponding non-elided utterances. For example, gapping is commonly analyzed as involving something like vP ellipsis, after movement of remnants from the ellipsis site (28a) (Jayaseelan 1990; Toosarvandani 2013; Sailor & Thoms 2014). Movements like in (28a) are not possible in non-elliptical utterances (28b).

(28)   a.   I sent a cake to Jian on Monday, and [some wine$_F$]$_j$ [to Mona]$_k$ [~~sent t_j t_k~~] on Tuesday.
       b.   *I sent a cake to Jian on Monday, and some wine to Mona gave on Tuesday.

Such theories almost always assume that it is focus that drives these movements (Jayaseelan 1990; Gengel 2007; Toosarvandani 2013). This is motivated by the Contrast Generalization (section 2.2), in gapping and other related ellipsis constructions, such as pseudogapping and fragment answers. This in turn has been argued to explain the exceptional nature of these movements. Boone (2014) and Weir (2015), for example, argue that they are 'last-resort' movements, made possible only to ensure that contrastively focused constituents do not remain in the ellipsis site.

However, we have seen that the Contrast Generalization does not hold: non-contrastive material can, in some circumstances, be remnants of gapping constructions. This is a significant problem for Move-and-Delete (M&D) theories. One possible move would be to allow optional movement of non-contrastive constituents like *to-im* in (29a). However, this would mean that movement out of ellipsis sites is not a last-resort phenomenon, nullifying the arguments of Boone (2014) and Weir (2015). It also makes it extremely difficult to account for the Stranding Generalization. It is not clear why optional movement would be allowed for *to-im* in (29a), and *Jian* in (29b), but not the pronoun in (29c). The relevant differences between them are prosodic, not syntactic.

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[14]   As in the cases in section 2.2, this requires a particular context, e.g. a question like "Who did you send what on which day?"

(29) a. I sent a cake to Jian on Monday, and [some wine$_F$]$_j$ [to-im]$_k$ [~~sent~~ t_j t_k] on Tuesday.

b. I sent Jian a cake on Monday, and [Jian]$_k$ [some wine$_F$]$_j$ [~~sent~~ t_j t_k] on Tuesday.[14]

c. *I sent a cake to Jian on Monday, and [him]$_k$ [some wine$_F$]$_j$ [~~sent~~ t_j t_k] on Tuesday.

We should also consider a theory in which *either* contrastive or new material moves out of the ellipsis site. This would derive the Newness Generalization in (25), and could potentially be motivated as a last-resort movement, as in Boone (2014) and Weir (2015). Such a theory would be too weak to account for the Stranding Generalization, for the reasons outlined in the previous section. It would allow the non-contrastive PP *to-im* to move in (29a), but also incorrectly allow the pronoun *him* to move in (29c). Something would need to be said to account for why movement is impossible precisely when it would violate the Stranding Generalization.

A reviewer suggests the possibility that weak pronouns cliticize in the syntax, bleeding the possibility of movement out of the ellipsis site. We are not aware of evidence that weak pronouns cliticize, or if they did, why they could not cliticize to a position outside of the ellipsis site.[15] For possessors, this cliticization would have to involve an illegitimate syntactic lowering operation. More problematic still are cases like (20)—repeated as (30)—in which the possessor pronoun survives when provided with a prosodic host. The account here would have to be that the possessor first lowers onto the numeral, then raises together with it out of the ellipsis site. We do not think these movements can be motivated on independent syntactic grounds.[16]

(30) Q: Which Cher album did you listen to, and when?

A: I listened to her first album on Monday, her third ~~album~~ on Tuesday, and her third ~~album~~ again on Wednesday.

The reviewer suggests alternatively that movement out of ellipsis sites is subject to Holmberg's Generalization (Holmberg 1999), which prevents weak pronouns from moving past the landing site of the lexical verb. We can see a number of problems with this idea, but we will mention one that we take to be decisive. Holmberg's Generalization applies to any constituent that can undergo object shift. In Icelandic, it prevents both weak pronouns and lexical noun phrases from moving past the verb. Thus, if Holmberg's Generalization constrained movement out of ellipsis sites, it would prevent any object from appearing as an ellipsis remnant.[17]

We conclude that there is no promising syntactic account of why non-contrastive lexical noun phrases can move out of ellipsis sites, but non-contrastive pronouns cannot. Without such

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[15] This would not create the word order of non-elliptical English utterances, but this is also true of all other putative movement out of ellipsis sites.

[16] It would not help to argue that the proposed incorporation/cliticization operation is post-syntactic. A M&D theory needs to explain why the relevant movement is impossible in the syntax.

[17] Another reviewer suggests a post-syntactic prosodic filter on ellipsis remnants, that prevents 'stray bound function words.' But as we saw in section 2.1, when movement (or base-generation) deprives a functional item of its prosodic host, an unreduced form is used, with no ill effects.

an account, a M&D theory cannot explain the Stranding Generalization. We will therefore pursue an account in which ellipsis remnants are not required to move.[18] An additional benefit will be the possibility of eliminating 'exceptional' movements from the grammar.

3 The proposal

We have argued that ellipsis in English is subject to the Stranding Generalization, which prevents functional material from appearing without a prosodic host. Thus, even in contexts which allow non-contrastive ellipsis remnants, functional elements cannot be stranded by ellipsis. In this section we outline a new theory of the computation of ellipsis, which we argue can explain this phenomenon.

The account will be couched within Match Theory (Selkirk 2009; 2011), which provides a set of violable constraints governing the mapping from syntactic constituents to prosodic constituents. Specifically, we will propose that ellipsis involves the systematic violation of Match constraints, as a way to satisfy the pressure to delete given material. This will arise from an optional reranking between a Match constraint and a constraint, ELIDE, which requires given material to delete. Because the ellipsis calculation takes place in the syntax-prosody mapping, it will be subject to independent prosodic well-formedness constraints, provided they outrank ELIDE. We will argue that one of these—Tyler's 2019 SUBCAT—derives the effects of the Stranding Generalization.

3.1 Match Theory

We begin by briefly introducing Match Theory (Selkirk 2009; 2011), which is an 'indirect reference' theory. Indirect reference theories posit that the syntax-prosody mapping is governed by two competing forces: the pressure for the prosody to transparently reflect syntactic structure; and independent prosodic well-formedness constraints.

The pressure to reflect syntactic structure stems from Match Constraints, which force syntactic elements to map to categories in the prosodic hierarchy in (31).

(31)   **Prosodic Hierarchy**

ι	Intonational phrase
ɸ	Phonological phrase
ω	Phonological word
F	Foot
σ	Syllable

---

[18] Similarly, Ott & Struckmeier (2018) argue against Move and Delete theories based on the behavior of German modal particles, which are unable to move but can nevertheless serve as remnants of clausal ellipsis. See also Bruening (2015); Griffiths (2019) for an account in which remnants are not required to move.

These Match Constraints are as follows, with wording adapted from Weir (2012):

(32)   a.   MATCH CLAUSE: The left and right edges of CP/ForceP must correspond to the left and right edges of ι. The left and right edges of ι must correspond to the left and right edges of CP/ForceP.

b.   MATCH PHRASE: The left and right edges of XP must correspond to the left and right edges of φ. The left and right edges of φ must correspond to the left and right edges of XP.

c.   MATCH WORD: The left and right edges of X^0 must correspond to the left and right edges of ω. The left and right edges of ω must correspond to the left and right edges of X^0.

