A Schrift to Fest Kyle Johnson

Edited by
Nicholas LaCara
Keir Moulton
Anne-Michelle Tessier

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Contents

Preface: three notes from the editors

Forty-three papers are assembled here to celebrate Kyle's birthday and his contribution to linguistics. The three of us would like to jointly thank all the contributors to this volume as well as Erin Jerome at UMass Scholarworks, the editors of *Semantics & Pragmatics* for allowing us to use their LaTeX style file, and Rajesh Bhatt, Tom Maxfield and Joe Pater for their discreet help. We also provide our individual acknowledgements below.

> It was the first day of the first Introduction to Linguistics course I taught at UMass, back in the fall semester of 2012. I had spent some time describing the course to my students and then spent a little while introducing myself and telling them a bit about what I did and where I came from. At the end of all this I asked, as I often do, if anybody had any questions. One woman in the middle of the class raised her hand, and when I called on her, she said, "actually, I heard that I should take this class with Professor Johnson." Kyle's notoriety as a gifted teacher certainly precedes him, and, as many of the papers in this volume attest, he has had a impressive influence on the field of linguistics as well. This, no doubt, is due to his unusual charm and his uncanny ability to uncover interesting problems that others fail to see — a talent which I have been the fortunate victim of many times.

> (Also, to Anne-Michelle and Keir: Thanks for inviting me to help!)

> Nicholas LaCara
> Amherst, Massachusetts
> 26 June 2017

> It's not that Anne-Michelle needed to convince me that Kyle deserved a festschrift; she needed to convince me that Kyle wouldn't find it premature, even tacky. Certainly he will appreciate the brilliant linguistic papers in here, but don't interpret the pinstripes, bowties, and rendering of *coördination* (we did not follow that practice here) as self-importance or intellectual pretension. So would a festschrift be embarrassingly aggrandizing for Kyle's Mid-western modesty? My worries were put to rest when we received such a great

number of responses to our call for papers. Kyle should know that in addition to the forty-three papers here, there would be more if secrecy did not preclude a general call and if deadlines extended indefinitely. I think Marcin Morzycki explained why the field, often without any loud fanfare, appreciates Kyle so much: "Kyle listens more intelligently than most people talk." This is the field's quiet fanfare to honor Kyle. Let it also be known that, since referring to the year we were celebrating was out of the question, I voted to title this *A Festschrift to Celebrate an Odd Birthday*.

<div align="right">

Keir Moulton
Vancouver, Canada
26 June 2017

</div>

In my first year of graduate school Kyle Johnson taught me a syntax class. Shortly after that, he stopped trying to make me a syntactician, and instead hired me as the UMass assistant for *LI*'s Squibs and Discussion section. In that capacity, I apprenticed under Kyle in several more advanced aspects of the field — how to charm a syntactician (and the odd semanticist), how to extract late submissions by sharpening the charm, how to keep a lot of secrets, and how to convince people who are far too busy to say yes anyway just because they respect Kyle so much. Of course it took me some years to observe that these were precisely the skills required for a phonologist to co-edit a Kyle Johnson festschrift. Once that thought had been had, however, and Keir and I had spent a few more years periodically reiterating the idea at each other, this volume was really an inevitability. ... So happy birthday, KBJ. (And thank you, Nick, for helping us shield ourselves from at least some of Kyle's imminent wrath about the typesetting.)

<div align="right">

Anne-Michelle Tessier
East Lansing, Michigan
26 June 2017

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Ellipsis in additive responses*

David Adger
Queen Mary University of London

1 Additive responses in English and Gaelic

One of the ways to assert a kind of agreement with your interlocutor in English is by *so/neither*-inversion. I dub these *additive responses*:

(1)   a.   Lilly caught a frog.
        b.   So did Dodger.

(2)   a.   Lilly didn't catch a frog.
        b.   Neither did Dodger.

Scottish Gaelic, apparently, does things a little differently. In this language, the conjunctions *is*, 'and', and *no*, 'or' appear:

(3)   a.   Ghlac   Lilly losgann
            catch.PAST Lilly frog
            'Lilly caught a frog.'
        b.   Ghlac   is   Dodger
            catch.PAST and Dodger
            'So did Dodger.'

(4)   a.   Cha do   ghlac   Lilly losgann
            Neg PAST catch.PAST Lilly frog
            'Lilly didn't catch a frog.'
        b.   Cha do   ghlac   no Dodger
            Neg PAST catch.PAST or Dodger
            'Neither did Dodger.'

Scottish Gaelic is not alone. Other languages, like Japanese, use similar syntactic technology, involving repetition of the predicate and a marker with additive semantics.

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* I've always tried to steer clear of focus, ellipsis, gapping and other such horrors, Kyle having them well covered. But for just this occasion, here's a small attempt to dip my syntactic toes in unfamiliar waters. Many thanks to Satoshi Tomioka for the Japanese examples, and for hospitality in Philadelphia while I wrote this.

(5) a. Mari-wa kaeru-o tsukamae-ta
        Mari-TOP frog-ACC catch-PAST
        'Mari caught a frog.'
    b. Erika-mo tsukamae-ta
        Erika-ALSO catch-PAST
        'So did Erika.'

I'll argue, however, that the surface differences mark an underlying unity. Drawing on the same ingredients as Johnson's (2009) analysis of gapping, I'll argue that all of these constructions involve coordination and ellipsis. The differences depend on whether there is ATB movement of the predicate, and what the morphological form of the coordinating conjunction is.

2 *So*-inversion as Focus plus remnant roll-up

Wood (2008) proposes an elegant analysis of the English construction. He argues that it involves both a low focus position, which may host an (optionally unpronounced) *too*, and a polarity head Pol, which is realised as *so*. For the examples above, the derivation Wood gives involves the subject raising from the VP to the specifier of the Focus head, followed by Merge of the Polarity head:

(6)

```
                    PolP
                   /    \
                 Pol     FocP
                  |      /   \
                 so  Dodger   \
                            /      \
                          Foc       VP
                           |       /   \
                          TOO  ⟨Dodger⟩  V'
                                         /  \
                                    catch a frog
```
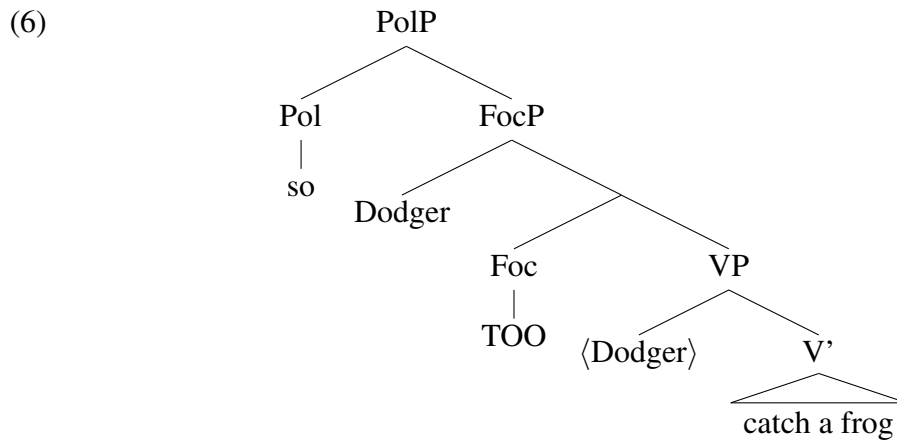
The VP then raises out of PolP, followed by Merge of T, and then Merge of a Laka-style Σ head which attracts PolP to its specifier and T to its head. Ellipsis of the lower part of the structure gives the required result:

2

(7)
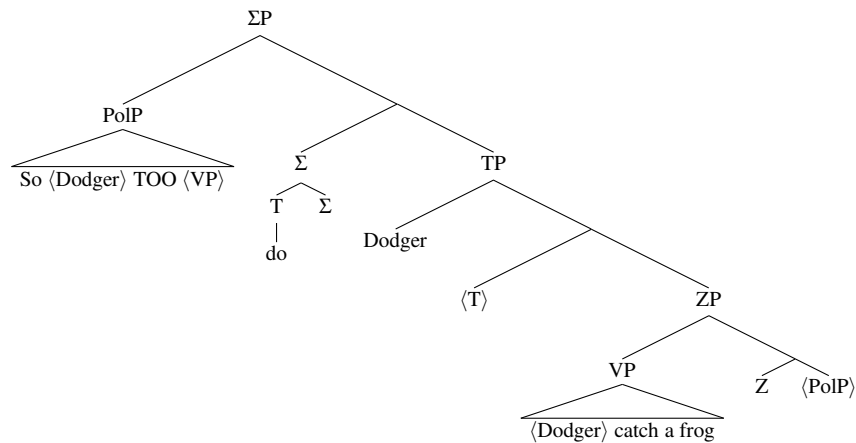
The analysis neatly extends to the *neither*-inversion cases, on the assumption that Pol contains negation, and *either* starts in Foc and raises to negation to give *neither*.

