Crossing and Stranding at Edges[*]

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Abstract: This paper investigates the distribution of stranding in intermediate positions under A′-movement, which I show obeys a cross-linguistically robust word order generalization: leftward movement of a phrase α can only intermediately strand an element β if β is (or can be) ordered rightward of α before stranding occurs. I argue that this generalization emerges naturally from the Cyclic Linearization theory of spellout (Fox & Pesetsky, 2005a,b, a.o.), and its interaction with independently supported constraints on movement in syntax. I go on to consider some reasons why a particular position may or may not be a viable location for stranded material.

1 Introduction

Moved phrases can sometimes leave material behind at intermediate points in the sentence. If the syntactic derivation is constrained by *phases*, with the result that movement paths must successive-cyclically pause in the edge (specifier) of each phase passed (Chomsky, 2000, 2001 a.o.) then such patterns of *intermediate stranding* (IS) are expected. This is because the landing sites forced by phases provide positions where, in principle, movement might leave something behind. In this paper, I examine the distribution of such stranding under A′-movement.

The schema in (1) illustrates the basic form of IS derivations. Here successive-cyclic movement of a phrase α intermediately strands an element β in the edge of the phase YP, in the following way. First, α moves to the YP edge, pied-piping β along as well. Second, α moves on alone, leaving β behind in the edge of YP. Thus movement of α through a phase feeds IS of β.

(1) **A schema for IS: Pied-piping to a phase edge followed by stranding**

$$[_{ZP}\ \alpha\ \text{Z}\ [_{YP[Phase]}\ [\ t_\alpha\ \beta\ ]\ \text{Y}\ [_{XP}\ t_{\alpha\beta}\ \text{X}\ ]]]$$
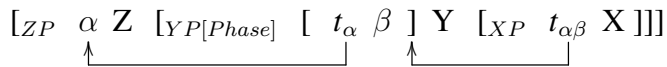
In this paper, I show that such IS obeys a cross-linguistic generalization about word order:

(2) **Intermediate Stranding Generalization (ISG)**

Leftward movement of a phrase α can only intermediately strand an element β if β is (or can be) ordered rightward of α before stranding occurs.

I argue that this generalization is not a coincidence, but follows from a particular proposal concerning the nature of spellout, along with independent constraints on syntactic movement.
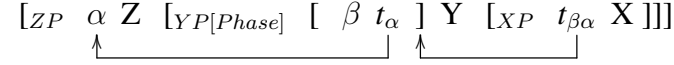
1.1 Conclusions in preview

Assuming that IS typically occurs in phase edges for the reasons outlined above, I argue that the ISG in (2) holds because only those derivations that obey it avoid a fatal crossing problem. This problem is illustrated in (3a) below. Here β precedes α before IS occurs. In this situation, when α
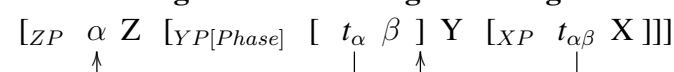
strands β in the edge of the phase YP, movement of α from YP must cross over β. In contrast, in (3b) α originally precedes β. Thus movement of α will not cross over β when β is stranded at the YP edge. In this paper, I argue for a theory which rules in only non-crossing IS derivations like (3b). Since (3b) corresponds to what the ISG describes, the ISG is thus derived.

(3)   a.   *** Stranding with crossing at the edge**

$$[_{ZP} \;\; \alpha \;\; Z \;\; [_{YP[Phase]} \;\; [\;\; \beta \;\; t_\alpha \;\;] \;\; Y \;\; [_{XP} \;\; t_{\beta\alpha} \;\; X \;]]]$$

      b.   **✓ Stranding without crossing at the edge**

$$[_{ZP} \;\; \alpha \;\; Z \;\; [_{YP[Phase]} \;\; [\;\; t_\alpha \;\; \beta \;\;] \;\; Y \;\; [_{XP} \;\; t_{\alpha\beta} \;\; X \;]]]$$

In particular, I argue that the crossing problem in (3a) that yields the ISG arises naturally under the *Cyclic Linearization* (CL) theory of spellout (Fox & Pesetsky, 2003, 2005a,b; Podobryaev, 2009; Sabbagh, 2007; Ko, 2007; Fanselow & Lenertová, 2011; Jenks, 2013; Ko, 2011, 2014; Overfelt, 2015; Erlewine, 2017). CL derives successive-cyclic movement (and certain exceptions to it) from the logic of non-contradiction in *linearization*, the phase-by-phase mapping of syntactic structures to pronounceable linear strings at spellout. As we'll see, CL interacts with a ban on phrase-bounded specifier-to-specifier movement (Ko, 2007, a.o.) and anti-locality (Grohmann, 2003; Abels, 2003, 2012, a.o.) such that the ISG emerges as an automatic consequence.

1.2   Road map of the paper

Next, section 2 provides the empirical basis for the ISG, illustrating all potential IS patterns I am currently aware of. Section 3 overviews phase theory and the CL approach, and shows how CL derives the ISG. Section 4 demonstrates how independent constraints on movement prevent certain exceptions to the ISG that CL alone would not rule out. Section 5 considers some factors that govern possible landing sites for stranded material. The appendix in section 7 compares this paper's approach to the account of movement from moved phrases in Bošković (2018).

2   Examining IS cross-linguistically

This section provides the empirical motivation for the ISG, reporting all cases known to the author that may constitute IS. Most of these have been argued for in previous literature. While some of these scenarios may indeed be clearer than others, it will nevertheless be evident that a straightforward word order generalization can be stated about patterns of this nature.

2.1   Stranding in West Ulster English and an old puzzle

McCloskey (2000) discusses what is likely the most well-known case of IS, involving the postnominal quantifier *all* in West Ulster English. In this dialect, A$'$-movement can pied-pipe *all*, strand it in its base position, or strand it in an intermediate clause edge:

(4)   **West Ulster English *all*-stranding in CP edge**   (McCloskey, 2000, ex. 9)

      a.   Where$_k$ do you think [$_{CP}$ t_k **all** they'll want to visit t_k]?

b. Who$_k$ did Frank tell you [$_{CP}$ t_k **all** that they were after t_k]?

c. What$_k$ do they claim [$_{CP}$ t_k **all** (that) we did t_k]?

Based on these facts, McCloskey argues that A′-movement from CP pauses in the CP edge, in successive-cyclic fashion. The punctuated nature of such movement provides an intermediate landing site where *all* can be stranded. One piece of evidence that these patterns truly involve stranding is the fact that this *all* can only appear in positions within the A′-movement path, as we see below:

(5) **No stranding in positions not crossed by movement**   (McCloskey, 2000, ex. 19)

a. What$_k$ did she buy t_k **all** in Derry yesterday?

b. * What$_k$ did she buy t_k in Derry **all** yesterday?

c. * What$_k$ did she buy t_k in Derry yesterday **all**?

Decades earlier, Postal (1972, 1974) argued for the opposite of McCloskey's conclusion, based in part on the fact that English prepositions cannot be stranded at clause edges (6). Postal argues that if long-distance movement really is successive cyclic, then given that English usually permits P-stranding, such stranding at CP edges should be permitted, contrary to fact:

(6) **No IS of English prepositions**

a. (To) [which writer]$_k$ do you think [$_{CP}$ **(*to)** t_k (that) we should send the pen (to) t_k]?

b. (For) [which dog]$_k$, did they claim [$_{CP}$ **(*for)** t_k (that) I cooked a steak (for) t_k]?

c. This is the person [(in) [whose pants]$_k$ you said [$_{CP}$ **(*in)** t_k (that) I put eels (in) t_k]]

d. (With) [this poison]$_k$, I think [$_{CP}$ **(*with)** t_k we should kill the pterodactyls (with) t_k]

This pattern also emerges in Norwegian, another Germanic language that permits prepositions to be either stranded in their base position or totally pied-piped, but not stranded in a CP edge:

(7) **No IS of Norwegian prepositions**   (Henrik Torgersen, p.c.)

a. (I) hvilket rom trodde du [**(*i)** jeg satt (i)]?
   (in) which room thought you (in) I   sat (in)
   "In which room did you think I sat?"

b. (På) hvilken bord trodde du [**(*på)** trollmannen sagde kvinnen   i to (på)]?
   (on) which table thought you (on)   the.wizard   sawed the.woman in two (on)?
   "On which table did you think the wizard sawed the woman in two?"

c. (Om) hvilken bok trodde du [**(*om)** jeg snakka (om)]?
   (about) which book think you (about) I   spoke (about)
   "About which book did you think I spoke?"

d. (Om) hvem trodde du jeg sa [**(*om)** han spurte (om)]?
   (about) whom thought you I   said (about) he asked (about)
   "About whom did you think I said he asked?"

The facts in (4) and (6-7), and the theories they suggest, are in conflict. If long-distance A′-movement is not successive cyclic, what allows the intermediate *all*-stranding in (4)? If such movement really is successive-cyclic, why is comparable preposition stranding banned in (6-7)?

I argue that the problem in the latter class of examples has to do with word order. Notice that prepositions, which can't be intermediately stranded, precede the phrase they merge to. The West Ulster English strandable *all*, by contrast, follows the associated phrase, and can be intermediately stranded. This contrast parallels the schema in (3), and thus fits the ISG:

(8) a. **IS impossible**
     <u>For</u> which dog

    b. **IS possible**
     What <u>all</u>

In this paper, I maintain the successive-cyclic nature of A$'$-movement, and argue that the ban on IS of prepositions, and the ISG more broadly, has a linearization explanation.

2.2 Stranding of *wh*-adjuncts in English

English allows an interrogative *wh*-phrase to be modified by *precisely/exactly* and similar elements, which Zyman (2019b) argues should be considered adjuncts. As is often the case for English adjuncts, these elements can be linearized on either side of the phrase they merge to:

(9) a. (**Exactly**) [how many cakes]$_k$ (**exactly**) did you say that we ate t_k?

    b. Who said that you ate (**exactly**) [how many cakes] (**exactly**)?

These adjuncts can be pied-piped by movement of their host *wh*-phrase, stranded low, or stranded at a CP edge, as we see below (Urban, 1999; McCloskey, 2000; Stroik, 2009; Zyman, 2019b):

(10) *Exactly*-**stranding**
    What$_k$ did you suppose t_k (**exactly/precisely**) (that) they wanted t_k (**exactly/precisely**)?