However, these constraints can be outranked by prosodic well-formedness constraints. For example, there have been argued to be constraints forcing φs to be both minimally binary (BINMIN) and maximally binary (BINMAX). If such constraints outrank MATCH PHRASE, the output will not transparently match the syntactic structure. For example, in (33), the need to satisfy BINMIN prevents the DP *dogs* from mapping to φ, so that the winning candidate violates MATCH PHRASE.

(33)

$[_{DP}$ dogs]	BINMIN	MATCHPH
a. $(_{\phi}$ $(_{\omega}$ dogs))	*!	
b. ☞ $(_{\omega}$ dogs)		*

According to Match Theory, syntax-prosody mismatches arise out of interactions like these between Match constraints and prosodic well-formedness constraints. In the next sections, we will briefly introduce relevant constraints governing the prosodic behavior of function words and focused material.

3.2 Function words

Function words generally fail to map to ω. As a result, it is common to assume that Match Word only applies to lexical words (Selkirk 2011; Weir 2012). However, we will follow Tyler (2019), who argues that failure of function words to map to ω is instead a syntax-prosody mismatch of the sort just outlined. Specifically, he argues that many function words have violable prosodic subcategorization frames (Zec 2005; Bennett, Harizanov & Henderson 2018). For instance, he argues that object pronouns have the subcategorization (henceforth SUBCAT) frame in (34).

(34) *Left-cliticizing* SᴜʙCᴀᴛ *frame for English object pronouns*:
$(_\omega [\ldots] (_\sigma D^0))$

This SᴜʙCᴀᴛ frame requires that the pronoun have as its mother a node of category ω, and material within ω to its left. This requirement is satisfied by the structure in (35).[19]

(35)

```
        ω
       / \
      ω   σ
    need 'em
```

A SᴜʙCᴀᴛ constraint will assign a violation mark to every pronoun that fails to map to the structure in (35). Note that for ease of reading, we have suppressed representation of any categories below the level of ω. Thus, any material not enclosed in $(_\omega)$ maps to a bare syllable in what follows, with $(_\omega (_\omega$ saw) him) indicating cliticization of *him* to *saw*.

If SᴜʙCᴀᴛ constraint outranks Mᴀᴛᴄʜ Wᴏʀᴅ and Mᴀᴛᴄʜ Pʜʀᴀsᴇ, the pronoun will always cliticize when possible (36). Candidates (a–c) are ruled out by SᴜʙCᴀᴛ: in (a) and (c), the pronoun has not cliticized at all; in (b) it has cliticized, but to φ instead of ω. Among the candidates that satisfy SᴜʙCᴀᴛ, the more Match-compliant candidate (e) wins, because candidate (d) unnecessarily fails to map the verb to ω. The result, therefore, is cliticization of the pronoun, as in (35).

(36)

[$_{VP}$ need them]	SᴜʙCᴀᴛ	MᴀᴛᴄʜW	MᴀᴛᴄʜPʜ
a. $(_\phi (_\omega$ need) $(_\omega$ them))	*!		
b. $(_\phi (_\omega$ need) them)	*!	*	
c. $(_\omega (_\omega$ need) $(_\omega$ them))	*!	*	*
d. $(_\omega$ need them)		***!	*
e. ☞ $(_\omega (_\omega$ need) them)		**	*

As noted in section 2.1, the syntax will sometimes deliver a structure in which there is no appropriate host for a functional item (e.g. *Him leaving surprised me*, 11c). This receives a simple

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[19] There may be differences among speakers and registers in the degree of reduction weak pronouns undergo. For example, consonant deletion in *him* is less likely in careful speech. This is consistent with the structure in (35) so long as the pronoun doesn't receive lexical stress.

explanation in Tyler's system: since there is no candidate in which SUBCAT is not violated, the most Match-compliant candidate wins (37).[20] The pronoun will map to ω, and as a result it will be stressed. Thus, the use of the unreduced non-contrastive pronoun is an 'emergence of the unmarked' effect.

(37)

[$_{DP}$ him leaving…]	SUBCAT	MATCHW
a. ($_{ω}$ him ($_{ω}$ leaving))	*	*!
b. ☞ ($_{φ}$ ($_{ω}$ him) ($_{ω}$ leaving))	*	

An important fact about the prosodic behavior of object pronouns is that they cannot cliticize when embedded inside a conjunction, even when there is a linearly adjacent potential host.

(38)   a. *Mary and-im left (*cf.* Mary and him left).
        b. *for[-im and Mary] (*cf.* for [him and Mary])
        c. *saw[-im and Mary] (*cf.* saw [him and Mary])

We therefore need a way to rule out a parse like (39).

(39)
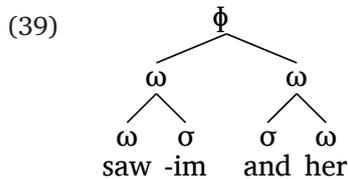
This shows that Tyler's (2019) SUBCAT constrain for object pronouns is not quite sufficient. Note that what seems to be relevant here is the presence or absence of a syntactic relationship between the functional item and a potential host. Verbs and prepositions select and assign case to their complements; there is no such relationship between either V/P and a DP conjunct, or between *and* and a DP conjunct. In light of this, we propose to generalize (34) to (40). In this revised form, SUBCAT constraints do not encode prosodic requirements of individual lexical items such as object pronouns, as in Tyler (2019). Rather, they preserve syntactic relationships, like case assignment or selection, in the prosody:

---

[20] Other ways of satisfying SUBCAT, like epenthesis and linear reordering, will have to be ruled out by high-ranked constraints.

[21] We have specifically limited (40) to cases involving function words, because we do not see e.g. lexical nouns cliticizing onto verbs. As Tyler (2019) notes, cliticization of lexical words is rare or unattested. If this can be ruled out independently, the constraint could be simplified.

(40)   SᴜʙCᴀᴛ, *revised*: Given a feature-chain ψ on function word $X_{[\psi]}$ and $Y_{[\psi]}$: assign a violation for every instance of ψ in which X does not cliticize to Y.[21]

The constraint in (40) correctly predicts that pronouns will not cliticize to elements like *and*, with which they are not in a featural relationship. It also captures in a parallel fashion the fact that prepositions do not cliticize onto elements like *and* ([tu and from], c.f. [*tə-and from]). And crucially, it applies to feature-chains, not specifically to function words as in Tyler (2019). This means that in addition to punishing function words that appear without their potential hosts (violations of the Stranding Generalization), SubCat will also punish hosts that do not appear with their potential function word clitics. It will also mean that SubCat will be satisfied vacuously if both elements delete, since the feature-chain will not be present in the output.

Conceived in this way, SubCat bears a strong resemblance to other constraints that have been argued to preserve syntactic relationships in the prosodic structure. For example, Richards (2016) proposes a family of 'Contiguity' constraints, which force the prosody to reflect syntactic relations such as selectional and Probe/Goal relations. Similarly, Clemens (2014) argues for an Aʀɢᴜᴍᴇɴᴛ-ϕ constraint, which specifically requires verbs and their arguments to phrase together.[22] These constraints, as well as our revised SᴜʙCᴀᴛ, can be seen as minimizing the prosodic distance between elements in a feature-chain.

3.3 Focus

When a functional item is contrastively focused, it does not cliticize onto adjacent elements. This can be explained by a constraint like Sᴛʀᴇss-Fᴏᴄᴜs, adapted from Truckenbrodt (2006).