Elegant as this proposal is, it faces linked theoretical and empirical problems. If the subject raises to a Focus projection just outside VP, what then allows it to violate Improper Movement and raise to the case position SpecTP? Connected to this, what stops an object from raising to the Focus projection, then further to SpecTP, with the case feature on the unmoved subject deleted by ellipsis? This would incorrectly predict:

(8) a. Lilly caught a frog
     b. So did a mouse (= She also caught a mouse)

A further issue is that, as noted by Culicover & Winkler (2008), it is possible in *so/neither*-inversion to have a string of auxiliaries. Culicover and Winkler give examples like the following (I have removed their marking of focus stress):

(9) a. As the pyramid rose, the working space would have diminished, of course, and **so** *would have* the number of teams that could simultaneously work atop it...
     b. His hair was light, and **so** *would have been* his complexion, had it not been burned red by exposure to the hot sun of the tropics...

In Wood's analysis, the inversion over the subject is achieved by T-to-C type movement. In order to accommodate examples like (9), the whole string of auxiliaries would have to be inside PolP, including the finite auxiliary. But the presence of *do*-support in these inversion constructions militates against this move.

3 An ellipsis account of Gaelic

The Scottish Gaelic construction suggests an alternative analysis. I'll assume the analysis of Gaelic clause structure in (11) (e.g., Adger 2007):

(10)   Cha do   ghlac   Lilly losgann
           Neg PAST catch.PAST Lilly frog
           'Lilly didn't catch a frog.'

(11)

```
                    CP
                  /    \
            C[neg]      FinP
              |        /    \
             cha     Fin      TP
                    /  \     /    \
                  do  ghlac Lilly   T'
                             /    \
                        ⟨ghlac⟩     vP
                                   /   \
                             ⟨Lilly⟩    v'
                                       /   \
                                 ⟨ghlac⟩    VP
                                           /    \
                                     ⟨ghlac⟩   losgann
```
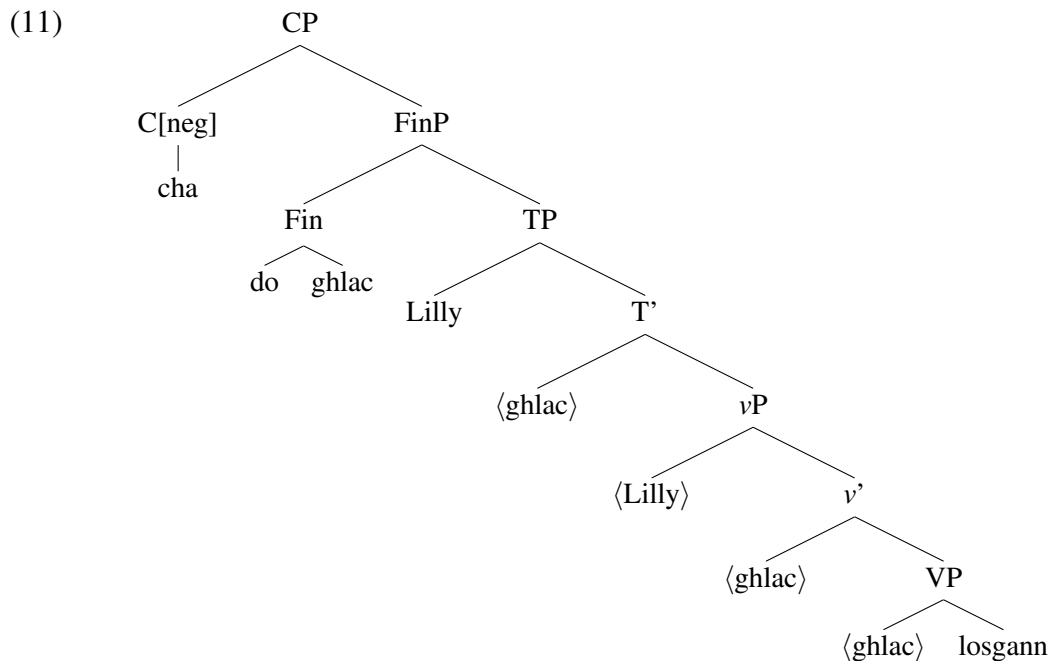
The V raises to *v* then T then to Fin, with negation in C. The particle *do* is a marker of finiteness that agrees in tense with T.

    I propose to take the presence of the conjunctions in the Gaelic additive response at face value, and suggest that the Gaelic structure is to be analysed as a TP coordination. One concrete option for deriving (12) under such assumptions is (13):

(12)   Cha do   ghlac   no Dodger
           Neg PAST catch.PAST or Dodger
           'Neither did Dodger.'

(13)

```
                              CP
                   ┌──────────┴──────────┐
               C[neg]                    FinP
                 │            ┌────────────┴────────────┐
                cha          Fin                       ConjP
                          ┌───┴───┐          ┌───────────┴───────────┐
                         do     ghlac       TP                      Conj'
                                         ┌───┴───┐            ┌───────┴───────┐
                                    Lilly ⟨ghlac⟩ losgann    no             FocP
                                                                      ┌───────┴───────┐
                                                                   Dodger            TP
                                                                              ⟨ghlac⟩ losgann
```
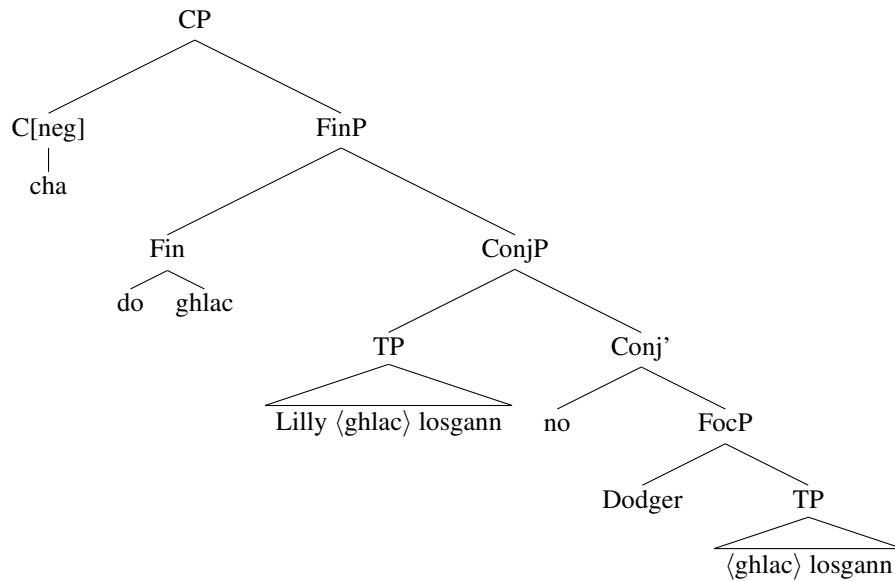
Here we have ATB movement of the verb to Fin, followed by ellipsis of TP in both conjuncts. If we are to elide TP in both cases, then a further movement of the subject to escape the ellipsis in the right hand conjunct is required (see Thoms 2016 for a proposal from a different area of Scottish Gaelic grammar that this is necessary).