The stranding of such elements in the CP edge is in correspondence with the ISG, given that they can either precede or follow their host. The same basic pattern obtains for adjuncts of quantity like *to the nearest pound* in (11) below. Such adjuncts provide clearer instances of stranding, since they are not potentially homophonous with adverbs of the matrix predicate, unlike *exactly/precisely*:

(11) **Quantity adjunct IS**
    Tell me [$_{CP}$ (to the nearest pound) [how much flour]$_k$ (to the nearest pound) you said [$_{CP}$ t_k **(to the nearest pound)** (that) the bakery wants t_k (to the nearest pound)]]

When the *wh*-phrase that the adjunct is construed with does not move, such stranding in the CP edge is ungrammatical. We see this in (12b/d) below, where the relevant adjunct in the embedded clause periphery is construed with a *wh*-phrase that remains in situ, due to being the lower of two *wh*-phrases in a multiple question. The unacceptability of these examples is expected, if this intermediate position of the adjunct must be derived by stranding under movement:[1]

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[1]Zyman (2019b) argues that while *exactly* and similar adjuncts can indeed be stranded in phase edges, evidence from vP fronting and sluicing shows that when the adjunct appears to have been stranded in its base position in VP, it has actually moved to a high rightward position. We might analyze this as extraposition, a property independently attested for English adjuncts. However, the availability of such extraposition opens up the possibility of a non-stranding analysis for the IS in spec-CP shown in this subsection: it could be the case that these examples involve extraposition of the adjunct from the *wh*-phrase and into the right periphery, followed by extraposition of the embedded CP to the right of that adjunct. If this hypothesis is right, these intermediate displaced adjuncts should require the embedded complementizer to be overt, since clauses with no overt complementizer resist extraposition (Stowell, 1981). In actuality, Zyman (2019b) reports numerous such examples with no (obligatory) embedded complementizer, as we also see in (10-12), strengthening the argument that such examples truly are stranding-derived.

(12) a. [**How much flour**]$_k$ did you say t_k (**to the nearest pound**) (that) they'll deliver t_k?

   b. * Who said (**to the nearest pound**) that they will deliver [**how much flour**]?

   c. [**How many donuts**]$_k$ did you say t_k (**to the nearest dozen**) (that) the bakery will give away t_k?

   d. * [Which bakery] reported (**to the nearest dozen**) that the manager will give away [**how many donuts**]?

2.3   Q-stranding in Wolof

Torrence (2018) examines a number of elements that appear in the periphery of clauses crossed by *wh*-movement in Wolof (Niger-Congo, Atlantic). Torrence reports that there are at least two morpho-syntactic classes of such elements. He argues that one of these classes, which he terms "Q-like", has a distribution indicative of stranding under movement.[2] According to Torrence, these quantificational elements obligatorily follow their host NP. This fact is evident when they are not stranded by movement, as in (13) below, where total pied-piping occurs:

(13) **Full pied-piping of Q-like element**

   a. [Ñ-an   **ñ-epp**]$_k$ l-a   Ayda wax ne l-a-a   dóór t_k?
      CL.PL-wh CL.PL-every XPL-COP Ayda say that XPL-COP-1SG hit
      "Who all did Ayda say that I hit?"   (Torrence 2018, ex. 38a)

   b. [F-an   **f-eeneen**]$_k$ l-a   Ayda wax ne l-a-a   dem t_k?
      CL-wh CL-other   XPL-COP Ayda say that XPL-COP-1sg go
      "Where else did Ayda say that I went"   (Torrence 2018, ex. 38b)

These elements can be stranded in situ, as we see in (14), as well as in the edge of an embedded CP, as we see in (15). Since these strandable elements obligatorily follow their host NP, their ability to undergo IS in the CP edge corresponds with the ISG.

(14) **Stranding in base position**

   a. **Y-an**$_k$ la   Bintë waat ne nga   lekk t_k **y-epp**?
      CL.PL-wh XPL.COP Binta swear that XPL.COP.2SG eat   CL.PL-every
      "What all did Binta swear that you ate?"   (Torrence 2018, ex. 44d)

   b. **F-an**$_k$ l-a-ñu   wax ne   nga   teg t_k **f-eneen**?
      CL-wh XPL-COP-3pl say that XPL.COP.2SG put   CL-other
      "Where else did they say that you put the book?"   (Torrence 2018, ex. 45b)

(15) **Stranding in intermediate clause edge**

   a. **F-an**$_k$ l-a-ñu   foog t_k **f-epp**   ne la-a   togg-e   ceeb t_k?
      CL-wh XPL-COP-3pl think   **CL-every** that XPL-COP-1sg cook-LOC rice
      "Where all do they think that I cooked rice?"   (Torrence 2018, ex. 29a)

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[2]The other class, termed "D-like", are argued by Torrence to have a distribution akin to complementizers, for a few reasons. First, they only appear in clause peripheries, never VP internally. Second, they can be repeated in every clause periphery crossed by movement. These properties follow straightforwardly if the "D-like" elements are simply complementizers, but these properties are absent from the "Q-like" elements discussed here, which Torrence argues have behavior expected of stranded quantifiers.

b. **F-an**$_k$ l-a-ñu   foog t_k **f-eeneen** ne la-a   togg-e   ceeb t_k?
   CL-wh XPL-COP-3pl think   **CL-other** that XPL-COP-1sg cook-LOC rice
   "Where else do they think that I cooked rice?"   (Torrence 2018, ex. 29b)

Torrence shows that the appearance of these elements is parasitic on A′-movement. It is, for instance, not possible to insert such an element into the edge of a CP that is c-commanded by a relevant noun phrase that did not move from the embedded CP, as we see in (16) below. Torrence argues that the appearance of such clause-peripheral elements is contingent on long-distance movement, as expected if examples like (15) above are indeed stranding-derived.

(16) * Xale b-i   defe-na   **b-oo-b-u**   ne lekk-na-a   ceeb b-i
        child CL-the think-NEUT **CL-oo-CL-u** that eat-NEUT-1SG rice CL-the
        "The child thinks that I eat rice"   (Torrence 2018, ex. 31)

2.4 Stranding in spec-vP in Dutch

Barbiers (2002) argues that long-distance A′-movement from an embedded clause in Dutch can strand adpositions and various other elements in the matrix spec-vP, as demonstrated below:

(17) **Stranding in spec-vP in Dutch**   (Barbiers 2002, ex. 6)

   a. Waar$_k$ had jij   dan [$_{vP}$ t_k **mee** gedacht dat je   de vis t_k zou   moeten snijden]?
      where had you then   with thought that you the fish   would must   cut
      "What had you thought to be forced to cut the fish with?"

   b. Waar$_k$ had jij   dan [$_{vP}$ t_k **voor bal** gedacht dat Ed t_k zou   kopen]?
      where had you then   for   ball thought that Ed   would buy
      "What kind of ball had you thought that Ed would buy?"

   c. [Een boek]$_k$ had ik [$_{vP}$ **maar** t_k gedacht dat Ed t_k zou   kopen]
      One book   Had I   only   thought that Ed   would buy
      "I had thought that Ed would buy only **ONE** book"

Scrambled phrases in Dutch are generally "frozen" and hence behave like islands (see Corver (2017) and references therein), suggesting that these examples are not derived by scrambling into spec-vP followed by sub-extraction. It is conceivable that the freezing effect is being circumvented in these examples by first extracting the *wh*-phrase into the matrix clause, with subsequent long-distance scrambling bringing the remnant into the matrix spec-vP. However, Barbiers shows that long-distance A′-movement cannot normally be combined with long-distance scrambling. Barbier's conclusion is that these facts are best analyzed as stranding by successive-cyclic movement.

Most of the elements that Barbiers shows undergoing IS in spec-vP are originally merged to the right of what strands them, as we see in (17a-b). The exception is (17c), in which movement has stranded *maar* ("only"), which Barbiers shows as originating to the left of the moving element that stranded it. This looks like an exception to the ISG. However, in other work, Barbiers (1995) shows that such configurations where *maar* has a numeral as its focus associate allow *maar* to be either pre- or post-nominal. We see this in (18) below, where *maar* may appear either on the left or the right of the NP containing the numeral *twee* "two" that it focuses:

(18) *maar* **in pre- or post-nominal position**　　　　　(Barbiers 1995, pg. 62, ex. 31)

[(**Maar**) twee jongens (**maar**)] weten het antwoord
(only) TWO boys (only) know the answer

Since *maar* can indeed be linearized rightward of the NP whose movement strands it in examples like (17c), there is in fact no exception to the ISG here.

　Further Dutch stranding facts also obey the ISG. In Dutch, inanimate pronouns within PPs take on a special form (termed *R-pronoun*) involving inversion of prepositions to postpositional forms. While prepositions in Dutch cannot be stranded by A′-movement[3], the postpositions used with R-pronouns can be (van Riemsdijk, 1978), as shown in (19-20):

(19) **No preposition stranding in Dutch**　　　　　(Coppe van Urk, p.c.)

　a. Ik snij het brood **met een mes**
　　 I cut the bread with a knife

　　 "I cut the bread with a knife."

　b. * [**Welk mes**]$_k$ snij je het brood [**met** t_k]?
　　　 which knife cut you the bread with

　　 "Which knife are you cutting the bread with?"

(20) **Postposition stranded by moved R-pronoun**　　　　　(Coppe van Urk, p.c.)

　a. Ik snij het brood **daar-mee**
　　 I cut the bread there-with

　　 "I am cutting the bread with that."

　b. **Waar**$_k$ snij je het brood [t_k **mee**]?
　　 where cut you the bread with

　　 "What are you cutting the bread with?"

Importantly, the P "with" in (19-20) above is realized as *met* when it is a preposition, and *mee* when it is a postposition. We saw in (17a) above that this postpositional form is capable of IS. As expected given the ISG, its prepositional variant *met* cannot be intermediately stranded. Hence an example analogous to (17a) that uses *met* instead of *mee*, as we see below, is unacceptable:

(21) **No preposition stranding in spec-vP in Dutch**　　　　　(Coppe van Urk, p.c.)

　* [Welk mes]$_k$ had jij dan **met** t_k gedacht dat je de vis t_k zou moeten snijden?
　　 which knife had you then with thought that you the fish would must cut

　 "Which knife did you think then that you would have to cut the fish with?"

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[3]This fact is predicted if PP is a phase in such languages and Abel's (2003) anti-locality holds, though see that work for a more thorough discussion of the complications in this area.

2.5 Stranding by left branch extraction in Polish

Wiland (2009, 2010) argues for intermediate NP stranding under *wh*-movement in Polish. Polish *wh*-movement permits pied-piping of the entire nominal phrase containing a *wh*-element, as well as left branch extraction of the minimal *wh*-element, stranding NP below:

(22) **Polish pied-piping vs left branch extraction** (Wiland 2010, ex. 1/2)

Jaki$_k$ (**samochód**) Paweł kupił   swojej żonie t_k (**samochód**)?
What car   Pawel bought his   wife   car

"What car did Pawel buy his wife?"