(41)   Sᴛʀᴇss-Fᴏᴄᴜs: A contrastively focused element must contain phrasal stress.[23]

This constraint will require focused pronouns (marked by the feature F) to map to ϕ in order to bear a pitch accent.[24] (42a) thus establishes the ranking Sᴛʀᴇss-Fᴏᴄᴜs ≫ SᴜʙCᴀᴛ (42b).

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[22] See also Selkirk's (1984) Sense Unit Condition, and Henderson's (2012) Complement-ϕ constraint.

[23] Alternatively, Sᴛʀᴇss-Fᴏᴄᴜs could simply specify that foci map to ϕ, as suggested to us by Roger Schwarzschild (p.c). Note that in either case, something like Féry's (2013) AʟɪɢɴFᴏᴄᴜs is required to ensure that the last focused element bears nuclear stress.

[24] An exception to this is second-occurrence focus, where pronouns only map to ω. Cliticization is still impossible in second-occurrence focus, as first noted for English by San Tunstall and reported in von Fintel (1994).

(42) a. She praised (HIM)$_\phi$, not (HER)$_\phi$.

b.

[$_{VP}$ praised [HIM]$_F$]		STRESSF	SUBCAT
a. ☞	($_\omega$ praised) ($_\phi$ him)		*
b.	($_\omega$ ($_\omega$ praised) him)	*!	

3.4 Givenness

We call an element 'given' if it denotes an individual, a property, a relation or a proposition that has been made salient enough in the preceding discourse.[25]

In cases like (43a), where both verb and object are deleted, we assume that both the verb and object are marked as Given (G-marked, see e.g. Fery & Samek-Lodovici (2006); Selkirk (2008); Büring (2016); Kratzer & Selkirk (2020)).[26]

(43) a. I saw Sheryl on Monday, and ~~saw Sheryl/her~~ on Tuesday too.

b.

```
         VP_G
        /    \
      V_G    DP_G
      saw   Sheryl/her
```
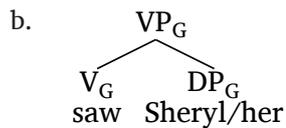
As discussed in section 2.2, rich contexts like (44a) allow even previously mentioned material to be treated as new information (if they are part of a pair that stands in a contrast with another pair). Following Fery & Samek-Lodovici (2006); Selkirk (2008) and others, newness is not marked in syntax, but is treated as the absence of G-marking. Thus in such contexts, only the verb is G-marked (44b).

(44) a Q: Who did you see, and when?

A: I saw Sheryl on Monday, and ~~saw~~ Sheryl/*her on Tuesday too.

b.

```
         VP
        /    \
      V_G    DP
      saw   Sheryl/*her
```

---
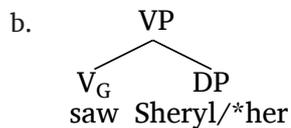
[25] This is an informal characterization. For more precision, see Schwarzschild (1999); Büring (2016); Wagner (2012), among others.

[26] A reviewer asks why the terminal nodes are G-marked, rather than G-marking only the VP. See Büring (2016: pp. 119–122) for arguments that a constituent cannot be Given without all of its elements being Given.

3.5 Ellipsis

We propose that the pressure to elide comes from a constraint, ELIDE, which penalizes the realization of G-marked nodes.

(45)   ELIDE: Assign one violation mark for each G-marked node that is realized with phonological content in the output.[27]

If ELIDE is dominated by MATCH WORD, there will be no ellipsis (46b).

(46)   a.   I saw Lian on Monday, and **saw Lian** on Tuesday too.

b.

[saw$_G$ Lian$_G$]	SUBCAT	MATCH WORD	ELIDE
a. ☞ ($_\omega$ saw) ($_\omega$ Lian)			**
b. ($_\omega$ saw)		*!	*
c. ($_\omega$ Lian)		*!	*
d. ∅		*!*	

However, if the ranking is instead ELIDE ≫ MATCH WORD, G-marked nodes will have to delete. Thus, ellipsis arises from an optional reranking, in which ELIDE dominates Match Word.[28] This optionality in ranking corresponds to the optionality of inserting an E-feature in syntactic theories of ellipsis like Merchant (2001).

(47)   a.   I saw Lian on Monday, and ~~saw Lian~~ on Tuesday too.

b.

[saw$_G$ Lian$_G$]	SUBCAT	ELIDE	MATCH WORD
a. ($_\omega$ saw) ($_\omega$ Lian)		!**	
b. ($_\omega$ saw)		*!	*
c. ($_\omega$ Lian)		*!	*
d. ☞ ∅			**

---

[27] This is almost identical to the ELIDE constraint in Bennett, Elfner & McCloskey (2019). They refer to [∅]-marked nodes—nodes which are marked for deletion—instead of G-marked nodes. But they speculate that this could be replaced with G-marking, as we have done: see Bennett, Elfner & McCloskey (2019: fn. 26) for relevant discussion.

[28] For optional reranking of constraints see Orgun (1996); Anttila (2002); Inkelas & Zoll (2007; 2009).

ELIDE refers specifically to G-marked elements, and therefore does not apply either to F-marked or merely new elements. Contrastive or new elements will always escape ellipsis, in line with the Newness Generalization (section 2.2). As noted, however, this is not sufficient to explain the Stranding Generalization, to which we now turn.

3.6 Back to the Stranding Generalization

The Stranding Generalization says that functional items cannot be stranded by ellipsis without their (potential) prosodic host. This means that an accusative pronoun cannot be stranded by deletion of the verb, but can appear if supported by e.g. a preposition. We can now see how this theory of ellipsis explains the Stranding Generalization. When ellipsis is evaluated at the syntax-prosody interface, candidates will contain potential prosodic hosts like verbs because, by hypothesis, deletion has not yet taken place. As a result, SUBCAT constraints play an active role, if ranked above ELIDE. This is crucially unlike cases in which the syntax simply does not provide a potential host, whether by movement or base-generation; we saw in (37) that in such cases, SUBCAT is irrelevant, because there are no candidates in which it can be satisfied. In ellipsis, the syntax *does* provide a potential host, and SUBCAT becomes relevant.

Consider the ungrammatical example in (48a) (in what follows, we will suppress the representation of ϕ and ι, except when required by e.g. STRESS-FOCUS). We are assuming, following section 3.4, that the pronoun can be treated as new in this context: if Given it will simply delete (with the ranking ELIDE ≫ MATCH WORD). The verb is G-marked, and would have to delete in order to satisfy ELIDE. Any structure without the verb, however, will violate SUBCAT (candidates c–d); recall independent evidence from section 3.2 that cliticization to *and* does not satisfy SUBCAT.[29] With the ranking SUBCAT ≫ ELIDE, then, ellipsis of the verb will be suppressed—violating ELIDE—in order to satisfy SUBCAT.[30]

(48) a. Q: Who did you see, and when?
      A: *I saw Anna on Monday, Yusuf$_i$ on Tuesday, and **saw him**$_i$ on Wednesday too.

b.

[and saw$_G$ him]	SFOC	SUBCAT	ELIDE	MATCHW
a. ☞ ($_\omega$ and ($_\omega$ saw) him)			*	***
b. ($_\omega$ and ($_\omega$ saw)) ($_\omega$ him)		*!	*	*
c. ($_\omega$ and him)		*!		****
d. ($_\omega$ and ($_\omega$ him)		*!		***

---

[29] We will represent *and* as cliticizing to the right in what follows, but this is not crucial.