An alternative to (13), that does not involve focus movement, is that the subject doesn't raise to a case position in the left hand conjunct, and what is elided in both cases is *v*P:

(14)

```
                              CP
                   ┌──────────┴──────────┐
               C[neg]                    FinP
                 │            ┌────────────┴────────────┐
                cha          Fin                       ConjP
                          ┌───┴───┐          ┌───────────┴───────────┐
                         do     ghlac       TP                      Conj'
                                       ┌─────┴─────┐          ┌───────┴───────┐
                                      T           vP         no              TP
                                             Lilly ⟨ghlac⟩ losgann    ┌───────┴───────┐
                                                                   Dodger            vP
                                                                        ⟨Dodger⟩ ⟨ghlac⟩ losgann
```
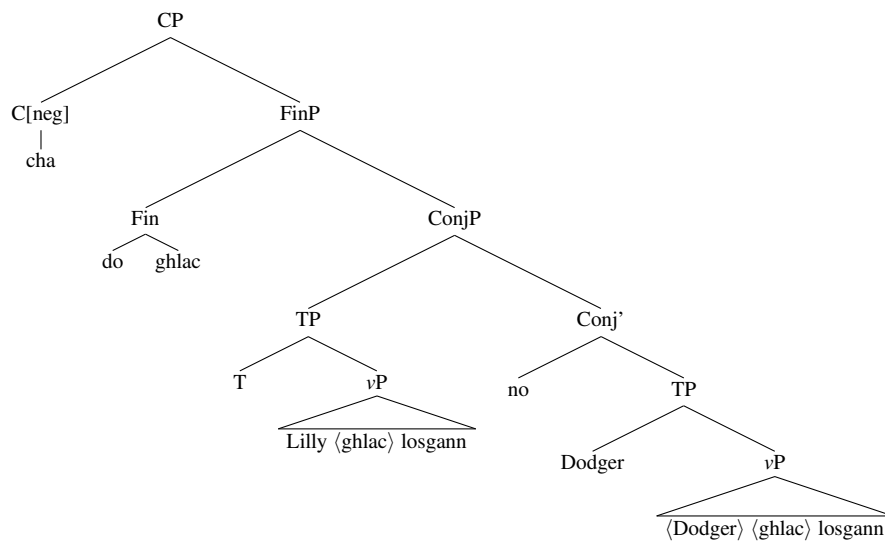
In fact, there is good independent evidence that the movement of a subject to the specifier of TP in Scottish Gaelic and in Irish is not triggered by T, but rather by the case requirements of the noun. In certain circumstances, such as unaccusatives, the specifier of TP remains unfilled when the subject is case-licensed low (McCloskey 1996, Adger 2000). For example:

(15)   Chaidh aig Daibhidh air sin a   dhèanamh
        go.PAST at David   on that PRT do.VN
        'David managed to do that.'

Here the past tense form of the verb meaning 'go' lacks a structural subject. Its thematic subject appears in a PP. McCloskey and Adger show for Irish and Gaelic respectively that such PPs are low in the structure, and that the specifier of TP is unfilled. If this proposal is correct, then ellipsis of the entire *v*P may include the subject. It does so in the leftmost TP, but in the rightmost TP the subject raises to the specifier and is pronounced.

If there were Focus movement in these constructions, the same problem as I pointed out above with respect to Wood's analysis of English raises its head: what would prevent the object moving to the focus position, with ellipsis then deleting the subject? This derivation would give the following kind of additive response.

(16)   a.   Cha do   ghlac   Lilly losgann
              Neg PAST catch.PAST Lilly frog
              'Lilly didn't catch a frog.'
        b.   *Cha do   ghlac   no luchag
              Neg PAST catch.PAST or mouse
              *for 'Nor did she catch a mouse.'[1]

I'll assume, therefore, that the subject following the conjunction in Gaelic is higher than the ellipsis site, while, in the leftmost TP, it is lower.

The same analysis might be tentatively extended to the Japanese examples:

(17)   a.   Mari-wa kaeru-o   tsukamae-ta
              Mari-TOP frog-ACC catch-PAST
              'Mari caught a frog.'

---

1 The (b) response here is marginally possible, but, as far as I have been able to determine, it has the intonational structure of two distinct utterances. The first *Cha do ghlac* is a negative agreement, then there is a second utterance which has the flavour of an afterthought. The meaning of the response is not, then, 'Neither did she catch a mouse', but it is rather something more like 'No (I agree). Nor a mouse.' I will assume that this has a different analysis to the additive responses under discussion here, though if it could be unified with them, then the Focus movement analysis would be available.

b. Erika-mo tsukamae-ta
    Erika-ALSO catch-PAST
    'So did Erika.'

As in Gaelic, the finite V is external to the VP, as is the subject. The particle *mo* serves as a conjunction, with the subject *Erika* external to the ellided VP in one of the coordinated constituents (I leave open wither this is TP or a smaller constituent). The verb has ATB moved out of the coordinated structure:

(18)   [XP Erika [VP kaeru tV] mo [XP [VP Mari kaeru tV]] tsukamae-ta]

This suggestion, that there is one subject that stays low, while another raises high, is, of course, independently motivated for English by Johnson (2009), though the ellipsis operation at play in Gaelic is at the *v*P rather than the VP level. With this idea, and our discussion of Gaelic in hand, let's return to English inversion.

4 Inversion in English is ellipsis

We can think of the English cases as almost identical to the Gaelic ones, with *so/neither* being in C, and a null conjunction coordinating TP:

(19)
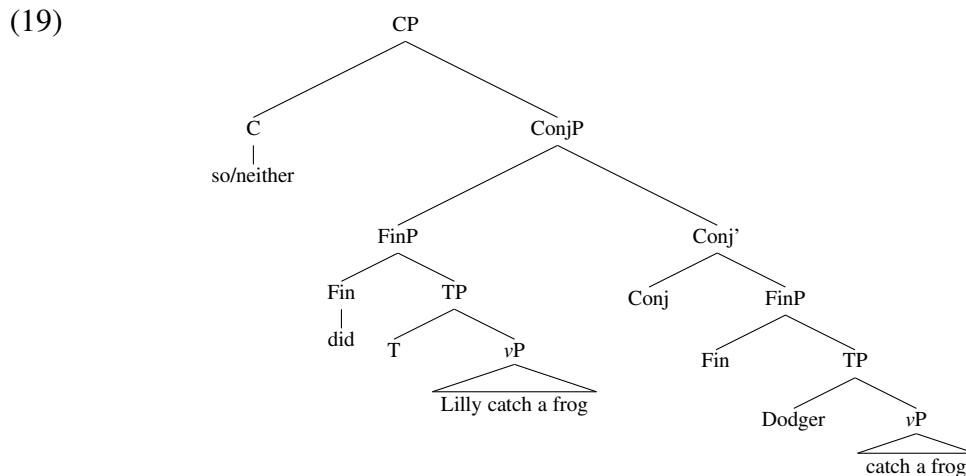
Just as in Gaelic, the subject in the leftmost TP stays low, and the *v*P is ellided. I'll take no stance on whether the conjunction starts in Conj and raises to C, or whether it is null and there is some type of agreement relationship.

The impossiblity of embedding these constructions suggests *so/neither* is in C.

(20)   a.   I think that Lilly caught a frog.
        b.   *I think that so did Dodger.

In addition, this analysis does not suffer from the Improper Movement problem that besets Wood's proposal, nor does it have the associated problem of Focus movement allowing non-subjects. Further, given that the ellipsis applies to *v*P, we actually predict the existence of strings of auxiliaries.

(21) a. Lilly would have caught a frog.
      b. and so would have Dodger.