This left branch extraction can strand NP at various intermediate points in the sentence, as we see in (23) below. Wiland shows that the NP cannot be stranded indiscriminately at any position in the clause, and further argues that the actual positions of NP stranding here are consistent with spec-VP, spec-vP, and spec-CP. Consequently, he argues that successive-cyclic *wh*-movement in Polish passes through these positions because they are phase edges:

(23) **IS of NP under left branch extraction in Polish (assuming V to v movement)**

    a. **IS in spec-VP** (Wiland 2010, ex. 3)

       Jaki$_k$ Paweł kupił   [$_{VP}$ t_k **samochód** swojej żonie t_k]?
       What Pawel bought   car   his   wife

       "What car did Pawel buy his wife?"

    b. **IS in spec-vP** (Wiland 2010, ex. 4)

       Jaki$_k$ Paweł [$_{vP}$ t_k **samochód** kupił   swojej żonie t_k]?
       What Pawel   car   bought his   wife

       "What car did Pawel buy his wife?"

    c. **IS in spec-CP** (Wiland 2010, ex. 5)

       $^?$ **Jaki**$_k$ *pro*   myślisz [$_{CP}$ t_k **samochód** (* że)   Paweł kupił   swojej żonie t_k]?
       What (you) think   car   (* that) Pawel bought his   wife

       "What car do you think that Pawel bought his wife?"

Wiland notes that there is no prima facie argument against analyzing these examples as scrambling followed by sub-extraction of the *wh*-element from the scrambled phrase. However, Wiland goes on to show that unlike *wh*-movement, Polish scrambling is clause-bounded. From this, he argues that (23c) above and (24) below must truly involve stranding by *wh*-movement, not a scrambling derivation, since here NP is stranded outside of the clause where it originates.[4]

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[4]In particular, Wiland shows that clause-internal scrambling to the clause periphery lands in a position below C, but argues that the stranded NP in (23c) sits in spec-CP, with C obligatorily null due to the Doubly Filled Comp Filter. Placing the complementizer before the stranded NP, a word order characteristic of scrambling, results in ungrammaticality for stranding examples like (23c).

(24) **Long-distance *wh*-movement stranding in matrix spec-vP**   (Wiland 2010, ex. 6)

$^{\%}$ **Jaki**$_k$ Maria [$_{vP}$ t_k **samochód** myślała że Paweł kupił swojej żonie t_k]?
What Maria   car   thought that Pawel bought his   wife

'What car did Maria think Pawel bought his wife?'

Since the Polish NP is linearized to the right of the *wh*-element undergoing sub-extraction in the above examples, these configurations are in correspondence with the ISG.

2.6 Russian strandable ambivalent adpositions

Podobryaev (2009) notes that prepositions in Russian can't be stranded by *wh*-movement:

(25) **No preposition stranding in Russian**   (Podobryaev 2009, ex. 1)

a. **O**   **čem**$_k$ ty govoriš t_k?   b. * **Čem**$_k$ ty govoriš **o** t_k?
About what you talk?   What you talk   about?
"About what are you talking?"   "About what are you talking?"

Prepositions contrast with what Podobryaev terms "ambivalent Ps", which can either follow or precede their complement NP:

(26) **Variable word order of ambivalent Ps**   (Podobryaev 2009, ex. 15-16)

a. **navstreču** Pete   c. **nazlo**   tebe
   towards   Petya   to.spite you

b. Pete **navstreču**   d. tebe **nazlo**
   Petya towards   you to.spite

Podobryaev shows that these ambivalent Ps may be stranded, unlike prepositions, and argues that this contrast is expected under Cyclic Linearization:

(27) **Pied-piping and stranding of ambivalent Ps**   (Podobryaev 2009, ex. 18-19)
a. (Navstreču) **komu**$_k$ (navstreču) ty bežal t_k (**navstreču**)?
   (Towards)   whom (towards) you ran   (towards)?
   "Towards whom did you run?"
b. (Nazlo) **komu**$_k$ (nazlo) ty èto sdelal t_k (**nazlo**)?
   (To.spite) who   (to.spite) you this did   (to.spite)?
   "To spite whom have you done it?"

Importantly for this paper, IS of these ambivalent Ps at clause edges is also possible:[5]

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[5]This observation was made by Tanya Bondarenko and Mitya Privoznov, who confirmed that such sentences are possible, though subject to inter-speaker variation. The examples in (28) use a subjunctive embedded clause because these are easier to extract from in Russian (Bailyn, 2012). Speakers who permit extraction from finite clauses with an overt C (*čto*) allow similar examples with movement from a finite clause.

(28) **IS of ambivalent Ps** (Tanya Bondarenko, Anton Kukhto, Mitya Privoznov, p.c.)

    a. $^?$Komu$_k$ Vasja xotel t_k **navstreču** čtoby Petja nobežal t_k ?
       Who   Vasya want   towards   that   Petja run

       "Toward whom did Vasya want that Petja would run?"

    b. $^?$Komu$_k$ Lena xotela t_k **nazlo** čtoby Maša pobedila t_k ?
       Who   Lena wanted   to.spite that   Masha win

       "In spite of whom did Lena want that Masha would win?"

Hence in Russian we find another pattern that fits the ISG, since these ambivalent adpositions can originate to the right of what strands them in an intermediate position.[6]

2.7 Afrikaans postposition stranding

Du Plessis (1977) shows that, like Dutch, Afrikaans cannot strand prepositions with A′-movement:

(29)   a. **No preposition stranding in Afrikaans** (du Plessis 1977, p. 724)

       Vir wat$_k$ werk ons nou eintlik t_k?
       For what work we now actually?

       "For what do we actually work?"

    b. * **Waar**$_k$ werk ons nou eintlik **vir** t_k?
       What   work we now actually for?

       "For what do we actually work?"

However, as Dutch also does, Afrikaans has postpositions that occur with R-pronouns. Du Plessis shows that these can be stranded in their origination position and at clause edges:

(30) **Afrikaans postposition stranding** (Adapted from du Plessis 1977, exs. 5, 12, 13)

    a. Waar$_k$(voor) dink julle [$_{CP}$ t_k **(voor)** werk ons t_k **(voor)**]?
       where(for) think you [(for)   work we   (for)]?
       "For what do you think that we work?"

---

[6]It is possible for the adposition to end up in this same inter-clausal position, even when there is no *wh*-movement to strand it there. These examples require the moved adposition to receive a focused interpretation, however:

  i. **Non-pied-piping adposition movement** (Tanya Bondarenko, Anton Kukhto, p.c.)

    a. Vasja xotel **navstreču**$_k$ čtoby Petja nobežal Maše t_k ?
       Vasya want towards   that Petja ran   Masha

       "Vasya wanted that Petja would run <u>towards</u> Masha (not any other direction)"

    b. Lena xotela **nazlo**$_k$ čtoby Maša pobedila Naste t_k ?
       Lena wanted to.spite that Masha win   Nastya.DAT

       "Lena wanted that Masha would win <u>in spite of</u> Nastya (not for her benefit)"

I argue that (28) shows true IS under A′-movement, whereas (i) involves remnant scrambling of a PP that has been evacuated by NP. While such PP scrambling evidently has a concomitant result on interpretation, the fact that this semantic effect is absent in examples like (28) suggests that (28) does not involve independent scrambling of PP, but rather mere pied-piping of PP that is parasitic on *wh*-movement.

b. Wat/waar$_k$ dink julle dink die bure   [$_{CP}$ t_k **(oor)**   stry   ons t_k **(oor)**]?
    What   think you think the neighbors [(about) argue we   (about)]?
    "What do you think the neighbors think we are arguing about?"

The elements that can undergo IS in Afrikaans are, as postpositions, attached to the right of what strands them by leftward movement. Hence this pattern fits the ISG.

2.8   Interim summary

In this section I have reported all potential instances of IS that my research so far has uncovered. All of these fit the ISG, repeated below:

(31) **Intermediate Stranding Generalization (ISG)**   [=(2)]
      Leftward movement of a phrase α can only intermediately strand an element β if β is (or can be) ordered rightward of α before stranding occurs.

The remainder of this paper focuses on demonstrating how CL, plus certain independently proposed constraints on movement, straightforwardly derives the ISG.

3   Two phase theories and their predictions

This section compares the predictions about IS made by the phase theory in Chomsky (2000, 2001, a.o.) with those of Cyclic Linearization (CL). I will argue that the latter theory is better equipped to account for the word order generalization about IS illustrated in the previous section.

3.1   Phases in Chomsky (2000, 2001)

Chomsky (2000, 2001, a.o.) argues that syntactic structure is mapped to phonology (PF) and interpretation (LF) incrementally, at domains termed *phases*. Minimally, vP and CP are phases. When the operation *spellout* performs this mapping, the content of the spelled-out constituent by hypothesis becomes inaccessible to the rest of the syntactic derivation. Chomsky argues that spellout applies to only the complement of phase heads. Consequently, moving from a phase directly from its complement isn't possible, since the material in the phase's complement will undergo spellout before such movement can apply (32a). However, moving to the edge (specifier) of the phase before its complement spells-out allows further movement from the phase (32b).

(32) **Must exit phase complement via the phase edge**
      a. * [$_{ZP}$ α Z [$_{YP[Phase]}$ Y [$_{XP}$ t]]]
      b. ✓ [$_{ZP}$ α Z [$_{YP[Phase]}$ t Y [$_{XP}$ t]]]

In this way, Chomsky's proposal predicts that movement must pass through a specifier of each phase crossed, in order to avoid being trapped by spellout.