[30] In (48b) and what follows we do not consider candidates in which the pronoun was deleted, since this would involve unrecoverable deletion of new material, which can be ruled out on independent pragmatic grounds.

Now, consider the behaviour of lexical noun phrases. Again, we are considering contexts in which the object is treated as new information. Because lexical noun phrases do not have SUBCAT requirements, deletion of the verb will not result in a violation of SUBCAT, and ELIDE can be satisfied (candidates c–d). The more Match-compliant candidate (d) wins, since it does not fail to map *Yusuf* to ω.

(49) a. Q: Who did you see, and when?
        A: I saw Lian on Monday, Yusuf on Tuesday, and ~~saw Yusuf~~ on Wednesday too.

b.

[and saw$_G$ Yusuf]	SFOC	SUBCAT	ELIDE	MATCHW
a. $(_\omega$ and $(_\omega$ saw) Yusuf)			*!	***
b. $(_\omega$ and $(_\omega$ saw)) $(_\omega$ Yusuf)			*!	*
c. $(_\omega$ and Yusuf)				***!*
d. ☞ $(_\omega$ and $(_\omega$ Yusuf))				***

This analysis carries over to cases like (50a). We are treating the PP *to him* as new, rather than given, made possible by the rich context. Deletion of the verb is forced by ELIDE, as in the above cases. Here, both the preposition *to* and pronoun *him* are required by SUBCAT to cliticize to each other. Following Tyler (2019), these requirements can be satisfied by the structure in (50b), forming a single phonological word in which both of their SUBCAT requirements are satisfied.[31] Because there is no SUBCAT violation, the PP *to him* is an eligible ellipsis remnant.

(50) a. Q: What did you send to whom, and when?
        A: I sent a cake to Jian on Monday, and ~~sent~~ some wine **to him** on Tuesday.

b.
```
        ω
       / \
      σ   σ
      to  -im
```
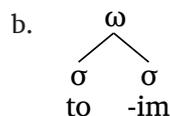
c.

[and sent$_G$ some wine$_F$ to him]	SFOC	SUBCAT	ELIDE	MATCHW
a. $(_\omega$ and $(_\omega$ sent)) $(_\phi$ $(_\omega$ some $(_\omega$ wine))) $(_\omega$ to him)			*!	********
b. ☞ $(_\phi$ $(_\omega$ and some $(_\omega$ wine))) $(_\omega$ to him)				********
c. $(_\phi$ $(_\omega$ and some $(_\omega$ wine))) $(_\omega$ to) $(_\omega$ him)		*!		****
d. $(_\omega$ and to him)	*!			*******

[31] See Tyler (2019: pp. 24–25) for a more detailed discussion of these cases, as well as Talić (2017) for a similar analysis of proclitic-enclitic configurations.

This contrasts with the minimally different double-object construction in (51a). Here there is no way to satisfy the pronoun's SUBCAT requirement, unlike the prepositional dative in (50a). Ellipsis is therefore suppressed by SUBCAT.

(51)   a.   Q: Who did you send what, and when?
            A: *I sent Jian a cake on Monday, and ~~sent~~ him some wine on Tuesday.

   b.

[and sent$_G$ him some wine$_F$]	SFOC	SUBCAT	ELIDE	MATCHW
a. ☞ ($_\omega$ and ($_\omega$ sent) him) ($_\phi$ ($_\omega$ some ($_\omega$ wine)))			*	*****
b. ($_\omega$ and him) ($_\phi$ ($_\omega$ some ($_\omega$ wine)))		*!		******
c. ($_\omega$ and ($_\omega$ him)) ($_\phi$ ($_\omega$ some ($_\omega$ wine)))		*!		*****
d. ($_\omega$ and him)	*!	*		******

Finally, the ranking STRESS-FOCUS ≫ SUBCAT guarantees that contrastively focused pronouns— and contrastively focused material in general—will be realized.[32] STRESS-FOCUS rules out the SUBCAT-compliant candidate in (d), as well as the Match-compliant candidate in (e). ELIDE ensures that the verb is elided, ruling out (c). Satisfying ELIDE and SUBCAT by deleting both the verb and pronoun is ruled out by STRESS-FOCUS. Thus, the verb will delete and the pronoun will map to φ (candidate a); satisfying STRESS-FOCUS will necessarily lead to a violation of SUBCAT.

(52)   a.   I saw HER on Monday, and **saw HIM** on Tuesday.

   b.

[saw$_G$ HIM$_F$]	SFOC	SUBCAT	ELIDE	MATCHW
a. ☞ ($_\phi$ ($_\omega$ him))		*		*
b. ∅	*!			**
c. ($_\omega$ saw) ($_\phi$ ($_\omega$ him))		*	*!	
d. ($_\omega$ ($_\omega$ saw) him)	*!		*	**
e. ($_\omega$ saw) ($_\omega$ him)	*!	*	*	

---

[32] The account therefore predicts the kind of data that motivated the Contrast Condition.

We argued in section 3.2 that SUBCAT seeks to preserve the syntactic relationship between a functional head and another element. This was captured by making SUBCAT refer specifically to the feature-chain established by, for example, case assignment. Deleting a preposition to the exclusion of its complement, then, will violate SUBCAT, since the feature-chain will not be appropriately represented. Thus, when *Wednesday* is F-marked, and therefore prevented from deleting by STRESS-FOCUS, its case-assigning preposition escapes deletion in order to satisfy SUBCAT.

(53) a. Q:Who did you see, and when?
     A: I saw Lian on Monday, Yusuf on Tuesday, and **~~saw~~ Yusuf** on Wednesday too.

b.

[and saw$_G$ Yusuf on$_G$ Wednesday$_F$]	SFOC	SUBCAT	ELIDE	MATCHW
a. ($_\omega$ and ($_\omega$ Yusuf))	*!			***
b. ($_\omega$ and ($_\omega$ Yusuf)) ($_\phi$ ($_\omega$ Wednesday))		*!		****
c. ☞ ($_\omega$ and ($_\omega$ Yusuf)) ($_\phi$ ($_\omega$ on ($_\omega$ Wednesday)))			*	*****

We thus have the following constraint ranking for ellipsis in English:

(54) STRESS-FOCUS ≫ SUBCAT ≫ ELIDE ≫ MATCH WORD

This analysis straightforwardly extends to NP ellipsis. We again consider contexts where non-contrastive remnants are possible, so as to give the pronoun the best chance of surviving. As discussed in section 2, possessor pronouns have SUBCAT constraints that force them to cliticize to their right. Since ellipsis would violate SUBCAT, the G-marked noun must be pronounced.

(55) a. Q: Whose album did you listen to, and when?
     A: I listened to Cher$_i$'s ~~album~~ on Monday, and ***her(s)**$_i$ ~~album~~ again on Tuesday.

b.

[her album$_G$]	SFOC	SUBCAT	ELIDE	MATCHW
a. ☞ ($_\omega$ and her ($_\omega$ album))			*	***
b. ($_\omega$ and her (s))		*!		****
c. ($_\omega$ and ($_\omega$ her (s))		*!		***

If the possessor is a lexical noun phrase, there are no SUBCAT requirements to satisfy, and therefore no need to violate ELIDE. The most Match-compliant of the remaining candidates wins.

(56) a. Q: Whose album did you listen to, and when?

A: I listened to Cher$_i$'s ~~album~~ on Monday, and **Cher's**$_i$ ~~album~~ again on Tuesday.

b.