(22)
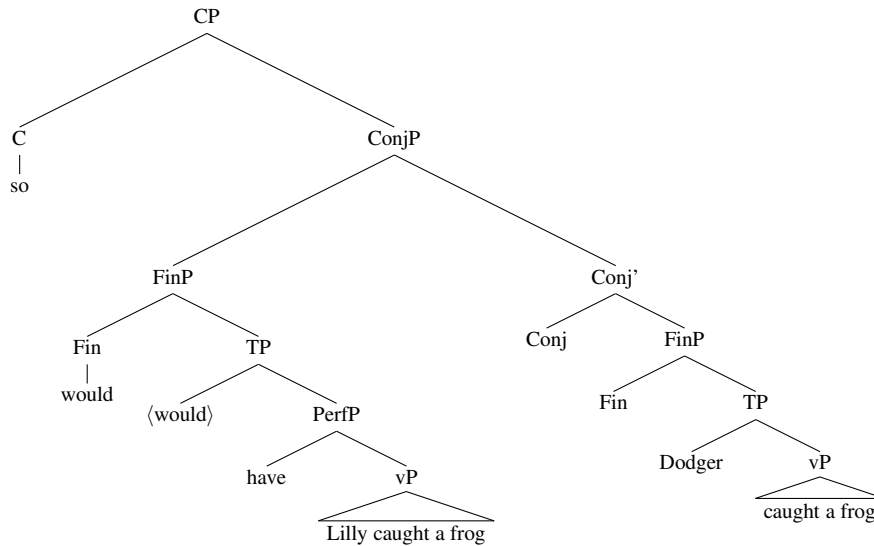
5   Conclusion

So/neither-inversion turns out not to be inversion of the familiar sort (T to C movement triggered by the element in the specifier of CP). Rather, the interaction of conjunction, ellipsis and ATB movement, in a way reminiscent of Johnson's proposal for gapping, provides a unified analysis of apparently quite different additive response constructions constructions in English and Gaelic.

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Gender and nominal ellipsis[*]

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Leibniz-Zentrum Allgemeine
Sprachwissenschaft (ZAS)

1   Introduction

In this squib, I will address a puzzle discussed in the literature on nominal ellipsis pointing to an asymmetric behavior of nouns that relates to their gender features. Specifically, the behavior of nouns under ellipsis suggests that not all gender features are equal, some nouns are lexically specified for gender, while others not (see, e.g., Bobaljik & Zocca 2011, Merchant 2014, Johnson 2014, Sudo & Spathas 2015, and references therein). I attempt to deal with this puzzle in a model that dispenses with the notion of lexical specification of gender on nouns.

2   Gender in Distributed Morphology

Work within the framework of Distributed Morphology assumes that word formation involves minimal elements, roots, that combine with categorizers, *n*, *v*, and *a* to give nouns, verbs and adjectives respectively. From this perspective, all words in a language are complex, as they minimally involve a categorizer and a root (Arad 2005, Embick 2010, compare Borer 2013 for arguments against categorizers). In the domain of nominal morpho-syntax thus the question arises how features such as gender should be represented. In principle, two options come to mind: i) roots could carry gender information, or ii) gender is a feature on *n*, since it is a characteristic property of nouns only, (1). Recently, this view has been extensively discussed in Kramer 2015 and references therein.[1]

---

1 A third option would be to assume as in Picallo 1991 that gender heads its own projection in the syntax, but see Alexiadou 2004 for arguments against this particular implementation. Yet another alternative that has been proposed in the literature is to view gender as distributed within the extended projection of the noun, i.e., gender features can appear on several other positions within the nominal

(1)   [$_n$ *n*-gender √root]

Among the many arguments Kramer brings to support the analysis in (1), I will highlight one, which relates to the role of *n* in determining gender in derived nominals, and will be relevant for my discussion. As Kramer points out, *n* is not just used to nominalize roots, but also other categories, i.e., verbs, adjectives, and also other nouns, (2) (see Marantz 1997, Alexiadou 2001, Arad 2005 for discussion).

(2)   a.   *n* + *v*P = deverbal noun
        b.   *n* + *a*P = deadjectival noun
        c.   *n* + *n*P = denominal noun

As Kramer notes, nominalizations are often gendered across languages; e.g., in French deadjectival nouns are feminine (*la faibl-esse* 'weakness', *la modern-ité* 'modernity'). Greek and German nominalizations support this view. Greek deverbal nouns built on the basis of the affix *-m-* are neuter, e.g., *katharizo* 'clean', *katharis-m-a* 'cleaning'; those built on the basis of *-s-* are feminine, e.g., *kathar-s-i*, 'catharsis'. In German, deverbal nouns in *-ung* are feminine, e.g., *zerstören* 'destroy', *Zerstörung* 'destruction'.

In addition, word internal mixing (from Alexiadou et al. 2015) provides further evidence for the gender on *n* hypothesis: in such cases of mixing, a root/stem is borrowed from one language, and gender as well as other inflectional affixes are provided by the other language. For instance, in the cases of German-Greek language mixing discussed in Alexiadou et al. 2015, German stems are assigned Greek declension class, and gender, (3).

(3)   *Mixing*   *German*   *Greek*
        to regal-i   das Regal   to raf-i
        the shelf.N   the shelf.N   the shelf.N
        i kass-a   die Kasse   to tami-o
        the cashpoint.F   the cashpoint.F   the cashpoint.N
        o vertretas   der Vertreter   o andiprosopos
        the representative.M   the representative.M   the representative.M

Greek has a very rich system of declension classes (DC) (eight in total, see Table 1, and Ralli 2000 and Alexiadou & Müller 2008 for discussion and further references). I will briefly discuss this here, as it will become relevant for the ellipsis cases.

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structure, see Steriopolo & Wiltschko 2010 for discussion of this idea, and Ritter 1993 for an earlier such suggestion.

	$I_{M/F}$	II_M	III_F	IV_F	V_N	VI_N	VII_N	$VIII_N$
Nom$_{SG}$	os	s	$\emptyset$	$\emptyset$	o	$\emptyset$	os	$\emptyset$
Acc$_{SG}$	o	$\emptyset$	$\emptyset$	$\emptyset$	o	$\emptyset$	os	$\emptyset$
Gen$_{SG}$	u	$\emptyset$	s	s	u	u	us	os
Voc$_{SG}$	e	$\emptyset$	$\emptyset$	$\emptyset$	o	$\emptyset$	os	$\emptyset$
Nom$_{PL}$	i	es	es	is	a	a	i	a
Acc$_{PL}$	us	es	es	is	a	a	i	a
Gen$_{PL}$	on	on	on	on	on	on	on	on
Voc$_{PL}$	i	es	es	is	a	a	i	a

Table 1   Greek declension classes

As can be seen in Table 1, from Alexiadou & Müller 2008, nominal morphology is highly syncretic, and importantly, the match between DC and gender is not perfect. There are four DCs for neuter (N: DC V *vuno* 'mountain', DC VI *spiti* 'house', DC VII *kratos* 'state', DC VIII *soma* 'body'), two for feminine (F: DC III *avli* 'yard' and *thalasa* 'sea', DC IV *poli* 'city'), one for masculine (M: DC II *filakas* 'guard'). Finally, DC I contains both feminine and masculine nouns, animates (mostly professions) and inanimates (*kipos* 'garden.M', *psifos* 'vote.F', *jatros* 'doctor.M/F'). The animate nouns of this class have been argued in Alexiadou 2004 to receive gender from their referents, as their form does not provide gender clues. Similar considerations hold for some profession nouns that are in DC II, where the masculine form is the default. Due to the fact that nominal morphology is fusional in Greek, gender, DC and number cannot be separated in individual morphemes, see Alexiadou et al. 2001 for some discussion. I will assume, following (Aronoff 1994: 64,66), that while DC identifies a set of lexemes whose members each select the same set of inflection morphemes, gender is reflected in nominal agreement. Since DC is also a property related to nouns, it should be realized on *n*. In Alexiadou 2004, I argued against identifying special projections in the nominal domain hosting DC and gender features, see also Alexiadou & Müller 2008. Thus from the point of view of the structure in (1), we can identify *n*, the nominalizing head, as the host of both DC and gender.[2]

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2 Kramer (2015) argues that there are two types of gender, interpretable [*i*gender], and uninterpretable [*u*gender]. In Alexiadou 2004 I discussed in detail the view that we need to distinguish between two types of gender: some nouns have gender as an intrinsic property, while others not; DC is always an idiosyncratic property. Noun stems lacking gender specification have [+human/+animate] as a super-ordinate feature (see Anagnostopoulou's contribution). Applying this intuition to the structure in (1) suggests that we can view class as an *u* feature on *n*, see Alexiadou & Müller 2008, while

Coming back to (3), we note that German stems are either incorporated into the neuter DC VI, feminine DC III or masculine DC II, which are considered to be the unmarked ones in Greek, see Anastasiadi-Simeonidi & Chila-Markopoulou 2003. We thus observe that the mixed words adhere to these generalizations. In conclusion, roots do not come specified for DC or gender. This specification takes place in *n*.