3.1.1 Predictions for IS

Given Chomsky's claims above, anything which is in (or can reach) a complement-external position within a phase should, in principle, be available for further movement. Word order should not be at issue here, only structure. Therefore, unless more is added to this phase theory, it predicts that both of the hypothetical IS scenarios in (33) below should be equally licit.[7] These two scenarios are structurally comparable, but differ in word order. We've seen that in all attested IS patterns, the stranded material was (or could have been) originally ordered to the right of what stranded it, as only the ISG-matching schema in (33b) describes:

(33)   **Two structurally comparable stranding extractions**

    a. **Stranding with crossing at the edge (ISG-violating)**

$$[_{ZP}\ \alpha\ Z\ [_{YP[Phase]}\ [\ \beta\ t_\alpha\ ]\ Y\ [_{XP}\ t_{\beta\alpha}\ X\ ]]]$$
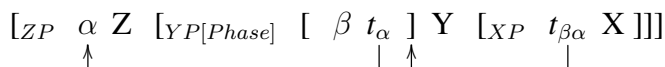
    b. **Stranding without crossing at the edge (ISG-obeying)**

$$[_{ZP}\ \alpha\ Z\ [_{YP[Phase]}\ [\ t_\alpha\ \beta\ ]\ Y\ [_{XP}\ t_{\alpha\beta}\ X\ ]]]$$
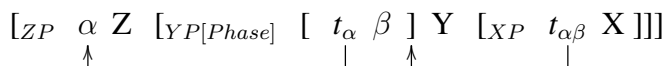
The ISG thus does not sit naturally in a theory of extraction cast purely in structural terms. If creating the right structures for extraction at some point in the derivation is all that matters, it is not obvious why the independent surface word order properties of a given construction should be relevant. The present paper argues that this connection between word order and the availability of IS emerges naturally under CL, and independently motivated constraints on movement.

3.2   Cyclic Linearization (CL)

This section overviews CL, and explains its predictions for IS. In short, CL proposes that successive-cyclic movement (and related effects) is a consequence of the information-preserving nature of spellout, termed *Order Preservation*. Evidence for such an approach has come from object shift in Scandinavian (Fox & Pesetsky 2005 a,b), constraints on rightward movement (Sabbagh 2007, Overfelt 2015), P-stranding in Russian (Podobryaev 2007), sub-extraction in focus movement (Fanselow & Lenertová 2011), quantifier float (Jenks 2013), asymmetries in scrambling (Ko 2007, 2011, 2014), and complementizer-trace effects (Erlewine 2017).

In CL, entire phasal constituents spell-out all at once, edge included. A phase spells-out as soon as it has been constructed by successive applications of (internal and external) Merge. Since phase-level spellout targets everything within the phase, not even elements in the phase edge escape spellout. Therefore in order to avoid predicting the absence of movement from phases, CL hypothesizes that spelled-out material remains accessible for the entire syntactic derivation. Since this hypothesis is incompatible with the explanation for successive-cyclic movement in Chomsky (2000, 2001), CL proposes a different one: CL argues that successive-cyclic movement ensures that the ordering information that spellout generates for a given phase is ultimately consistent with that of subsequent phases in the derivation.

To understand the logic of CL, first consider a derivation like (34) below, where the moving phrase *what* moves to spec-CP without passing through the edge of vP:

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[7]Bošković (2018) extends Chomsky's theory to an account of movement from moved phrases which predicts something resembling (but distinct from) the ISG. See the appendix below for discussion.
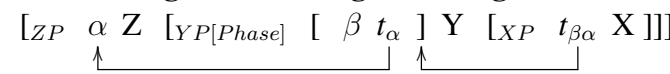
(34) **Hypothetical non-successive-cyclic movement from vP**
    [$_{CP}$ What did Mary [$_{vP}$ give the cat ~~what~~]]]?

In this dervation, *what* had not moved to the edge of vP at the time when vP was spelled-out. Therefore spellout of this vP generates the following ordering information:

(35) **Ordering at vP (without successive-cyclic movement)**
    give < the cat < what   ($\alpha < \beta$ means "α linearly precedes β")

Later, *what* moves in one step to spec-CP. Spellout of CP produces the linearization in (36):

(36) **Ordering at CP**
    what < did < Mary < [content of vP]

Notice that in (35), *what* follows everything in vP. However, in (36) *what* precedes everything in CP, and so ultimately precedes everything in vP. Thus we have a contradiction: In this derivation the moving phrase *what* has been determined to simultaneously follow and precede the content of vP. CL posits that such contradictory results yield a derivation that is deviant at PF. Due to Order Preservation, offending linearization statements cannot be deleted in order to avoid such problems.

In contrast, successive-cyclic movement through the linear edge of vP, as in (37), prevents the derivation from yielding a contradictory linearization.

(37) **Successive-cyclic movement through the linear edge of vP**
    [$_{CP}$ What did Mary [$_{vP}$ ~~what~~ give the cat ~~what~~]]]?

Spellout of the vP in (37) generates the ordering information in (38):

(38) **Ordering at vP with successive-cyclic movement**
    what < give < the cat

The ordering of this vP doesn't contradict the linearization later produced at CP (36), because the linear orders generated at both of these phases encode that *what* precedes their contents:

(39)   a. **Ordering in vP with successive-cyclic movement**
          ***what** < give < the cat*
       b. **Ordering at CP**
          ***what** < did < Mary <* [content of vP]

This result is consistent with *what* being pronounced at the left edge of the sentence, preceding the content of both phases in this derivation.[8]

Fox & Pesetsky argue that in this way, successive-cyclic movement through the linear edge of phases maintains a coherent linearization. When material does not exit from the linear edge, hence crossing over some material in the phase on the way out, incoherent orderings are generated.[9]

---

[8]The notation "<" encodes the relative linear order of two elements, not strict adjacency. So an ordering [$\alpha < \beta$] generated at an intermediate phase of the derivation is compatible with α moving later on, with the result that other material ultimately intervenes between α and β, as in [$\alpha \gamma \beta$].

[9]However, later movement of material crossed over by a phase exit from a non-edge position can rescue the derivation, as I discuss further in section 5.1.

3.2.1 The predictions for IS under CL

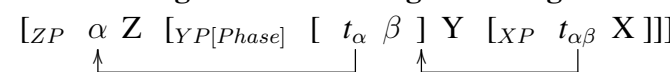Recall the generalization about IS that was illustrated in section 2 above:

(40) **Intermediate Stranding Generalization (ISG)**   [(=2)]
Leftward movement of a phrase α can only intermediately strand an element β if β is (or can be) ordered rightward of α before stranding occurs.

The ISG emerges from the fact that CL permits only movement from a phase via its linear edge. If a successive-cyclically moving phrase intermediately strands material that originally preceded it, then that phrase illegally crosses over the material it strands in the edge as it moves on into the next phase (41a). In contrast, if the material being stranded at the edge originally followed the phrase that strands it by moving on (41b), such problematic crossing at the phase edge doesn't occur:

(41)   a. *** Stranding with crossing at the edge**
$$[_{ZP}\ \alpha\ Z\ [_{YP[Phase]}\ [\ \beta\ t_\alpha\ ]\ Y\ [_{XP}\ t_{\beta\alpha}\ X\ ]]]$$

     b. **✓ Stranding without crossing at the edge**
$$[_{ZP}\ \alpha\ Z\ [_{YP[Phase]}\ [\ t_\alpha\ \beta\ ]\ Y\ [_{XP}\ t_{\alpha\beta}\ X\ ]]]$$

Thus CL accurately permits only non-crossing IS derivations like (41b), which fits the ISG. Importantly, the crossing problem that derives the ISG applies only at phase edges. Thus base position preposition stranding in languages like English and Norwegian, for instance, is correctly permitted.

To my knowledge, the closest analogue to this proposal in preceding work comes from the examination of quantifier float in Jenks (2013), who focuses on numeral classifiers in East Asian languages. Jenks argues that quantifier float is (at least in some languages like Thai) derived by rightward extraposition of the quantifier, which he argues obeys the following generalization:

(42) **Quantifier Float Generalization**   (Jenks, 2013, ex. 53)
Rightward quantifier float (of the Q/Num-Clf) is only attested in classifier languages which allow the DP-internal order N-Q/Num-Clf (N-Q).

Jenks argues that this generalization may in fact apply to all extraposition, and proposes that this result is derived by CL. While Jenks' generalization differs from the one proposed in the present paper since it is not about intermediate stranding per se, Jenks' findings are convergent with this paper in that they show how independent word order facts constrain movement. This is precisely as expected, if CL limits the set of licit movement configurations.

4 Locality and movement at the edge

The above account of the ISG encounters a problem when we consider another plausible, though more complex, way of deriving IS. If IS fails when a moving phrase crosses what it strands while exiting the phase, then IS should be permitted if the moving phrase can reach a higher position in the phase, above any pied-piped material that initially preceded it. If this occurs, later movement from the phase won't cross over the previously pied-piped material. Thus, for instance, preposition IS in English or Norwegian could hypothetically be fed by a *wh*-phrase pied-piping PP into the CP edge, and then moving from the complement of PP into a higher spec-CP, as in (43):

(43) **Hypothetical phrase-bound spec-to-spec movement (to be ruled out)**

a. **Step 1**

$$\text{CP}_{[Phase]}$$

$$\text{PP}_j \quad \text{C} \quad \ldots$$

$$\text{P} \quad \text{WH} \qquad \ldots t_j$$

$\rightarrow\rightarrow\rightarrow$

b. **Step 2**

$$\text{CP}_{[Phase]}$$

$$\textbf{WH}_k$$

$$\text{PP}_j \quad \text{C} \quad \ldots$$

$$\text{P} \quad t_k \qquad \ldots t_j$$
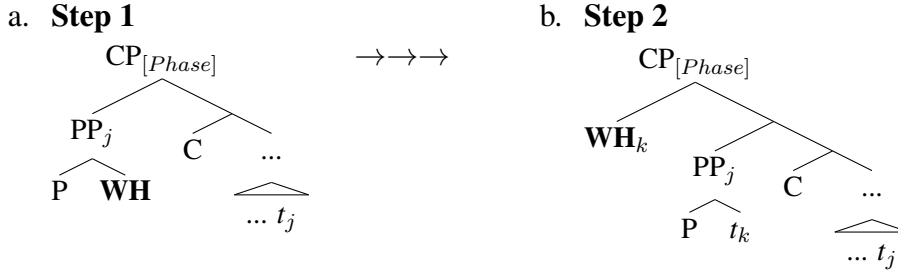
After such movement to a higher spec-CP, the *wh*-phrase precedes PP within the CP phase, and thus can subsequently extract from CP without crossing PP. Thus such a derivation can undesirably yield IS of a preposition, and violations of the ISG more generally. Therefore this derivation, and the edge-internal specifier to specifier movement that it depends on, must be ruled out.