[Cher's album$_G$]	SFOC	SUBCAT	ELIDE	MATCHW
a. $(_\omega$ and Cher's $(_\omega$ album$))$			*!	***
b. $(_\omega$ and Cher's$)$				****!
c. ☞ $(_\omega$ and $(_\omega$ Cher's$)$				***

If other material is present that allows the possessor pronoun to satisfy its SUBCAT requirements, ellipsis is once again possible.

(57) a. Q: Which albums did you listen to, and when?

A: I listened to Cher's first ~~album~~ on Monday, **her second ~~album~~** on Tuesday, then Mitski's second ~~album~~ on Wednesday.

b.

[her second$_F$ album$_G$]	SFOC	SUBCAT	ELIDE	MATCHW
a. $(_\phi (_\omega$ her $(_\omega$ second$)))$ $(_\omega$ album$)$			*!	**
b. ☞ $(_\phi (_\omega$ her $(_\omega$ second$)))$				***
c. $(_\omega$ hers$)$	*!			***

As we showed in section 2.2, pseudogapping is subject to the Stranding Generalization. The explanation is exactly as before. Since the verb is in the input, deleting it would violate SUBCAT.[33]

(58) a. *Jian will see Li more than Mona will Sheryl, Mary will Tim, or Bob will ~~see him~~.

b.

[will see$_G$ him]	SFOC	SUBCAT	ELIDE	MATCHW
a. ☞ $(_\omega$ will $(_\omega$ see$)$ him$)$			*	***
b. $(_\omega$ will him$)$		*!		****
c. $(_\omega (_\omega$ will$)$ him$)$		*!		***

---

[33] Pseudogapping, as well as VP ellipsis, involve pronunciation of the finite auxiliary, even when it is Given. We speculate that this is the result of Probe-Goal Contiguity (Richards 2016), according to which the grammar tries to create representations in which the elements of Probe-Goal relations like subject-verb agreement are tightly linked in the prosody. If a constraint enforcing Probe-Goal Contiguity is sufficiently high-ranked, it could suppress deletion of the auxiliary in the same fashion as SUBCAT.

A lexical noun phrase can again appear, since SUBCAT would not be violated.

(59) a. Jian will see Li more than Mona will Sheryl, Mary will Tim, or Bob will **see Tim**.

b.

[will see$_G$ him]	SFOC	SUBCAT	ELIDE	MATCHW
a. ($_\omega$ will ($_\omega$ see) Tim)			*!	***
b. ($_\omega$ will Tim)				****!
c. ☞ ($_\omega$ will ($_\omega$ Tim))				***

And once more, a pronoun can appear if it can find a host to satisfy its SUBCAT requirements.

(60) a. Mary has spent more time with John last week than Bill will **spend time with him** all year.

b.

[spend$_G$ time$_G$ with him]	SFOC	SUBCAT	ELIDE	MATCHW
a. ($_\omega$ will ($_\omega$ spend)) ($_\omega$ time) ($_\omega$ with him)			*!	*****
b. ☞ ($_\omega$ will) ($_\omega$ with him)				*****

Finally, we consider fragment answers. The analysis is completely parallel to gapping, NP-ellipsis, and pseudogapping. We assume a sentential analysis, since there are connectivity effects Merchant 2004). Given a sentential analysis, the verb is present in the input, and the pronoun's SUBCAT requirements must again be satisfied.

(61) a. Q: Who did Lian see, and when?
A: *On Monday, ~~she saw~~ Sheryl. On Tuesday, ~~she saw~~ Tim. On Wednesday, **she saw him** again.

b.

[on$_G$ Wednesday$_F$ she$_G$ saw$_G$ him]	SFOC	SUBCAT	ELIDE	MATCHW
a. ☞ ($_\phi$ ($_\omega$ on ($_\omega$ Wednesday))) ($_\omega$ she ($_\omega$ saw) him)			**	*****
b. ($_\phi$ ($_\omega$ on ($_\omega$ Wednesday))) ($_\omega$ she him)		*!	*	******
c. ($_\phi$ ($_\omega$ on ($_\omega$ Wednesday))) ($_\omega$ him)		*!		***
d. ($_\phi$ ($_\omega$ on ($_\omega$ Wednesday him)))		*!		****
e. ($_\omega$ she ($_\omega$ saw) him)	*!			*****
f. ($_\phi$ ($_\omega$ Wednesday)) ($_\omega$ she ($_\omega$ saw) him)		*!		****

A lexical noun phrase can appear in the same position, because it has no SUBCAT requirements to satisfy.

(62) a. Q: Who did Lian see, and when?

A: *On Monday, ~~she saw~~ Sheryl. On Tuesday, ~~she saw~~ Tim. On Wednesday, ~~**she saw**~~ **Tim** again.

b.

[on$_G$ Wednesday$_F$ she$_G$ saw$_G$ him]	SFOC	SUBCAT	ELIDE	MATCHW
a. ($_\phi$ ($_\omega$ on ($_\omega$ Wednesday))) ($_\omega$ she ($_\omega$ saw) Tim)			*!*	*****
b. ($_\phi$ ($_\omega$ on ($_\omega$ Wednesday))) ($_\omega$ she Tim)			*!	******
c. ☞ ($_\phi$ ($_\omega$ on ($_\omega$ Wednesday))) ($_\omega$ Tim)				***
d. ($_\phi$ ($_\omega$ on ($_\omega$ Wednesday Tim)))				****!
e. ($_\omega$ she ($_\omega$ saw) Tim)	*!			*****
f. ($_\phi$ ($_\omega$ Wednesday)) ($_\omega$ she ($_\omega$ saw) him)		*!		****

And again, a pronoun can appear if it has a host, allowing it to satisfy SUBCAT.

(63) a. Q: Who did Lian speak to, and when?

A: On Monday, ~~Lian spoke~~ to Sheryl. On Tuesday, ~~Lian spoke~~ to Tim. On Wednesday, ~~**Lian spoke**~~ **to him** again.

b.

[on$_G$ Wednesday$_F$ she$_G$ spoke$_G$ to him]	SFOC	SUBCAT	ELIDE	MATCHW
a. ($_\phi$ ($_\omega$ on ($_\omega$ Wednesday))) ($_\omega$ she ($_\omega$ spoke)) ($_\omega$ to him)			*!*	*******
b. ($_\phi$ ($_\omega$ on ($_\omega$ Wednesday))) ($_\omega$ she to him)		*!	*	********
c. ☞ ($_\phi$ ($_\omega$ on ($_\omega$ Wednesday))) ($_\omega$ to him)				*******

Thus, the ranking ELIDE ≫ MATCH WORD forces deletion of as much G-marked material as possible. But because SUBCAT in turn dominates ELIDE, the pressure to preserve the relationship between function words and their hosts takes precedence over the pressure to delete. The result is that ellipsis can be suppressed in order to preserve this relationship. The ranking SUBCAT ≫ therefore explains the Stranding Generalization.

3.7 Constituency conditions

As Johnson (2017) notes, ellipsis cannot just elide any string. For example, he cites the following, from Hankamer (1979):

(64)   a.   Charley writes with a pencil and John ~~writes~~ with a pen.

        b.   *Charley writes with a pencil and John ~~writes with~~ a pen.

        c.   *Charley writes with a pencil and John ~~writes with a~~ pen.

These and other similar cases led Johnson to formulate the following condition on gapping remnants:

(65)   <u>Constituency Condition on Remnants</u>
        Let P(x) be a parse for a string x. If A is a string of words in a coordinate, from which the substring B has Gapped leaving the string C, then there must be away of factoring C into a series of maximal projections found in P(A).