3 An ellipsis puzzle

Let us now come to the ellipsis puzzle. As discussed in, e.g., Bobaljik & Zocca 2011, Merchant 2014, and Sudo & Spathas 2015, among others, in Romance and Greek (but also in many other languages), nouns do not behave alike in ellipsis contexts. The observation, as stated in Merchant 2014: 9, is the following: "masculine/feminine pairs of human-denoting nouns fall into three distinct classes under predicative ellipsis: those that license ellipsis of their counterpart regardless of gender, those that only license ellipsis of a same-gendered noun, and those in which the masculine noun of the pair licenses ellipsis of the feminine version, but not vice versa." This is shown below with Greek data (from Merchant 2014: 12, 15–16); Bobaljik & Zocca (2011) discuss identical facts for Brazilian Portuguese (and other languages).

(4)   *Class I nouns: neither element can antecede the other in ellipsis:*
   a.   *O   Petros ine kalos   adherfos, ala i   Maria ine mia kakia.
        the Petros is   good.M brother.M but the Maria is   a.F bad.F
        (on the meaning 'Petros is a good brother, but Maria is a bad one (sister).')
   b.   *I Maria ine kali adherfi, ala o Petros ine enas kakos.
        the Maria is good.F sister.F but the Petros is a.M bad.M
        (on the meaning 'Maria is a good sister, but Petros is a bad one (brother).')

(5)   *Class II: nouns where either element can antecede the other:*
   a.   O   Petros ine kalos   jatros, ala i   Maria ine mia kakia.
        the Petros is   good.M doctor but the Maria is   a.F bad.F
        'Petros is a good doctor, but Maria is a bad one.'
   b.   I   Maria ine kali   jatros, ala o   Petros ine enas kakos.
        the Maria is   good.F doctor but the Petros is   a.M bad.M
        'Maria is a good doctor, but Petros is a bad one.'

---

gender can sometimes be an intrinsic, i.e., an *i* feature on *n*. I will come back to this point in Section 3 and relate it to the derivational nature of (feminine) gender in some cases. See Ritter 1993 for the view that feminine gender is derivational in Hebrew.

(6)   *Class III: the masculine can antecede the feminine but not the other way around:*

    a.   O Petros ine kalos   dhaskalos, ala i   Maria ine mia kakia.
        the Petros is good.M teacher.M but the Maria is a.F bad.F
        'Petros is a good teacher, but Maria is a bad one.'

    b.   *I Maria ine kali dhaskala, ala o Petros ine enas kakos.
        the Maria is good.F teacher.F but the Petros is a.M bad.M
        'Maria is a good teacher, but Petros is a bad one.'

Merchant holds that the three classes behave alike in argument contexts, where gender-mismatched ellipses are disallowed; Bobaljik & Zocca (2011) as well as Johnson (2014) only discuss predicative contexts. However, Sudo & Spathas (2015) show that in Greek the same partition is found also when the nouns appear in argument position, see (7)–(9), and similar facts have been reported for Spanish in Bobaljik & Zocca 2011 and references therein.

(7)   *Class I*

    a.   *O Petros episkefthike enan adherfo tu sti   Veria, ke mia
        the Petros visited   one.M brother his in.the Veria, and one.F
        stin   Katerini.
        in.the Katerini
        'Petros visited a brother of his in Veria, and a (sister) in Katerini.'

    b.   *O Petros episkefthike mia adherfi tu sti Veria, ke enan stin Katerini.
        The Petros visited one.F sister his in.the Veria, and one.M in.the Katerini

(8)   *Class II*

    a.   O Petros episkeftike ena   jatro sti   Veria ke mia sti
        the Petros visited   one.M doctor in.the Veria, and one.F in.the
        Katerini.
        Katerini
        'Petros visited a male doctor in Veria, and a female doctor in Katerini.'

    b.   O   Petros episkefthike mia jatro sti Veria, ke enan sti Katerini
        The Petros visited   a.F doctor in Veria, and one.M in Katerini.
        'Petros visited a female doctor in Veria, and a male doctor in Katerini.'

(9)   *Class III*

    a.   O Petros episkefthike enan dhaskalo sti Veria, ke mia stin Katerini.
        the Petros visited one.M teacher.M in.the Veria, and one.F in.the Katerini.

      'Petros visited a male teacher of his in Veria, and a female teacher in Katerini.'

  b. *O Petros episkefthike mia   dhaskala sti   Veria, ke enan stin
     the Petros visited   one.F teacher.F in.the Veria, and one.M in.the
     Katerini.
     Katerini.
     'Petros visited a female teacher of his in Veria, and a male teacher in Katerini.'

The data in (7)–(9) show, according to Sudo and Spathas, that Merchant's generalization (Merchant 2014: 9) that when "gender is invariant (i.e., with nouns in argument positions), it may not be ignored about ellipsis" is simply false. This suggests that we do not need two mechanisms to license nominal ellipsis, one involving true ellipsis (for arguments) and one involving a nominal pro-form (in predicative contexts), as put forth in Merchant 2014, and see Sudo & Spathas 2015 for further discussion and criticism. Moreover, we cannot appeal to subject-predicate agreement in predicative contexts to resolve this puzzle (contra Bobaljik & Zocca 2011, Merchant 2014 as well as Johnson 2014).

4   Towards an account

The above pattern has received various treatments in the literature. Bobaljik & Zocca (2011) argue that Class I nouns are lexically specified for gender, i.e., both feminine and masculine forms carry gender information. Class II nouns behave like adjectives. Class III feminine nouns are derivationally derived from the masculine counterparts, and derivational morphology cannot be overridden in ellipsis. Crucially then, for Bobaljik & Zocca (2011), the reason why Class II differs from Class III is related to the difference between derivational and inflectional morphology: while the former is ignored in ellipsis, the latter cannot be ignored in ellipsis. Class I is considered to be somehow 'special'. In my own analysis, I will build on their intuitions with respect to Class I and Class III, and capitalize on the fact that nearly all Class II nouns belong to DC I.

    Merchant (2014: 19–21), by contrast, proposes "that the nouns that do not license the alternation, Class I nouns, are lexically specified for the sex of the entities that they denote, while the other classes are not." Specifically, Merchant assumes that gender features of human nouns have one of two values: masculine or feminine, and they appear on a node dominating NP, basically *n*. The difference between the three classes in his system relates to the fact that certain nouns lexically encode gender information, while others not, compare Alexiadou 2004. Class I NPs are lexically specified for gender. Class II nouns by contrast receive gender values

structurally (in *n*), a point that I agree with. Class III feminine nouns behave like Class I nouns; i.e., Merchant argues that feminine is presuppositional, while masculine is not.

Sudo & Spathas (2015) put forth a semantic account and propose that Class I nouns assert as well as presuppose gender inferences, while Class II nouns only presuppose gender. Class III feminine nouns are similar to class I nouns, i.e., both these groups have lexically specified gender inferences, which Class II does not have such a specification. While I basically agree with their generalizations and data description, like Merchant and unlike Bobaljik & Zocca (2011), they don't look deeper into the morphological shape of the nominals in these three classes, which seems to me to hold the key to solve the puzzle.

The proposal that certain nouns are lexically specified for gender shared by all these accounts and also by Alexiadou 2004 is at odds with the gender on *n* dominating a gender-less root hypothesis. In order to combine this with the structural analysis in Section 1, we would need to appeal to Kramer's view that there are two types of gender on *n*, interpretable and uninterpretable gender. From this perspective, Class I nouns and feminine Class III nouns have then [*i*gender] on *n*; see also footnote 2. I agree that this is the correct analysis for feminine Class III nouns: the feminine affix is derivational, i.e., it behaves like Greek *-m*, but something additional or perhaps different needs to be said for Class I nouns.