The needed ban on local spec-to-spec movement has been argued for by Ko (2007, a.o.) to account for asymmetries in scrambling in Korean and Japanese. Ko argues following Chomsky (2000, 2001, a.o.) that phrasal movement to the specifier of a head is contingent on a particular structural relationship: the head must c-command the goal phrase to be moved. This is because a feature on a given head that might trigger movement, such as an EPP feature or an "edge feature" (Chomsky, 2005) is only sensitive to phrases in its c-command domain. As Ko points out, since heads don't c-command their specifiers, it is not possible for a head to target and move a phrase from one of its specifiers to another. Thus as desired, movement of the *wh*-phrase to a higher spec-CP in (43b) above cannot occur, since C does not c-command the *wh*-phrase at the stage when this movement would apply. The same constraint bans any potential scenario of phrase-bound spec-to-spec movement, preventing such movement from yielding ISG violations.[10]

While a ban on phrase-bound specifier-to-specifier movement rules out a certain class of unattested IS derivations, a second problematic hypothetical derivation arises from the possibility of movement within the pied-piped constituent. For instance, a *wh*-phrase complement of PP might conceivably move to spec-PP, prior to pied-piping of PP into spec-CP, as diagrammed in (44) below.[11] Such movement to spec-PP is in principle legal, since P c-commands the *wh*-phrase at the time this movement would apply. In the resulting configuration in (44), the *wh*-phrase occupies the left linear edge of PP and of the containing CP. Hence after the derivation of (44), the *wh*-phrase could move from CP without crossing over P on the way out, as CL requires. This derivation thus undesirably yields the possibility of preposition IS. Therefore it must be ruled out as well.

(44) **Movement internal to pied-piped PP (to be ruled out)**

$$\text{CP}_{[Phase]}$$

$$\text{PP}_j \quad \text{C} \quad \ldots$$

$$\textbf{WH}_k \quad \text{P} \quad t_k \qquad \ldots t_j$$

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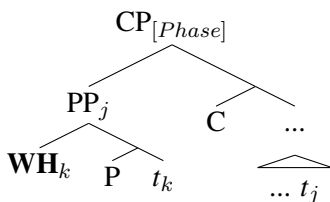
[10]Richards (2004) argues that Bulgarian allows movement of a first *wh*-phrase to spec-CP, followed by extraction of a second *wh*-phrase out of the first, and into a second specifier of the same CP. Since this sort of movement is banned under the approach argued for here, such facts require a different account in the context of this paper. For instance, see Frampton (2001) for a compatible analysis which amounts to extraction from the lower copy of the outer *wh*-phrase.

[11]Any PP-internal movement occurs before PP moves, not after, given the Strict Cycle Condition (Chomsky, 1973).

The problematic PP-internal movement in (44) is barred by concerns of anti-locality—the concept that movement must not be too short. Various forms of anti-locality have been proposed (Bošković, 1997; Ishii, 1999; Grohmann, 2003; Abels, 2003, 2012, a.o.). Abels' anti-locality, for instance, prevents a head's complement from moving to its specifier. This constraint bans PP-internal fronting of the *wh*-phrase, making the configuration in (44) underivable, as desired.[12]

This anti-locality constraint is irrelevant if the constituent to be pied-piped is structurally larger, however. For instance, in the schema in (45) below, a *wh*-phrase pied-pipes ZP and the containing phrase YP into a CP edge. Since movement of the *wh*-phrase from ZP to the edge of YP respects locality, the *wh*-phrase can occupy the linear edge of this two-layered pied-piped constituent, and thus simultaneously occupy that of the containing CP phase. Hence following (45), the *wh*-phrase could move on, stranding the pied-piped YP in the CP edge, thus deriving legal IS.

(45)   **Legal movement within larger pied-piped constituent: Predicted to feed IS**
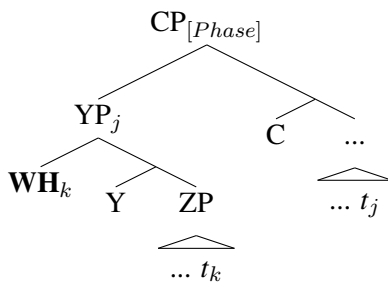
This prediction provides an analysis for IS of material that can be ordered on either side of what it merges with, as we saw in section 2 for certain adjuncts of *wh*-phrases in English, *maar* ("only") in Dutch, and ambivalent adpositions in Russian: if variable word order is permitted by the possibility of movement within these constituents, such movement provides a means of deriving IS.

Podobryaev (2009), for instance, argues that while anti-locality bans movement within typical Russian PPs, the strandable ambivalently ordered PPs discussed in section 2.6 are more structurally complex. Thus he argues that movement within them is possible. Podobryaev suggests, consistent with the diachronic facts, that such PPs are derived from nouns via the N to P incorporation in (46) below. If these adpositions indeed involve two phrasal layers, then anti-locality respecting A′-movement to the edge of such adpositions should be licit, as we see for a *wh*-phrase in (46):

(46)   **Anti-locality respecting movement to edge of complex Russian adposition**

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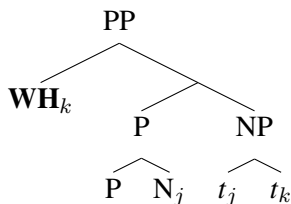
[12]A question arises concerning *swiping*, which inverts P and its *wh*-complement under ellipsis, as in English sentences like *I know John went somewhere, but I don't know **where to*** (Ross, 1969; Merchant, 2002). The present paper does not allow swiping to be derived by syntactic movement of the *wh*-phrase within PP, or from PP to a specifier of the embedded CP. Since the word order of swiping is not possible in comparable sentences without ellipsis, maintaining that such movements are unavailable appears correct: *I know John went somewhere, but I don't know (to) where (*to) he went*. The fact that swiping is exclusive to single-word *wh*-phrases may provide convergent evidence that typical syntactic movement is not involved here: **I know John read about a few topics, but I don't know how many topics about*. This paper is fully compatible with swiping being derived by something like PP remnant movement post-extraction, however.

Movement within the complex adposition permits IS in the following way: after adposition-internal movement of the *wh*-phrase in (46), its further movement pied-pipes the adposition to a phase edge, as in (47a). Here the *wh*-phrase occupies the linear edge of the adposition and of the containing phase, thus the *wh*-phrase can move on, stranding the adposition in the phase edge as in (47b).[13]

(47)   a. **Pied-piping of complex PP after movement within in**
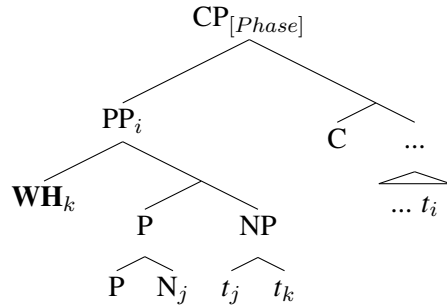
        b. **IS via extraction from complex PP after pied-piping**
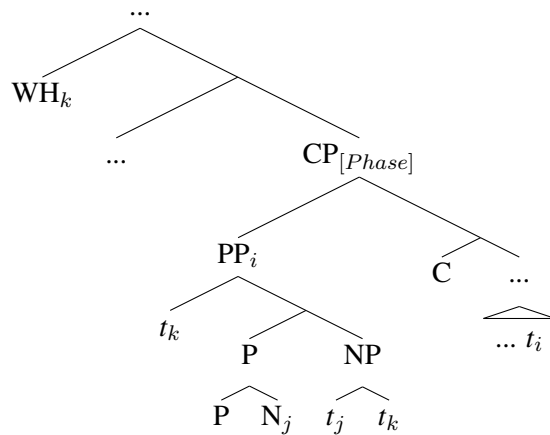
Thus the possibility of moving to the left edge of the complex adposition provides the means for IS of this constituent to succeed. By hypothesis, if the extracting phrase here had remained to the right of the complex adposition by not undergoing movement to its edge, such IS would fail.

    A derivation of this shape could be involved in other situations where free ordering within a certain constituent correlates with the possibility of IS. While pied-piping a constituent large enough to permit movement through its edge is one way to yield legal IS, the same result obtains for a constituent whose internal order is simply free due to optionality of linearization rules.[14]

---

[13]The same concerns lead to an understanding of configurations in English involving A-bar extraction from a constituent that has undergone topicalization or *wh*-movement to an embedded spec-CP, like (ii) below. Such patterns have been discussed by at least Pesetsky (1982), Chomsky (1986), Lasnik & Saito (1999), and Sauerland (1999).

    ii. $^?$[What student]$_j$ did Ann ask [$_{CP}$ [what picture of t_j]$_k$ to put up t_k]?   (Sauerland 1999, 24c)

The present approach can derive (ii), in the following way. First, the inner *wh*-phrase *what student*$_j$ moves to the spec-DP of the outer *wh*-phrase *what picture of*$_k$. This movement is available, since it respects locality. The outer *wh*-phrase then moves to the embedded spec-CP. The inner *wh*-phrase is then the leftmost phrase in the embedded CP, since it occupies the specifier of the outer *wh*-phrase, which in turn occupies the specifier of the embedded CP. From this peripheral position, the inner *wh*-phrase can be extracted and land in the matrix clause.

[14]This latter option could be correct for the English adjuncts discussed in section 2.2, for instance, given that English adjuncts can be freely ordered either left or right of the phrase they adjoin to.

Either situation provides the conditions for IS, by allowing a derivation in which the material stranded in an intermediate position was linearized to the right of the material that stranded it.

4.1   On quantifier float under A-movement

It is in the context of A′-movement that the type of stranding this paper focuses on emerges most clearly. However, many languages also allow the apparent stranding of quantifiers under A-movement, a phenomenon often referred to as *floating* quantification, shown in (48):

(48)   a.   **English**   (Fitzpatrick, 2006, ex. 1b)
            The students have **all** had lunch

         b.   **French**   (Sportiche, 1988, ex. 2b)
            Les enfants ont   **tous** vu   ce   film
            The kids   have all   seen this film

Some such patterns present exceptions to the ISG at first glance. To illustrate the problem, it will suffice to consider the English example in (48a). Here the subject DP is separated from its associated quantifier *all* by an intervening auxiliary. If *all* was originally merged to the subject, which then moved to spec-TP, the fact that *all* cannot follow a DP that has not moved, like the object in (49) below, suggests that *all* originally preceded the subject in (48a) prior to movement.