Something like (65) would follow from a theory in which remnants have moved out of the ellipsis site. Since the present theory does not rely on movement, it is important to show that it does not overgenerate. There thus must be high-ranked prosodic well-formedness constraints that rule out unacceptable strings like those in (64).

    In fact, many of them straightforwardly follow from independently motivated SUBCAT constraints. For example, the determiner *a* prosodically cliticizes to the right (Itô & Mester 2009), diagnosed again by vowel reduction. This requires a rightward cliticizing SubCat frame, motivated in our terms by the selectional relationship between D and NP.

(66)   <u>SUBCAT frame for determiner *a*</u>: [$_\omega$ D^0 […]]

From this it follows, following the same logic as previously, that *pen* cannot serve as a gapping remnant to the exclusion of the determiner. Because the determiner is in the input, candidates will be evaluated with respect to its SUBCAT constraint. SUBCAT will make determiners and their hosts behave as a unit, just as verbs and accusative pronouns do. They will therefore either be pronounced together, or deleted together (with deletion in this case ruled out by STRESS-FOCUS).

(67)   a.   Charley writes with a pencil, and John ~~writes~~ with **a PEN**.

        b.

[$_{DP}$ a PEN$_F$]	STRESSF	SUBCAT	ELIDE	MATCHW
a. ☞ ($_\phi$ ($_\omega$ a ($_\omega$ pen))				*
b. ($_\phi$ ($_\omega$ a) pen))	*!			*
c. ($_\phi$ pen)		*!		*
d. ($_\omega$ pen)	*!	*		
e. ($_\omega$ a)	*!	*		*

This explanation carries over without modification to cases like (68). We saw in section 2 that possessor pronouns cliticize to the right. Vowel reduction also shows rightward cliticization of *some* and *the*.[34] SUBCAT will then rule out deletion of their potential hosts. There is no clear evidence that *every* cliticizes, but we suggest that SUBCAT is a general constraint that applies to all determiners: this would mean that *every* cliticizes as a foot, as Itô & Mester (2009) argue for portmanteau function complexes.

(68) a. *Some people remember your mother and others ~~remember your~~ father.
 b. *Some people brought the package and others ~~brought the~~ wrapper.
 c. *Some people brought some packages and others ~~brought some~~ wrappers.
 d. *Some brought every package and others ~~brought every~~ wrapper.

Finally, it also extends to the following contrast, originally from Ross (1970):

(69) a. I want to try to begin to write a novel and Mary ~~wants to try to begin~~ to review a play.
 b. I want to try to begin to write a novel and Mary ~~wants to try to begin to~~ review a play.

Vowel reduction again shows that the infinitival marker cliticizes to the right (*[tə] leave would be rude/Leave, he wants [tʊ]*). SUBCAT correctly rules out deleting the host of *to*, as in (69b). Note that in this case, the unacceptability of (69b) doesn't follow from the Constituency Condition, since the complement of *to* is a constituent.

It was pointed out in section 3.2 that SUBCAT constraints generally have the effect of preserving syntactic relationships in the prosody. For example, determiners and possessors cliticize within the noun phrase, and accusative pronouns to their case-assigning heads. We suggested that SUBCAT constraints could be assimilated to other constraints that preserve syntactic relationships, like those in Richards (2016) and Clemens (2014). If this speculation is on the right track, then the fact that ellipsis remnants behave like constituents is expected, even in a theory that operates over prosodic constituents. But we expect that phenomena that do not have an explanation in terms of constituency, like the Stranding Generalization, to be the result of independent prosodic well-formedness constraints.

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[34] As pointed out by a reviewer, our account incorrectly predicts that determiners like *the* can strand when focused, e.g. "*He is A president of Bosnia and Herzegovina, not THE ~~president of Bosnia and Herzegovina~~." We do not have an account of this restriction, though we note that it is problematic for any theory which ties ellipsis licensing to the presence of contrast.

3.8 Summary

We have argued for an implementation of ellipsis at the syntax-prosody interface. This required only minimal assumptions. The constraint SUBCAT, which requires functional items to phonologically cliticize when possible, is ranked above ELIDE, which requires G-marked nodes to delete. As a result, deletion of a prosodic host in order to satisfy ELIDE will always be prevented by SUBCAT. This explains the Stranding Generalization. In particular, it explains why functional items can be deprived of a prosodic host by movement or base-generation, but not by ellipsis. Movement and base-generation take place prior to the syntax-prosody mapping, and will yield candidates in which satisfaction of SUBCAT is not possible. But because ellipsis does not take place in the syntax, the input of the syntax-prosody mapping will contain candidates in which SUBCAT can be satisfied.

4 Crosslinguistic implications

In this section, we suggest some potential crosslinguistic ramifications of our theory of ellipsis. By placing ellipsis at the syntax-prosody interface, we predict that sufficiently high-ranking prosodic well-formedness constraints will be able to influence the outcome of ellipsis. In English, the ranking SUBCAT ≫ ELIDE was argued to be responsible for the Stranding Generalization. Given different rankings, however, we expect ellipsis to behave differently. If ELIDE is ranked high enough, of course, then prosodic well-formedness constraints like SUBCAT will have no effect. But our analysis predicts that in other languages, prosodic well-formedness could have an effect. We will suggest that some apparent counterexamples to the P-Stranding Generalization in Russian can be explained in part by SUBCAT. Then we illustrate, following the analysis of Irish responsive ellipsis in Bennett, Elfner & McCloskey (2019), that constraints other than SUBCAT can outrank ELIDE. Languages will also differ in the way they can avoid violations of constraints like SUBCAT, as shown by St'at'imcets VP ellipsis (Davis 2014).

4.1 The P-Stranding Generalization

A widely observed crosslinguistic characteristic of ellipsis is the P-stranding generalization (Merchant 2001; 2004). Merchant argues that languages like English, which have P-stranding, allow a fragment DP to appear 'bare,' with the preposition elided (70a). In languages where P-stranding is unavailable, like German, P must appear with its complement (70b). The same facts hold for sluicing.

(70) a. Q: Who was Peter talking with?
          A: Mary.

      b. Q: Mit   wem   hat Anna gesprochen?
             with   whom   has Anna spoken?

          A: *Dem   Hans
              the.DAT   Hans

The P-stranding generalization follows from a Move-and-Delete theory.[35] The DP fragment can appear 'bare' in (70a) because the necessary movement out of the ellipsis site is able to strand the preposition. Since preposition-stranding movement is unavailable in German, bare DP fragments are impossible.

This explanation is consistent with our theory. Ellipsis fragments are not required to move, for us, but nothing prevents them from doing so. To derive gapping and pseudogapping, Move-and-Delete theories require 'exceptional' movements, which are unable to occur outside of ellipsis contexts. But this is not the case for examples like (70a), which can be derived from attested movements like (71a). Since SubCat cannot be satisfied, failure to elide the G-marked preposition would be gratuitous.[36]

(71)   a.   Mary, Peter was talking with *t*.

b.

[Mary$_F$ Peter$_G$ was$_G$ talking$_G$ with$_G$]	SFOC	SUBCAT	ELIDE	MATCHW
a. ($_\phi$ ($_\omega$ Mary)) ($_\omega$ Peter) ($_\omega$ was ($_\omega$ talking)) ($_\omega$ with))		*	*!***	**
b. ☞ ($_\phi$ ($_\omega$ Mary))		*		****

Our account may explain some counterexamples to the P-Stranding Generalization. For example, Russian lacks P-stranding (with a few exceptions, Podobryaev (2009)). Nevertheless, there are a number of prepositions that, despite being unable to strand (72a), can appear 'bare' in sluicing (72b, from Ionova (2020)). The same facts hold in gapping constructions (Ionova 2020).