As has been shown in the literature cited in this squib, masculine plural nouns in Class III can refer to mixed gender groups, suggesting that masculine is the default form (see (10), and Kazana 2001, Alexiadou 2004, and Anagnostopoulou's contribution to this volume and references therein; see Sudo & Spathas 2015 for further arguments). Feminine forms are feminine only, and this is signaled by an overt affix, e.g., *-is-*, as in (11) the form *pap-is-a* 'female pope'.

(10)   a.   i dhaskales [fem] = a group of female teachers only
        b.   i dhaskali [masc] = a group of male teachers, or a mixed group

Class III Greek nouns correspond to Kramer's same root nouns, i.e., both feminine and masculine are built on the basis of the same root. However, I argue that only the feminine affixes are clearly derivational, while the masculine ones are assigned default inflectional gender on *n*. This clearly applies to the forms containing the overt affix *-tr-* or *-is-* in (11), but also to the form *dhaskala* 'teacher.F' as well, as alluded to in Alexiadou 2004. Now the masculine and feminine nouns in (11) belong to different DCs, all feminine nouns belong to DC III; feminine in this case is realized by a derivational affix, which, being a particular type of *n*, gets a differ-

ent DC. As a result, the forms that contain the derivational affix are the ones that cannot be ignored in ellipsis, following Bobaljik & Zocca (2011).[3]

(11) *Masc.*   *Fem.*   (Merchant 2014: 16)
      pap-as   pap-is-a   'pope'
      pii-tis   pii-tri-a   'poet'
      furnar-is   furnar-is-a   'baker'
      dhaskal-os   dhaskal-a   'teacher'

With respect to class II nouns, note that nearly all of them belong to the same DC, namely DC I, which, recall, contains both masculine and feminine nouns (see (12) from Merchant 2014: 15 and see his paper for a complete list). Few belong to DC II, e.g., *epistimonas* 'scientist', where the masculine form is the default. Sudo & Spathas (2015) point out that class II nouns have gender-neutral readings in, e.g., the best N construction irrespectively of the gender of their referent. This all suggests that they clack 'inherent' gender specification — that is, gender on these profession nouns is indistinguishable, and only visible on determiners and adjectives. Gender is assigned structurally in *n*, as in Merchant 2014, via agreement with a human referent (Alexiadou 2004), crucially then via D-*n*, Adjective-*n* agreement.

(12) *antipalos* 'opponent', *apostoleas* 'sender', *asthenis* 'patient/sick person', *astinomikos* 'police officer', *dhikastis* 'judge', *dhikigoros* 'lawyer', *dhimo-siografos* 'journalist', *epistimonas* 'scientist', *filologos* 'philologist', *fisikos* 'physicist', *glossologos* 'linguist', *ithopios* 'actor', *ipalilos* 'employee', *ipurgos* 'minister', *jatros* 'doctor', etc.

As all Class II nouns belong to the same DC, at least in Greek, we have ellipsis under complete identity. Thus we can dispense with Merchant's pro-form, which Sudo & Spathas (2015) criticize for other reasons. Crucially for Class II nouns, my analysis of Greek must depart from that proposed in Bobaljik & Zocca 2011 for Romance. Class II nouns are not adjectival, rather they all share the same DC, i.e., have the same inflectional endings, and thus are indistinguishable in the context of ellipsis.

Note that certain Class II nouns can have an additional form, which is not identical to the masculine, built via a feminine suffix similar to that of feminine nouns of Class III, (11), e.g., *-in-a* or *-is-a*, *jatr-in-a* 'female doctor', *dikigor-in-a* 'female lawyer'. When this happens, they no longer behave as Class II but as Class III

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3 Interestingly, some of the masculine forms also contain derivational morphology, e.g., *-t-* or *-ar-*, *pii-t-is*, 'poet', *furn-ar-is* 'baker'. The relevant distinction seems to be that the feminine form contains additional morphemes, i.e., it is built on top of the masculine, e.g., *furn-ar-is-a* 'female baker'.

nouns, as expected, (13). In this case, the derivational feminine affix, realizing *n*, carries the gender specification, as suggested above.

(13) *O Petros episkefthike mia jatrina sti   Veria, ke enan stin
      the Petros visited   one.F doctor.F in.the Veria, and one.M in.the
      Katerini.
      Katerini.
      'Petros visited a female doctor in Veria, and a male doctor in Katerini.'

The problematic case both for the view in (1) and for ellipsis is then Class I. Note that several of these nouns are not morphologically related, thus the identity requirement for ellipsis is not provided, see (14) and Merchant 2014: 14 for a complete list.[4] But what about the morphologically related forms, as in (15), which look superficially similar to Class III nouns? As no form can antecede the other in ellipsis, our treatment of Class III nouns cannot extend to this sub-group, although as in Class III, the feminine and the masculine form belong to different DCs.[5]

(14)   pateras 'father'   mitera 'mother'
        andras 'man'   gineka 'woman'
        jos 'son'   kori 'daughter'
        gabros 'groom'   nifi 'bride'

(15)   adhelfos adhelf-i   'brother-sister'
        kiri-os   kiri-a   'gentleman-gentlewoman'
        vasil-ias vasil-is-a 'king-queen'

Bobaljik & Zocca (2011) signal that Class I are semantically special. Cross-linguistically, this class contains kinship terms, and some nobility terms. Several authors have pointed out that kinship terms are distinct from common nouns. For instance, in languages where other common nouns obligatorily surface with a determiner, kinship nouns appear without, e.g., Italian *mia madre* and not *la mia madre*, from Jonsson 1999. Dahl & Koptjevskaja-Tamm (2001) point out that kinship terms are inherently definite. As they further note, in languages with "proprial" articles, i.e., articles that appear only with proper names, such articles appear with kin terms as well: in Northern Swedish both *per* and *father* appear with the proprial article *n: n Per, n far*. In other languages, e.g., Vietnamese, their behavior resembles that of pronouns (Pham 2011). I thus conclude that kinship terms are special as they introduce presuppositions that limit their semantic values, similar to D-elements.

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4 Kramer (2015) actually argues that nominals of the type in (14) can be viewed as being related via root suppletion; see Bobaljik & Zocca 2011 for discussion on this point.

5 But see Bobaljik & Zocca 2011 who point out that some speakers do indeed treat them as Class III noninals.

This holds for both the feminine and the masculine form, thus none can antecede the other in ellipsis.

Turning to their morpho-syntax, I have been assuming that roots are a-categorial and hence by definition do not introduce presuppositions. This leaves me with the following options: non-morphologically related kinship terms (14) are either *n*-elements, i.e., light elements inherently marked for gender, or D-elements like pronouns, and thus their gender features should be treated on a par (see Cooper 1979, Sauerland 2008, Johnson 2014 for discussion; note that it is a matter of controversy whether pronouns are D heads or also *n*s).[6] With respect to the morphologically related kinship and nobility terms in (15), we could assume a similar treatment or alternatively propose that these are formed on the basis of derivational feminine and masculine gender affixes from the same root, since neither noun can antecede the other in ellipsis. Such an affix is visible on the feminine nobility terms, mostly *-is-*, compare (15) to (11) and (13), and we could assume a zero realization thereof for the masculine forms. Interestingly in Greek, as Bobaljik & Zocca (2011) point out for the languages they discuss, none of morphologically related forms function as the default on the basis of, e.g., the plural test, as expected: if a default must be used, it would be the neuter form, if available, e.g., *ta egonia* 'the grandchildren.N' (both male and female; maybe 'kings' is an exception here too, as they report for Spanish).

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6 In turn, this means that if the non-related forms are suppletive, as Kramer (2015) suggested, suppletion is limited to the functional vocabulary, as argued for in Embick & Halle 2005.