(49)   ***all* must precede an un-moved DP**
         I saw (all) the cats (*all)

Sentences like (48a) have a word order consistent with *all* having been stranded in spec-vP by A-movement of the subject from its θ-position, as illustrated in (50) below. Notice that if *all* really must have originated to the left of the subject DP, then the subject's A-movement here would cross over the stranded quantifier on the way out of vP, as (50) shows. Such movement does not fit the ISG, and is thus predicted to be impossible under the concepts defended in this paper.[15]

(50)   **Stranding analysis of quantifier float by subject movement: A potential ISG violation**
         [The students]$_k$ have [$_{vP}$ [all t_k] had lunch]

However, if the floated quantifier here need not have been derived by stranding, then (50) does not constitute an exception to the ISG. A non-stranding approach to quantifier float has been explored in detail by Fitzpatrick (2006), who argues that quantifier float under A-movement is essentially adverbial in nature, whereas similar patterns involving A′-movement are true stranding. In particular, Fitzpatrick expands on Doetjes (1997) in arguing that floated quantifiers in A-movement contexts are adjuncts containing a *pro* co-indexed with the moved phrase:

(51)   **Adverbial analysis of floated quantifier: No stranding, no ISG violation**
         [The students]$_k$ have [$_{vP}$ t_k [all *pro*$_k$] had lunch]

Fitzpatrick provides several angles of analysis from a variety of languages in support of the adverbial analysis of quantifier float under A-movement. From this perspective, quantifier float poses no challenge to the ISG, since it doesn't involve stranding.

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[15]However, if Bošković (2004) is right that floated quantifiers do not appear in θ-positions, then the quantifier in (50) must occupy a position other than spec-vP, in which case there would be no issue for the ISG.

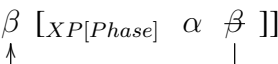# 5   On when an edge is available for stranding

So far, this paper has focused on understanding what sorts of elements can be stranded in intermediate positions. Another relevant topic in this domain is the question of what positions are, in principle, available to be stranded in. While the present paper cannot provide a full understanding of this issue, this section will discuss several relevant predictions and possibilities.
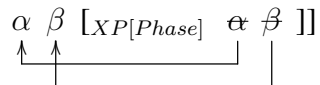
5.1   A-movement versus stranding in spec-vP

In this subsection, I consider a prediction of CL regarding certain situations in which movement is expected to be forced, and thus, in which IS is expected to be blocked. This prediction will yield accurate results for patterns from mainstream English, and solve a puzzle about the Irish English dialect studied by McCloskey (2000).

   As described in section 3, CL derives successive-cyclic movement through phase edges from the logic of non-contradiction in linearization: movement through the linear edge of each phase crossed ensures the coherency of the orderings that phase-by-phase spellout generates. As we'll now see, the same logic also predicts that certain exceptions to successive-cyclicity are possible, as long as additional movements occur that keep linearization coherent. In (52) below, we see a schema for non-successive-cyclic movement and its repair. In (52a), the element α precedes β within the phase XP before movement. Here β moves out of XP without stopping in its edge, thus crossing α on the way out. As discussed, such scenarios are predicted to result in a linearization contradiction. This is because the crossing of α by movement of β creates an ordering which requires pronouncing β both before and after α. CL predicts that this problem is avoided, however, if α also moves into the next phase, to a position above β, as in (52b). The result of this movement is that α precedes β within the second phase just as it did within the first. In this way, CL predicts that exiting a phase from a non-edge position is licit if additional order-restoring movements occur.

(52)   a.   **Illicit crossing at the edge...**
             * $[_{YP[Phase]}\ \ \beta\ \ [_{XP[Phase]}\ \ \alpha\ \ \beta\ ]]$

        b.   **...repaired by restoring original order**
             ✓ $[_{YP[Phase]}\ \ \alpha\ \ \beta\ \ [_{XP[Phase]}\ \ \alpha\ \ \beta\ ]]$

   This prediction, which Fox & Pesetsky (2005a,b) originally argued for in the context of object shift in Scandinavian, leads us to expect that any phase edges crossed over by such a non-successive-cyclic movement should not be viable positions for stranding. Rather, such positions must be vacated in the way shown in (52b). Consequently, any material that was pied-piped into such a crossed-over position must be pied-piped further.

   Stranding patterns in some varieties of English fall in line with this prediction. For instance, section 2.2 discussed how *exactly* and other adjuncts of DP are capable of IS at clause edges:

(53)   **Adjunct stranding at clause edge**
        a.   **What**$_k$ did you suppose t_k (**exactly/precisely**) (that) they wanted t_k?
        b.   **How much saffron**$_k$ did the chef say t_k (**to the closest gram**) (that) we need t_k?

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If vP is a phase in addition to CP, we also expect these adjuncts to be able to be stranded in a position corresponding to spec-vP. However, this linear position in the verbal domain is also a possible location for adverbs. For this reason I focus on strandable adjuncts like that in (53b), which unlike *exactly/precisely*, can't be parsed as adverbs. Example (54) below attempts adjunct stranding in spec-vP in transitive clauses, which yields ungrammaticality:[16]

(54) **No DP adjunct stranding in spec-vP: Transitive clauses**

    a. How much flour (to the nearest pound) did you [$_{vP}$ (***to the nearest pound**) tell me [$_{CP}$ (to the nearest pound) that the bakery [$_{vP}$ (***to the nearest pound**) asked you for (to the nearest pound)]]]?

    b. Tell me [$_{CP}$ how many grams of tranquilizer (to the third decimal place) the researchers [$_{vP}$ (***to the third decimal place**) reported [$_{CP}$ (to the third decimal place) that they [$_{vP}$ (***to the third decimal place**) used to sedate the tiger (to the third decimal place)]]]]

The concepts defended in this paper predict this gap in the stranding paradigm, when we consider the interaction of successive-cyclic A′-movement with A-movement of the subject. CL requires an A′-moving phrase on its way to spec-CP to stop in the most peripheral position of the vP phase. This will be a specifier above the external argument (EA) in situ in its θ-position:

(55) **A′-movement to outer spec-vP**
$$[_{vP} \; \text{WH}_k \;\; \text{EA} \;\; \text{v-V} \;\; \cancel{\text{WH}} \;]$$
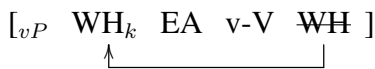
No linearization problem arises when the subject later A-moves to spec-TP across that outer spec-vP formed by successive-cyclic A′-movement, provided that the content of the outer specifier moves along to spec-CP. After this movement, the relative order of the moving phrases established in vP and CP is the same, yielding a coherent linearization, as (56) shows:

(56) **WH < EA order maintained in vP and CP**
$$[_{CP} \; \text{WH} \; \text{C} \; \text{EA} \; \text{T} \; [_{vP} \; \cancel{\text{WH}} \; \cancel{\text{EA}} \; \text{v-V} \; \cancel{\text{WH}} \;]]$$
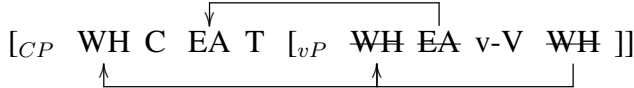
However, if *wh*-movement strands something in that outer spec-vP, movement of the subject across the stranded material yields a crossing problem. This is shown in (57), where we see that while there is no issue if the moving *wh*-phrase pied-pipes the element α to spec-CP, there is a problem if α is stranded in vP and is thus crossed by A-movement of EA:

(57) **Conflict between EA movement and stranding in the vP edge**
$$[_{CP} \; \text{WH-}(\checkmark\alpha) \; \text{C} \; \text{EA} \; \text{T} \; [_{vP} \; \cancel{\text{WH}}\text{-}(\text{*}\alpha) \; \cancel{\text{EA}} \; \text{v-V} \; \cancel{\text{WH}}\text{-}(\checkmark\alpha) \;]]$$

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[16]Zyman (2019b) argues that *exactly*-stranding is possible in spec-vP (iii), but notes some inter-speaker variation regarding the acceptability of such sentences. I argue that the possible adverbial parse for a potentially stranded *exactly* makes its derivation ambiguous. As we'll see, when we avoid testing spec-vP IS with such ambiguous elements, we find that spec-vP IS in English is uniformly ungrammatical.

  iii. *exactly*-**stranding in spec-vP**   (Zyman, 2019b)
      a. What was he **exactly/precisely** doing there?
      b. What did she **exactly/precisely** send?

As expected, the same holds for unergative clauses, which also involve an A-moving EA:

(58) **No DP adjunct stranding in spec-vP: Unergative clauses**

    a. How many bad jokes (to the nearest dozen) did the audience [$_{vP}$ (**to the nearest dozen**) laugh in spite of (to the nearest dozen)]?

    b. How much money (to the nearest million) did the governor [$_{vP}$ (**to the nearest million**) resign for (to the nearest million)]?

If intransitive vPs are phases (Sauerland, 2003; Legate, 2006; Ko, 2014) then under CL, theme subjects are expected to pass through the edge of vP, given that V moves to v in English (Larson, 1988; Chomsky, 1995; Kratzer, 1996, a.o.). Such subject movement is necessary to ensure that the theme subject precedes V within vP, as it will later after movement to spec-TP:

(59) **V movement and theme subject movement within vP**

[$_{vP}$ SUBJ v-V [$_{VP}$ ~~V~~ ~~SUBJ~~]]

Any A′-movement in such contexts will form a higher spec-vP above the moved theme subject, just as occurs with EAs, which originate in spec-vP rather than moving there. This being the case, later movement of a theme subject to spec-TP must cross over anything stranded in the vP edge by A′-movement, just as we've seen with EAs. Given this, IS in the edge of vP should not be possible in passive and unaccusative derivations. This prediction is accurate:

(60) a. **No DP adjunct stranding in spec-vP: Unaccusative**

      [How many firefighters]$_k$ (to the nearest dozen) did the house [$_{vP}$ t_k (**to the nearest dozen**) burn down despite the efforts of t_k (to the nearest dozen)]?

    b. **No DP adjunct stranding in spec-vP: Passive**

      [How much flour]$_k$ (to the nearest pound) was the bakery [$_{vP}$ t_k (**to the nearest pound**) sent t_k (to the nearest pound)]?

These contexts where A-movement of the subject blocks IS in the vP edge would be avoided if it were possible to rearrange the specifiers of vP, as in (61). Here successive-cyclic movement of a *wh*-phrase pied-pipes α to the vP edge, above the subject. Then the subject moves over the *wh*-phrase and α, and then the *wh*-phrase moves over the subject, stranding α below:

(61) **Successive-cyclic movement followed by rearranging in the vP edge**

[$_{vP}$ WH SUBJ [~~WH~~-α] ~~SUBJ~~ v-V [$_{VP}$ [~~WH~~-α]]]

If these movements occurred within vP, they would yield a vP structure that is consistent with the final ordering that will be produced in CP, and importantly, movement of the subject to spec-TP would not cross the stranded α if these rearrangements occurred. However, given the ban on phrase-bound spec-to-spec movement discussed in section 4, such a derivation is not available.