(72)   a.   *Kogo   on   sprašival **naščët**?   (Russian)
            who.GEN they talked   regarding
            'Regarding whom did they talk?'

      b. ?On sprašival **naščët**   kogo-to, no ja ne, pomnu   kogo.
          he asked   regarding someone but I not remember who
          'He asked about someone, but I do not remember who.'

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[35] Though we note that if 'exceptional' movements are permitted, the conceptual picture becomes more murky. If movement out of ellipsis sites can violate other constraints of a language, why not also the ban on P-Stranding?

[36] Our analysis can also potentially be extended to *swiping*, as exemplified by e.g. "Shania was talking, but I don't know who ~~she was talking~~ to." M&D theories have difficulty explaining why a pied-piped preposition appears in non-canonical order ('*who to*' instead of '*to who (m)*'). Such theories necessarily involve 'exceptional' movements, such as pied-piping of PP, followed by subextraction of the *wh*-phrase (van Craenenbroeck 2010; Radford & Iwasaki 2015), or head movement from D to P (Merchant 2002). We can simply treat these as stranded prepositions, exempted by ELIDE because they are non-Given, as shown by Merchant (2002).

By contrast, other prepositions, like *o* 'about,' must be pronounced with their complements.

(73) *Ona govorila **o**   čëm-to,   no ja ne znaju, čëm.
      she talked   about something but I not know what
      'She was talking about something, but I don't know what.'

Similar counterexamples in Spanish and Brazilian Portuguese (Vicente 2008; Rodrigues, Nevins & Vicente 2009) and Polish (Szczegielniak 2008) have been explained away as involving 'pseudosluicing.' Ionova (2020) shows, on the basis of case-matching effects, that pseudosluicing cannot cover all of these cases. She goes on to argue for a prosodic generalization about the relevant prepositions. Those that can delete under sluicing and gapping ('heavy' prepositions) map independently to ω, while those that cannot delete ('light' prepositions) phonologically cliticize to ω.

In Tyler's (2019) theory, that means that the 'heavy' prepositions do not have SUBCAT frames, or are forced to map to ω for independent reasons, while cliticization of 'light' prepositions is required by SUBCAT. If this is the case, then the ranking SUBCAT ≫ ELIDE will prevent light prepositions from deleting, even when given. Heavy prepositions, by contrast, will be allowed to delete, since they are not required to cliticize.

Ionova (2020) argues that, because of this sensitivity to prosody, the deletion of heavy prepositions is a post-syntactic process of 'P-deletion,' separate from ellipsis, which is for her a syntactic process. The problem for this account is that, as she notes, P-deletion is impossible in non-elliptical utterances.

(74) *Ona sidela okolo kogo-to,   no ja ne videl, ~~okolo~~ kogo   ona sidela.
      she sat   near someone.GEN but I not saw near   who.GEN she sat
      Intended: 'She sat near someone, but I didn't see (near) who she sat.'

This would be mysterious if P-deletion was a separate process from ellipsis. In our account, P-deletion follows naturally from the interaction of ELIDE with independent prosodic constraints. We conclude that our account offers a promising route to explaining exceptions to the P-Stranding Generalization in Russian, as well as Serbo-Croatian, which behaves similarly (Stjepanović 2008), and potentially other languages.

4.2 Irish responsive ellipsis

Bennett, Elfner & McCloskey (2019) examine the curious behaviour of subject pronouns in Irish ellipsis. 'Simple' subject pronouns (75)—which are necessarily unfocused—cliticize leftward onto the verb. They argue that this prosodic relationship is fed by subject incorporation, a 'morphosyntactic rebracketing operation.'

(75) Bhí sí ag scríobh litreacha.
      was she writing letters
      'She was writing letters.'

In *responsive ellipsis*, the subject pronoun is deleted, disrupting its relationship with the verb (77a). However, if the verb is 'emphasized,' the pronoun must be realized, and carries a strong focal accent (77b).

(76) An raibh sí ag scríobh litreacha?
      Q.PST was she writing letters
      'Was she writing letters?'

(77) a. Bhí (s̶í̶ ̶a̶g̶ ̶s̶c̶r̶í̶o̶b̶h̶ ̶l̶i̶t̶i̶r̶e̶a̶c̶h̶a̶).
          was (she writing letters)
          'Yes.' (lit. 'Was.')

      b. Bhí sí (a̶g̶ ̶s̶c̶r̶í̶o̶b̶h̶ ̶l̶i̶t̶i̶r̶e̶a̶c̶h̶a̶).
          was she (writing letters)
          'Yes!' (lit. 'Was SHE.')

The account in Bennett, Elfner & McCloskey (2019) follows the same logic as ours. They propose a constraint, ELIDE ($X_{[\varnothing]}$), which penalizes the realization of nodes marked for deletion. Another constraint, SC(SPI) penalizes structures in which subject pronoun incorporation has not taken place. SC(SPI) outranks a faithfulness constraint, FAITH(S⟹M,X^0) which prevents the phonological output from containing dominance relations not found in the syntax.

Pronouncing the subject pronoun, whether it is incorporated (candidate c, triggering allomorphy of the verb), or not (candidate b)–will violate ELIDE ($X_{[\varnothing]}$). The ranking ELIDE ($X_{[\varnothing]}$) ≫ SC(SPI) therefore guarantees that ellipsis bleeds the pronunciation of the subject pronoun *se* /ʃe/.[37] With respect to subject pronouns, then, Irish is the mirror image of English, preferring to disrupt a close prosodic relationship between verb and pronoun in order to satisfy the pressure to elide.

(78) a. chuirfeadh **sé** /xirʲ-hu ʃə/ 'he would (put).'

      b.

$[_{\Sigma P}$ V^0$_E$ $[_{TP}$ D$_{[\varnothing][NOM,PRO]}$ …]]	ELIDE ($X_{[\varnothing]}$)	SC(SPI)	FAITH (S⟹M,X^0)
a. ☞ xirʲhu ʃeː			
b. xirʲhu ʃeː$_{[\varnothing]}$	*!	*!	
c. [xirʲhitʲ + ʃeː$_{[\varnothing]}$]	*!		*
d. [xirʲhitʲ + ʃeː]			*!

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[37] FAITH(S⟹M,X^0) rules out subject pronoun incorporation—triggering allomorphy of the verb—followed by deletion of the pronoun.

In turn, Bennett, Elfner & McCloskey (2019) argue that the behaviour of subject pronouns when the verb is emphasized follows from another constraint, BINARY-FOCUS:

(79)   BINARY-FOCUS (BIN-FOC): Assign one violation for every constituent $C_{[F]}$ that is semantically focused and does not contain at least two prosodic words.

Because BIN-FOC outranks ELIDE($X_{[\varnothing]}$), the subject pronoun–which they show is semantically Given—is required to escape ellipsis, and map to ω. Failure to do so would render the focused verb non-binary.

(80)   a.   chuirfeadh SÉ /ˈxɨrʲ-hɨtʲ ˈʃeː/ 'he WOULD (put)'

b.