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Gender and defaults[*]

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1 Introduction

Wurmbrand (2017) argues on the basis of several types of mismatches (gender mismatch nouns, *pluralia tantum* nouns, and polite pronouns) that Agree is sensitive to the existence of a dual feature system simultaneously present in the grammar (Pollard & Sag 1994, Wechsler & Zlatić 2000, 2003, Smith 2015, among others). In this proposal, gender and number features come in two versions, interpretable $[i\phi]$ and uninterpretable $[u\phi]$ ones. The former yield semantic agreement which may apply in syntax or semantics, the latter trigger formal agreement applying in syntax or PF. Syntactic agreement (formal or semantic) is established via Agree. Languages differ in how they split semantic and formal agreement in terms of Corbett's (1979, 2006)'s Agreement Hierarchy in (1a). There is also a predicate hierarchy, illustrated in (1b), which is semi-independent of the agreement hierarchy in the sense that some predicates can be, in principle, ranked higher than relative or personal and others lower.

(1)   a.   [formal] ← attributive – predicate – relative – personal PRON → [semantic]
       b.   T>A>N

In this squib, I discuss the conditions under which predicate APs enter Agree in Greek from this perspective, focusing on gender resolution when the controller is a coordinate DP with nouns that differ in formal gender. In these configurations, formal agreement cannot take place and predicative adjectives are valued as masculine when the coordinate DP involves human nouns and as neuter when it involves inanimates. The fact that the target surfaces with masculine morphology when the controller is human and with neuter morphology when the controller is inanimate suggests that default gender values are relativized to animacy in Greek, contra Kazana (2011), Tsimpli (2013), Paspali (2017), among others, who take neuter to always

be the default gender. I propose that these agreement patterns result from semantic agreement which has to apply syntactically in order for the [*u*gender] features of the adjective to be valued under Agree with the [*i*gender] features of the controller. At PF, the value [animate] is spelled out as masculine and the value [inanimate] is spelled out as neuter.

2   Main facts

As in many other languages (Corbett 2000, 2006, Hahm 2010, Wechsler 2011, among others), e.g. Czech (see Wurmbrand 2017: (21)), predicate APs in Greek show formal agreement in gender and number with their subject controller when this is a mismatch noun, as in (2), but semantic agreement when the controller is a polite pronoun, as shown in (3):

(2)   a.   To   koritsi   ine eksipno/*eksipni.
               The girl.NEUT.SG is   intelligent.NEUT.SG/intelligent.FEM.SG
               'The girl is intelligent'
        b.   To   simvulio   ine katapliktiko/*katapliktiki.
               The council.NEUT.SG is   fantastic.NEUT.SG/fantastic.MASC.PL
               'The council is fantastic'

(3)   (Esis)   iste   toso evgenikos/*evgeniki   evgeniki/*evgenikes!
        You.2PL are.2PL so   polite.MASC.SG/MASC.PL polite.FEM.SG/FEM.PL
        'You are so polite!'

Note that polite pronouns trigger obligatory plural agreement on T but singular agreement on predicative adjectives, providing evidence that the same controller triggers different types of agreement on different targets, in this case T and A (see Wurmbrand 2017 for discussion).

Coordinated nouns trigger formal gender agreement on predicative adjectives when they have the same gender, regardless of whether they are human with masculine or feminine gender coinciding with their semantic gender, as in (4), or inanimate with arbitrary masculine or feminine gender as in (5); the same pattern holds (not shown) for inanimate nouns with neuter gender or neuter humans (see Kazana 2011 for discussion).[1,2]

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1 Susi Wurmbrand points out that while gender shows formal agreement, as clearly shown in (5), number is plural which could suggest that it triggers semantic agreement. This could mean that gender and number Agree separately. Alternatively, Agree targets the coordinated phrase as a whole (&P) and that the &P has plural number triggering formal number Agree. For present purposes either approach would work. See Section 3 for gender.

2 Regarding example (5a), according to my judgments, neuter on the adjectives is better than expected when the coordinated controllers are inanimate, especially when these are masculine. On the basis of

(4) a. O Petros ke o Kostas ine eksipni
The Peter.MASC.SG and the Kostas.MASC.SG are intelligent.MASC.PL
'Peter and Kostas are intelligent'

b. I Maria ke i Giota ine eksipnes
The Maria.FEM.SG and the Giota.FEM.SG are intelligent.FEM.PL
'Peter and Kostas are intelligent'

(5) a. O anaptiras ke o fakos ine
The lighter.MASC.SG and the torch.MASC.SG are
vromiki/??vromika
dirty.MASC.PL/NEUT.PL
'The lighter and the torch are dirty'

b. I fusta ke i bluza ine vromikes/?*vromika
The skirt.FEM.SG and the t-shirt.FEM.SG are dirty.FEM.PL/NEUT.PL
'The skirt and the t-shirt are dirty'

However, in situations where the two conjuncts differ in formal gender, semantic gender kicks in, guiding agreement resolution. Predicative adjectives surface as masculine when the controller consists of human-denoting nouns, as shown in (6), while they surface as neuter when the nouns denote non-humans (see Kazana 2011 for extensive discussion of these and many more facts, see also footnote 2):

(6) a. O andras ke i gineka ine eksipni
The man.MASC.SG and the woman.FEM.SG are intelligent.MASC.PL
'The man and the woman are intelligent'

b. I gineka ke to pedi ine eksipni
The woman.FEM.SG and the child.NEUT.SG are intelligent.MASC.PL
'The woman and the child are intelligent'

(7) a. O pinakas ke i karekla ine vromika
The blackboard.MASC.SG and the chair.FEM.SG are dirty.NEUT.PL
'The blackboard and the chair are dirty'

b. I platia ke to pezodromio ine vromika
The square.FEM.SG and the pavement.NEUT.SG are dirty.NEUT.PL
'The square and the pavement are dirty'

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a questionnaire study, Kazana (2011) reports that except for the well-formed patterns in (5a) and (5b) and (6) and (7) below, a number of unexpected patterns, in addition to the expected patterns, arise for a group of Greek speakers when inanimates are coordinated, sometimes depending on factors like the singularity or plurality of the coordinated DPs and whether the nouns are abstract or concrete. I am abstracting away from these complications which point to the option of semantic agreement with inanimates even in contexts where formal agreement is possible, as they are not relevant for the present discussion. The examples provided as grammatical in the text are well-formed for all native speakers of Greek.

These facts suggest that default gender values are relativized to humanness in Greek. Masculine is the default gender for humans and neuter is the default gender for inanimates (as in other languages, e.g., Latin, Corbett 1983, 1991). Speakers vary a lot when it comes to non-human animates. According to my intuitions, both masculine and neuter gender on the adjective are, in principle, possible in contexts involving non-human animates with different genders, like *o skilos* 'the dog-masc' and *i gata* 'the cat-fem':

(8)   O   skilos   ke i   gata   ine agrii/agria
        The dog.MASC.SG and the cat.FEM.SG are wild.MASC.PL/NEUT.PL
        'The dog and the cat are wild'

This suggests to me that the basic semantic gender distinction drawn in Greek is between human vs. non-human rather than animate vs. inanimate, and non-human animates are treated by speakers as falling under either category. Languages differ in whether they single out humans or animates in their grammars, for example Romanian does not mark with *pe* non-human animates under Differential Object Marking while Spanish marks them with *a*, and the same variation characterizes the distribution of 1/2 noun class gender in different Bantu languages (see Anagnostopoulou 2016, 2017 for discussion).

3   Analysis

Following Wurmbrand (2017) I assume that predicative adjectives in Greek bear uninterpretable number [*u*number] and gender [*u*gender] features which must be valued via reverse Agree with the subject. Agreement targets can, in principle, copy either the $u\phi$-features or the $i\phi$-features of the controller. In the first case, the result is formal agreement, in the latter the result is semantic agreement. For coordinate DPs I will assume that the [*u*gender] and the [*i*gender] features of the conjuncts percolate up to the &P level, provided that they match (see also footnote 1).