The same concerns lead to a solution for a puzzle from McCloskey (2000), who pointed out that if vP is a phase, West Ulster English should allow *all*-stranding in its edge. However, the dialect McCloskey studied does not permit this, as we see in (62) below. McCloskey's analysis of West Ulster English suggests that V moves to a head above vP, thus his examples showing this gap in the stranding paradigm attempt *all*-stranding after V:

(62) **No *all*-stranding in spec-vP**   (McCloskey 2000, ex. 14e)

What$_k$ did he **tell**$_j$ [$_{vP}$ t_k (*** all**) t_j his friends [$_{CP}$ t_k (all) that he wanted t_k?]]

The account of this fact is precisely the same as that of the lack of adjunct stranding in spec-vP in mainstream English. The movement of V from vP that McCloskey posits for West Ulster English provides a second reason why such stranding should be banned: there is no position in vP where V can precede any specifiers of vP. Hence movement of V from vP will necessarily cross over any specifiers of vP, forcing them to be evacuated.

5.2   Remnant movement versus stranding in spec-CP

The previous subsection has discussed a circumstance under which stranding in spec-vP is predicted to be banned. There also exist patterns where material that appears to be capable of being stranded in situ fails to be stranded in the CP edge, despite the fact that such stranding would satisfy the ISG. Several such patterns are provided below:

(63) **Base position stranding but no IS at clause edge**

  a. ***Combien* split in French**   (Vincent Rouillard, p.c.)

  Combien$_k$ (de lirves) crois-tu t_k (**de livres**) que je devrais lire t_k (de livres)?
  How.many of books believe-you   of   books that I should read   of books

  "How many books do you believe that I should read?"

  b. **Possessor extraction in Greek**   (Sabine Iatridou, p.c.)

  Pianou$_k$ (to vivlio) ipe o   Yanis t_k (**to vivlio**) oti i   Maria diavase / diavase i
  Whose (the book) said the Yanis   (**the book**) that the Maria read   / read   the
  Maria t_k (to vivlio)
  Maria   (the book)?

  "Whose book did Yanis say that Maria read?"

  c. ***How much ... of* split**[17]
  How much (of the chocolate cake) did you say (**of the chocolate cake**) that I ate (of the chocolate cake)?

  d. ***ago*-stranding**
  How long (ago) did you say ($^{??}$/**ago**) that you went to France ($^?$ago)?

Nothing here crosses over spec-CP in such a way that would derive a crossing problem like that identified for vP in the previous subsection. Thus it is unclear what derives such facts.

   Kayne (2002) suggests that French examples like (63a) do not in fact involve extraction of *combien* ("how many"), but rather movement of a constituent that has been evacuated by everything

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[17]A reviewer points out that the *of*-phrase in examples like this seems to need to be rightmost:

  iv.   How much did you put (*of the chocolate cake) in the fridge (of the chocolate cake)?

This observation is consistent with the displaced *of*-phrase having been derived by PP extraposition. This provides a possible way that (63c) can be accounted for: if the *of*-phrase was never in fact stranded by movement because it can only be displaced by extraposition, there is no expectation that stranding in spec-CP should be possible for this phrase.

except for *combien*. (See Corver (2007) for more on such remnant movement derivations.) Under this analysis, apparent base position stranding of *de livres* ("of books") in (63a) actually is derived by movement of *de livres* to a low position in the clause (64a). Subsequent A′-movement of the phrase that *de livres* once occupied creates the appearance of *combien* having extracted (64b):

(64) **Movement of *de livres* (a) followed by *wh*-movement of remnant (b)**
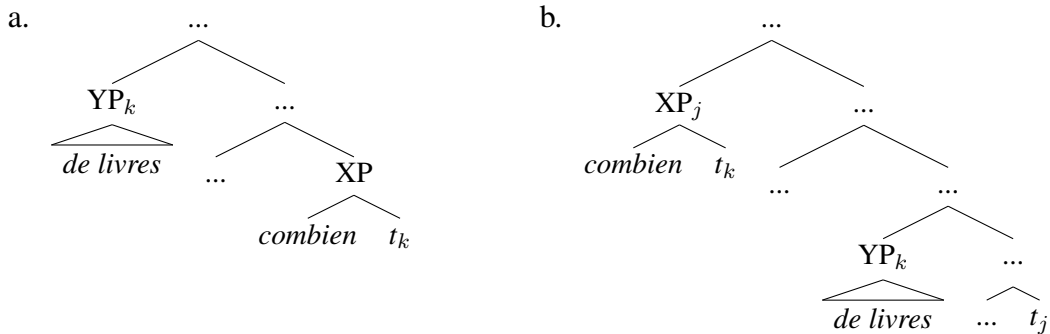
Note that the derivation in (64) does not violate CL, provided that these movements occur within the same phase (presumably vP here). Prior to (64a), *combien* precedes *de livres*. The movement of *de livres* over *combien* in (64a) reverses their order, but the next movement in (64b) restores the original ordering of these elements, such that there is no basis for an ordering contradiction.

The displaced constituents in (63) are elements that are plausibly non-constituents, or perhaps left branches that should be immobile under the Left Branch Condition (Ross, 1967, a.o.). For instance, *combien*-extraction is the only sort of Left Branch Extraction attested in French. If French in fact generally obeys the Left Branch Condition, a remnant movement derivation is precisely the mechanism we would expect to be responsible for the exceptional displacement of *combien*. If such a derivation is plausible for the examples in (63), a lack of IS in spec-CP is expected of these patterns: under the remnant movement analysis, an element that appears to have been stranded in its base position in fact was not. Rather, it evacuated the moving phrase at an earlier point. Since stranding is not involved in such a derivation, there is no pied-piping/stranding at issue in the first place, and hence, no expectation that stranding in spec-CP should be possible.

5.3   On possible landing/stranding sites and phase theory

The previous two subsections have discussed scenarios where stranding in a particular edge fails. While those analyses may be correct for some patterns, they are unlikely to be applicable to all, since the cross-linguistic variance in IS patterns is quite rich. For instance, recall that in West Ulster English as reported by McCloskey (2000), *wh*-adjoined *all* can be stranded in spec-CP, but not spec-vP. Henry (2012) corroborates the existence of such a variety, which she terms West Derry City English. However, Henry shows that there is in fact great variation within West Ulster English. Henry shows that two other varieties, which she refers to as South Derry English and East Derry English, permit *all*-stranding at the edge of the verbal domain, as we see below:

(65) **Spec-vP IS in South Derry English**

    a. What$_k$ did he t_k **all** do t_k on holiday?   (Henry 2012, ex. 25)

    b. Where$_k$ does she t_k **all** see her students t_k?   (Ex. 29)

(66) **Spec-vP IS in East Derry English**

    a. What$_k$ did he t_k **all** do t_k in Derry?   (Ex. 52)

    b. Who $_k$ did he t_k **all** say was elected t_k in the council elections?   (Ex. 56)

If the syntax of these varieties is basically the same as that of the variety studied by McCloskey, and of mainstream English, then the concepts implemented in section 5.1 fail to predict such stranding. The same is true of the examples of spec-vP IS we saw above in Dutch (17) and Polish (24). The space of variation is more complex still. Henry shows that South Derry English allows base position stranding in addition to spec-vP stranding, but does not permit stranding in the CP edge. The Strabane variety is even more restrictive, permitting *all*-stranding in only the base position. The least restrictive is East Derry English, which Henry states allows stranding in the base position, spec-vP, and spec-CP. In response to these diverse facts, Henry argues that the set of positions in which a language permits stranding is simply a matter of choice. That is, while the syntax endowed by Universal Grammar determines a consistent set of landing sites through which successive-cyclic movement passes, languages may opt to permit stranding in only some of them. While this could ultimately be the correct understanding, a more predictive theory is desirable if possible.[18]

    A different approach is taken by Barbiers (2002), who analyzes stranding in a position consistent with spec-vP in Dutch, as described in section 2.4 above. As Barbiers shows, this stranding pattern is highly restricted: only stranding in a matrix spec-vP in a long-distance movement derivation is permitted. Stranding in the embedded spec-vP is banned, as is stranding in the CP edge. Barbiers' approach to these facts is to reduce them to an account of what does and does not count as a phase in Dutch: if a constituent is not a phase, it is not a domain for successive-cyclic movement, and hence not a possible location for IS. In general, reducing the distribution of stranding to the distribution of phases has the potential to lead to a more predictive theory of whether or not a given language will permit IS in a particular position.[19]

    A difficulty for this analytic direction is that it likely depends on positing considerable cross-linguistic variation in the set of phases. This is a complex issue, since the current literature offers numerous proposals about where phases can be found. As Ko (2014) points out, beyond the traditional phases vP and CP, most constituents in the clause have been taken to be a phase at some point, including VP (Fox & Pesetsky, 2005b; Ko, 2011; Wiland, 2010), AspP (Bobaljik & Wurmbrand, 2013; Bošković, 2014; Harwood, 2015), and TP (Deal, 2016 (on relative clauses), Zyman, 2019a). Further, some works argue that phasehood can change during a derivation, for instance,

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[18]McCloskey (2000) suggests that prosodic differences between West Ulster English and mainstream English can predict the fact that the latter does not permit *all*-stranding under A′-movement. If this is correct, it is conceivable that similar prosodic differences between dialects could also be responsible for some of the variation in stranding discussed here. More generally speaking, it is possible that some of the variation in cross-linguistics IS patterns is due to interface factors of this sort: if the phonological requirements of a particular element are not met at a position it is stranded in, that instance of stranding would be blocked, even if it was syntactically well-formed.

[19]For example, a way of approaching the cross-linguistic variance of IS in the verbal domain would be to enrich the set of phases here. Legate (2014) argues for a voiceP distinct from vP, and that voiceP is a phase instead of vP, but if work in Distributed Morphology (Halle & Marantz, 1993; Harley & Noyer, 1999, a.o.) is right that categorizing heads (v, n, a, etc.) are cyclic nodes (Marvin, 2003; Marantz, 2007; Embick & Marantz, 2008), then vP should be considered a phase as well. Furthermore, as discussed later in this section, several works propose that VP is a phase. If VP, vP, and voiceP are all potential phases, then there are several possible landing sites in the verbal domain based on which a variety of different stranding patterns might be derived. Head movement in this domain could further restrict stranding, following the concerns mentioned at the end of section 5.1.

in response to head movement (Den Dikken, 2007; Gallego, 2010; Alexiadou et al., 2014). While these possibilities can in principle accommodate many different patterns of IS, pursuing a phase-centric approach to the cross-linguistic variance in this domain will require case-by-case analysis of each pattern and the language in which it is situated. This task is beyond the scope of this paper. Regardless, the present paper predicts that any instance of IS must obey the ISG, an expectation that this paper has shown is born out by the known facts.