$[_{\Sigma P} V^0_E [_{TP} D_{[\varnothing][NOM,PRO]} \dots]]$	BIN-FOC	ELIDE ($X_{[\varnothing]}$)	SC(SPI)	FAITH (S⟹M,X⁰)
a. ☞ [xɨrʲhɨtʲ + ʃeː$_{[\varnothing]}$]		*		*
b. xɨrʲhu ʃeː$_{[\varnothing]}$	*!	*	*	
c. xɨrʲhu ʃeː	*!			

Irish thus displays exactly the same kind of interaction between the pressure to elide and independent prosodic well-formedness constraints that are expected if ellipsis is calculated in the syntax-prosody mapping. If such constraints, like BIN-FOC, are sufficiently high-ranked, ellipsis will have to cater to their their needs.

4.3 St'at'imcets VP ellipsis

St'at'imcets VP ellipsis offers further support to this theory.[38] Davis (2014) notes an interesting interplay between ellipsis and the prosodic requirements of auxiliaries. In St'at'imcets, 'light' auxiliaries cannot be stranded at the right edge of a string after ellipsis, (81b). They instead undergo what he calls 'rhetorical lengthening' (81c).

(81)   a.   wá7=ha   es-(s)7ílhen?
              IMPF=YNQ   STA-food
              'Does s/he have any food?'

b.   ??wa7, iy
       IMPF   yes
       'S/he does, yes.'

c.   wá…a7, iy
       IMPF   yes
       'S/he does, yes.'

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[38] Thanks to Kenyon Branan (p.c.) for bringing this case to our attention.

Davis suggests that this lengthening takes place in order to satisfy the following condition:

(82)   *Minimal Foot Condition on Ellipsis*
       The remnant left by ellipsis must end in a well-formed foot.

He moreover suggests that this derives from the need for the auxiliary to procliticize to following material, noting that there is no rhetorical lengthening if, for example, the second position clitic *t'u7* is present (83b).

(83)   a.   wá7 = ha = t'u7   áma
            IMPF = YNQ = PART   good
            'Is s/he doing ok?'

       b.   wá7 = t'u7
            IMPF = PART
            'S/he is.'

Davis further notes the following pattern, with three auxiliaries in the antecedent: *plan* 'already,' *wa7* 'imperfective,' and the motion verb *p'an't* 'to return.' Again, a 'light' auxiliary cannot be stranded by ellipsis (84b). Instead of lengthening the auxiliary, the additional auxiliary *p'an't* ('return') must be pronounced (84c).

(84)   a.   plán = lhkacw = ha   wa7   p'an't   alkst
            already = 2SG.SU = YNQ   IMPF return   work.
            'Have you already gone back to work?'

       b.   ??iy,   plán = lhkan   wa7
            yes   already = 1SG.SU   IMPF
            'Yes, I have.'

       c.   iy,   plán = lhkan   wa7   p'an't
            yes   already = 1SG.SU   IMPF return
            'Yes, I have.'

This follows straightforwardly from the present theory. The procliticizing behavior of the auxiliary *wa7* strongly suggests a right-cliticizing SUBCAT frame. This SUBCAT constraint can be satisfied by pronouncing given material to its right, for example 'return' in (84c); this establishes the ranking SUBCAT ≫ ELIDE. The St'at'imcets-specific twist is that, when SUBCAT cannot be satisfied by the pronunciation of given material, the auxiliary can instead lengthen. This would follow from a sufficiently low-ranked Dep constraint. Again, these are exactly the kinds of interactions between ellipsis and prosodic well-formedness constraints the present theory predicts. We expect that a close examination of ellipsis and prosody in other languages will uncover other such interactions.

5 Summary and theoretical implications

In this paper we have argued for the Stranding Generalization: a condition on ellipsis remnants which prevents functional items from being stranded without their hosts. This is a puzzling generalization from the point of view of many current theories of ellipsis. We argued that capturing the Stranding Generalization requires locating ellipsis at a point in the computation when reference to prosodic properties is possible. We therefore proposed a theory in which ellipsis is implemented at the syntax-prosody interface. Ellipsis arises from an optional reranking of ELIDE (which deletes given material) and MATCH WORD (which enforces syntax-prosody correspondence). The Stranding Generalization was shown to follow from this theory in conjunction with independently motivated prosodic well-formedness constraints. This suggests a view of ellipsis in which any constraints on ellipsis—beyond semantic recoverability—are the result of interactions between constraints of this kind.

We will conclude by discussing some consequences for the implementation of PF-deletion (Güneş & Lipták 2022a). If our analysis is on the right track, the Stranding Generalization and related phenomena constitute an argument not just for fully articulated syntactic structure in the ellipsis site, but also prosodic structure. This is because the Stranding Generalization makes crucial reference to a prosodic relationship between a functional item and its potential host inside an ellipsis site. If the ellipsis site was not visible to the computation of prosody, we would incorrectly predict functional items that are stranded by ellipsis to behave like functional items with no potential prosodic host (section 2.1). This supports a PF-deletion theory of ellipsis, but also places constraints on the implementation of such a theory.[39]

In particular, the theory presented here militates against any account in which deletion takes place prior to prosodification. For example, van Craenenbroeck & den Dikken (2006); Broekhuis (2018); Broekhuis & Bayer (2020) propose that ellipsis involves non-transfer to PF, with elided material simply not spelled out. Since elided material is not prosodified, stranded functional material will at no point have a potential prosodic host, and the Stranding Generalization cannot be explained. The same objection applies to the approach in Aelbrecht (2010), in which elided material is sent to the interfaces immediately after being licensed. Sailor (to appear) argues that this approach, which he dubs *Segregated Transfer*, correctly predicts that, once licensing has taken place, material in the ellipsis site will not be able to interact with material outside it. The Stranding Generalization makes crucial reference to a prosodic relation between a functional element outside of an ellipsis site and its host inside it. Since Segregated Transfer predicts that such a relation can never be established, it has no clear way to explain its relevance to the calculation of ellipsis.

By contrast, some varieties of ellipsis have been argued to involve late deletion of phonological content. Weir (2012), for example, gives an account of this sort for *left-edge ellipsis*,

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[39] See Güneş & Lipták (2022b) for an overview of theoretical approaches to PF-deletion.

which he convincingly argues is motivated by a requirement for prosodic constituents to start with a prosodically strong element. See also An (2014) and Erschler (to appear) for kinds of ellipsis that they also analyze as involving late deletion of material with phonological content. This kind of approach is most straightforwardly compatible with the Stranding Generalization and related phenomena.

A number of approaches within Distributed Morphology have implemented ellipsis as non-insertion of vocabulary items (Wilder 1997; Bartos 2001; Aelbrecht 2010; Merchant 2015). Here the ramifications are less clear. If Vocabulary Insertion precedes prosodification, as in Embick & Noyer (2001), then the same objections apply as to any approach in which deletion precedes prosodification. However, it has been argued that at least some aspects of prosody are computed prior to Vocabulary Insertion (Ackema & Neeleman 2003; Henderson 2012; Richards 2016). If this is the case, then it is possible for (non-)insertion of vocabulary items to be made sensitive to previously established prosodic relationships. Similarly, if Vocabulary Insertion and prosodification are not serially ordered, but computed in parallel (Rolle 2020), it will be possible for prosodic well-formedness constraints to override any constraints regulating insertion of vocabulary items.

Abbreviations

IMPF = imperfective, PART = particle, SG = singular, STA = stative prefix, SUB = indicative subject clitic, YNQ = yes-no question enclitic

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Competing Interests

The authors have no competing interests to declare.

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