6   Conclusion

Centrally, this paper proposed a word order generalization about stranding in intermediate positions, and argued that this generalization arises naturally under CL, in combination with some independently supported constraints on the locality of movement.

(67)   **Intermediate Stranding Generalization (ISG)**   [=(2)]
        Leftward movement of a phrase α can only intermediately strand an element β if β is (or can be) ordered rightward of α before stranding occurs.

Secondarily, this paper considered ways that stranding in particular positions might be restricted, though predicting the cross-linguistic variance in where stranding can occur remains for future work. This concern is separate from the ISG, however, which so far remains exception-less.

7   Appendix: Comparison with (Bošković 2018) on movement from moved phrases and labeling

As analyzed in this paper, IS is a particular instantiation of movement from a moved phrase: a first step of successive-cyclic movement pied-pipes material into a phase edge prior to a second step of movement stranding it there. As Bošković (2018) notes, movement from moved phrases has been claimed to be quite restricted in many works: while such sub-extraction is largely banned in many languages, others permit it to some extent. Working within the phase theory in Chomsky (2000, 2001) and the labeling framework of Chomsky (2013, 2015), Bošković (2018) predicts a particular scenario in which movement from moved phrases is allowed. While his results partially overlap with the ISG, as we'll see, the two claims differ in several details.

7.1   The labeling theory and movement from moved phrases

Following Chomsky (2013, 2015), when a phrase XP is merged with another phrase YP, XP must move away unless Y agrees with XP such that the two share a common feature via agreement. That shared feature permits the mother of XP and YP to be labeled. For this theory, successive-cyclic movement does not involve agreement and hence does not feed labeling, which is in part why successive-cyclically moving phrases must keep moving until an appropriate landing site is found. Bošković (2018) argues that this system predicts a desirably restricted distribution of movement from moved elements, when combined with two assumptions: that only phrases may move (Rackowski & Richards, 2005; Harwood, 2015; Legate, 2014, a.o.), and that un-labeled constituents

cannot move. To illustrate how these concepts ban movement from moved phrases in some situations, let's first examine the ban on extraction from English subjects:

(68) **No sub-extraction from subject**
    ?* I wonder [who$_k$ [friends of t_k] hired Mary]

Assuming that DPs are phases, and that the subject originates vP-internally, the ungrammaticality of (68) is derived as follows: First, prior to A-movement of the subject, the *wh*-phrase *who* does a first step of successive-cyclic movement to the edge of the subject DP that contains it. Because successive-cyclic movement does not feed labeling, this movement effectively de-labels the subject DP. This prevents it from moving to spec-TP, and hence the derivation fails:

(69) **Successive-cyclic movement within subject bleeds movement to spec-TP**

$[_{TP}$ * $[_{vP}$ $[_{??P}$ *who* $[_{D'}$ friends of ~~who~~]] v-V ...]]

In the same way, any successive-cyclic movement to the edge of any phase will de-label it, preventing it from moving. Hence movement of a phrase that will later be sub-extracted from is trivially blocked. This is how Bošković (2018) derives the typical ban on movement from moved phrases.

While specifiers formed by successive-cyclic movement encounter the labeling issue just discussed, this issue should be irrelevant for specifiers that agree with the head of the phrase they merge to: that agreement should trigger labeling, and allow movement of the containing phrase. Bošković argues that this is correct. In particular, he argues that the ban on movement from moved phrases dissolves for specifiers that are externally merged in, and can remain in, the edge of a phase. This is because in the context of the labeling theory, any specifier that is able to remain in situ must have undergone agreement, or else it would have to move away.

Much of Bošković's supporting evidence for this claim comes from Serbo-Croatian. Unlike English, in this language the specifiers of the nominal phrase (and adjuncts, which Bošković assumes to be structurally equivalent to specifiers) agree with N in case and ϕ-features. Indeed, these elements can be extracted from NP, as exemplified below with possessor extraction from a subject:

(70) **Possessor extraction from subject in Serbo-Croatian**   (Bošković 2018, ex. 25c)
    Jovanov$_i$ je $[_{NP}$ t_i **prijatelj**]$_j$ vjerovatno t_j otpustio Mariju
    John's.NOM is   friend.NOM probably   fired   Mary.ACC
    "John's friend probably fired Maria"

In general, Bošković (2018) makes the following prediction:

(71) **Prediction for movement from moved phrases in Bošković (2018)**
    Movement from a moved phrase is possible only for agreeing specifiers.

Since specifiers are (in the basic case) linearized left of their sister, (71) predicts that left-adjoined phrases will be those that we see successfully extracting in scenarios of movement from a moved phrase. This prediction is thus partially overlapping with the ISG, since the ISG states that IS is only possible when the extracted phrase is (or could have been) linearized leftward of what it strands. The ISG and (71) differ on several points, however.

7.2 Comparison

A superficial difference between (71) and the ISG is that the former is concerned only with extraction of specifiers, whereas the ISG is only concerned with extraction of left-linearized elements. Many of the scenarios discussed in section 2 above do not, prima facie, involve extraction of specifiers. Since mere word order is all that the ISG is defined in terms of, it thus describes the facts with less analytical baggage than (71).

Additionally and more significantly, (71) predicts that movement from a moved phrase requires the extracted and stranded phrases to have an agreement relationship, while the ISG does not require this. Importantly, many of the IS scenarios in section 2 do not involve any surface-evident agreement between the extracted phrase and stranded material, though it happens that some do, like quantifier stranding in Wolof. Hence in this way also, the ISG makes less analytical commitments than (71). The ISG has a strong advantage on this issue if Preminger (2019) is right that there can be no agreement which is systematically morpho-phonologically null across its entire paradigm. While the ISG is fully compatible with Preminger's results, since it has nothing to do with agreement, Bošković (2018) in contrast frequently posits agreement where there is no independent evidence for it, as a consequence of the labeling theory that his account pursues.

This issue is relevant, for instance, to the examples of IS in spec-vP in Dutch from Barbiers (2002), several of which we saw in section 2.4, exemplified once more below:

(72) Waar$_j$ had jij   dan [$_{vP}$ [t_j **mee**]$_k$ gedacht dat je   de vis t_k zou   moeten snijden]?
      where had you then   with   thought that you the fish   would must   cut

      "What had you thought to be forced to cut the fish with?"   (=17a)

In this example, an adposition that was inverted in the context of an R-pronoun is intermediately stranded. Bošković suggests that since R-pronouns and their concomitant P-inversion occur with a restricted set of elements, some agreement relationship must be involved with them. Bošković cites van Riemsdijk (1997) for a notion of *R-feature* that might be applicable, but it is not obvious whether such a feature can really be equated with agreement in any meaningful way.[20]

This concern becomes more dire in the examination of Serbo-Croatian. Bošković shows that this language allows an intensifier to be extracted from a scrambled adjective, as in (73) below:

(73) **Intensifier extraction from scrambled adjective**   (Bošković 2018, ex. 30)

      Izuzetno$_i$ su [$_{AP}$ t_i skup]$_j$ kupili [t_j automobil]
      Extremely are   expensive bought   car

      "They bought an extremely expensive car"

The prediction in (71) requires Bošković to assume that there is agreement between the intensifier and adjective, or else, this movement from the moved adjective should be impossible. As supporting evidence Bošković notes the fact that the intensifier can remain in situ in the adjectival phrase: in the context of the labeling theory, this implies that label-facilitating agreement occurred. This reasoning is, however, completely theory internal. In contrast, note that (73) falls comfortably

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[20]We saw in section 2 that Barbiers' pattern is not exclusive to postpositions like *mee* in (72). For instance, in (17b) above the phrase *voor ball* "for ball" is stranded, and in (17c) *maar* ("only") is stranded. Bošković must posit that these examples of stranding also involve concealed agreement, without independent evidence.

within the purview of the ISG (though this example is of multiple scrambling rather than stranding per se), given that the intensifier's base position is leftward of the adjective that it strands.

On a final note, while the typical ban on extraction from subjects in a language like English fits Bošković's predictions well, Zyman (2019a) observes details about this ban that are suggestive of a different approach. While Bošković does not predict extraction from the English subject in spec-TP to ever be possible, Zyman observes that extraction from subjects is ameliorated when the right material intervenes between the subject and extracted constituent. This is shown with an adverb in (74) below for English and French, another language with a ban on sub-extraction from subjects under typical circumstances:

(74)   **Extraction from subject ameliorated by intervening material**   (Zyman, 2019a)

    a. $^{(?)}$[Of which car]$_k$ *(**according to your recollection**) [did the driver t_k] cause an accident?

    b.   [De quelle voiture]$_k$ *(**selon   tes   souvenirs**) [le conducteur t_k] a   causé un
       of   which car   according.to your recollections the driver   has caused an
       accident?
       accident?

       "Of which car, according to your recollection, did the driver cause an accident?"

Zyman argues that extraction from subjects is typically ungrammatical due to an anti-locality constraint on movement from phase edges, which is why such extraction is ameliorated by the addition of additional structure in some contexts. The examples Zyman observes are incorrectly predicted to be ungrammatical by Bošković (2018), who outright bans any extraction from subjects in languages like English.[21] The present paper posits no such ban, however, and thus does not conflict with the possibility of Zyman's examples.[22]

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[21]It is similarly unclear how Bošković (2018) would account for the movement from a phrase in spec-CP shown in footnote 13 above. Bošković briefly discusses such examples and assumes that they are ungrammatical, but as footnote 13 mentions, there are multiple works reporting the possibility of such sentences.

[22]The difficulty of extraction from subjects is often interpreted as an instance of freezing by movement (Corver, 2017, a.o.). Unlike Bošković (2018), the present paper doesn't make a claim about freezing as a general phenomenon: CL by itself does not make any commitments about the cause of freezing (nor does phase theory in Chomsky (2000, 2001), in fact), but the present paper argues that CL does capture a particular instance of freezing (of non-ISG-obeying constituents) when combined with independent constraints on movement. Similarly, CL alone does not ban extraction from subjects, but is consistent with such extraction being restricted by independent locality constraints, such as the one argued for by Zyman (2019a). Overall, the approach taken in this paper expects effects like freezing to emerge not from phase theory itself, but rather from the interaction of phase theory with independent syntactic constraints. The freezing effect of criterial positions is another independent factor that may be responsible for the island-hood of some moved phrases (Epstein, 1992; Rizzi, 2006; Corver, 2017, a.o.).

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