The facts discussed in the previous section suggest that Greek predicative adjective constructions with coordinate subjects have a preference for formal gender agreement and resort to semantic gender agreement only when formal agreement is impossible (see the Agreement Marking Principle, Wechsler 2011, Wechsler & Hahm 2011). This means that Agree copies the *u*-features of the subject on the adjective when possible, resorting to *i*-features only when necessary. In (5a) and (5b), for example, the coordinated subject consists of inanimate nouns bearing [*u*MASC] and [*u*FEM], respectively. These features value the gender features of adjectives, as depicted in (9):

(9) a. o   anaptiras [*u*MASC] & o   fakos [*u*MASC] ↔ vromik-i [val:**MASC**]
         the lighter.MASC   the torch.MASC   dirty.MASC

     b. i   fusta [*u*FEM] & i   bluza [*u*FEM] ↔ vromik-es [val: **FEM**]
         the skirt.FEM   the t-shirt.FEM   dirty.FEM

On the other hand, in (6) and (7) formal agreement cannot take place because the [*u*gender] features of the coordinated nouns do not match. Semantic agreement must take place and the [*i*gender] features of the subject are copied on the adjective via Agree leading to valuation of its [*u*gender] features, as shown in (10):

(10) a. i   gineka [*i*animate] & to   pedi [*i*animate] ↔
          the woman.FEM   the child.NEUT
          eksipn-i [val:**ANIMATE**]
          intelligent.MASC

      b. o   pinakas [*i*inanimate] & i   karekla [*i*inanimate] ↔
          the blackboard.MASC   the chair.FEM
          vromik-a [val:**INANIMATE**]
          dirty.NEUTER

At PF, the value animate on the adjective in (10a) is spelled out as masculine because masculine is the default gender for animates in Greek, and inanimate in (10b) is spelled out as neuter because neuter is the default gender for inanimates.

It is necessary to assume that this is how Agree and choice of default gender work in Greek, because not all languages behave alike and we need to be able to express the relevant differences. For example, gender resolution under coordination in French is much simpler than in Greek. As shown in (11), default masculine is always selected in mismatch configurations, regardless of the animacy of the coordinated nouns Corbett (1991: 279), a fact suggesting that there is no relativization of default gender to animacy in this language:

(11) a. un père   et   une mère   excellent-s
          a father.MASC and a   mother.FEM excellent.MASC.PL
          'an excellent father and mother'

      b. un savoir   et   une addresse marveilleux
          a knoweldege.MASC and a   skill.FEM marvelous.MASC.PL
          'a marvelous knowledge and skill'

According to Corbett (1991), Spanish, Modern Hebrew, Hindi, Panjabi and Latvian work like French, while Latin, Polish and Romanian work like Greek. There are also languages that make an animacy distinction, like Greek, but do not employ neuter as the default realization of inanimate gender. Such a language is, e.g., Czech

(discussed in Corbett 1983: 191–193) which uses the plural masculine animate form when animates are coordinated and the plural masculine inanimate/feminine form when inanimates are coordinated (Corbett's 1983 examples (43) and (47); I am retaining his style of glossing in (12)):

(12)   a.   bratr (masc anim) a   sestra (fem) přišli (masc anim)
                brother   and sister   came
                'The brother and the sister came'

        b.   města (neut pl) a   jejich okolí (neut sg) nám byly (masc inan/fem)
                the towns   and their surrounding   to us were
                dobře známe (masc inan/fem)
                well   known
                'The towns and their surroundings were well known to us'

I propose that in these Czech examples, valuation works as in Greek (10), except that the default gender for inanimate inserted at PF is masculine inanimate/feminine and not neuter. More generally, even though Slavic languages have neuter gender they do not use it as default, resorting to (versions of) masculine instead, depending on how many distinctions plurals make and whether gender resolution is sensitive to animacy or not (see Corbett 1983 for a comprehensive picture of Slavic languages and the role of animacy in gender resolution in some Slavic languages but not others).

Returning to Greek, the analysis sketched in (9) and (10) leads to the prediction that when an animate and an inanimate with the same gender are coordinated, the structure will be well-formed under formal agreement (their common formal gender will percolate up to the &P and will value the [$u$gender] feature of the adjective). On the other hand, when an animate and an inanimate with different genders are coordinated, the result is expected to be ill-formed, as neither their formal nor their semantic gender match making valuation of the gender feature of the adjective impossible. These predictions are indeed borne out, as illustrated in (13a) and (13b) (example (13b) is from Kazana 2011):[3]

---

3 Kazana (2011) does not discuss examples like (13a) and assumes that the reason why (13b) is ill-formed is because Greek does not allow coordination of an animate with an inanimate. I disagree with her because for me the example in (i) (a minimal pair with (13b)) is perfect. This means that the problem with (13b) is agreement and not coordination per se, i.e., the fact that valuation under semantic Agree is impossible.

(i)   O   kleftis ke   to diamanti eksafanistikan
         The thief   and the diamond disappeared.PL
         'The thief and the diamond disappeared'

(13)   a.   O   kleftis   ke o pinakas   ine afanti
                 The thief.MASC and the painting.MASC are gone.MASC
                 'The thief and the painting are gone'

        b.   O   kleftis   ke to diamanti   ine *afanti/*afanta
                 The thief.MASC and the diamond.NEUT are gone.*MASC/*NEUT
                 'The thief and the diamond are gone'

There is a final question that needs to be addressed before closing this discussion. What happens in cases of coordination between a feminine animate noun and a neuter mismatch animate noun the semantic gender of which is feminine? Does the adjective show masculine default agreement as in (6b) or does it show feminine agreement, given that both nouns are semantically feminine? As (14a) shows, the latter is correct leading to the conclusion that semantic Agree in this case works as in (14b):

(14)   a.   I   gineka   ke to koritsi   ine
                 The woman.FEM.SG and the girl.NEUT.SG are
                 eksipnes/*eksipni
                 intelligent.FEM.PL/*MASC.PL
                 'The woman and the girl are intelligent'

        b.   i   gineka [*i*FEM] & to koritsi [*i*FEM] ↔ eksipn-**es** [val:**FEM**]
                 the woman.FEM   the girl.NEUT   intelligent.FEM

In order to account for this pattern, I will adopt the hypothesis that uninterpretable and interpretable gender features are organized in terms of the feature geometry in (15) (Harley & Ritter 2002) where [ANIMATE] dominates [FEM]:

(15)   Individuation

          Group   Minimal   Class

                                Animate   Neuter/Inanimate

                               Masc Fem
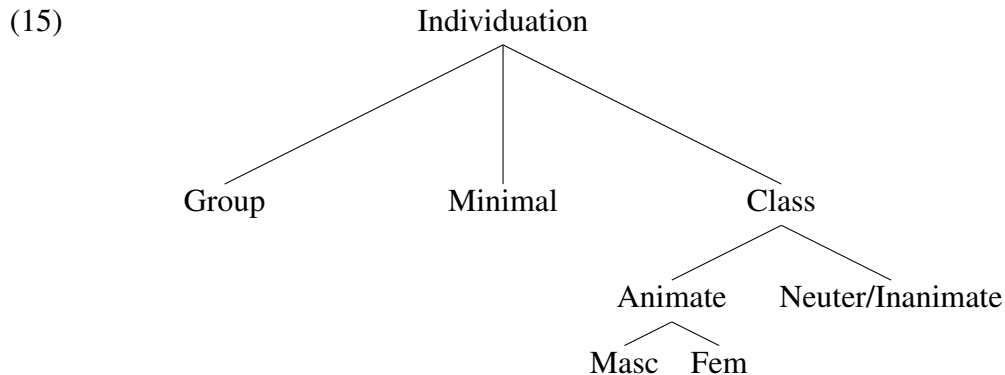
When there is a choice between a more specified and a more general gender value, Agree targets the more specified one, explaining why [FEM] is preferred over [ANIMATE] in (14).

4 Summary

I explored gender agreement in Greek predicative AP constructions with coordinated subjects. I argued that the distribution of gender on adjectives and the resolution principles at work when the genders of the coordinated nouns do not match support a dual system of uninterpretable and interpretable features which trigger formal or semantic Agree in syntax along the lines proposed in Wurmbrand 2017. There is a preference for formal Agree which leads to valuation of the [*u*gender] features of the adjectives by the the [*u*gender] features of the subject. When this is not possible, however, gender on the adjective is valued by the [ANIMATE] or [INANIMATE] features of the &P. At PF, the value [ANIMATE] is spelled out as masculine and the value [INANIMATE] as neuter, providing evidence that default gender is relativized to animacy in Greek, similarly to Latin, Romanian, Polish, Czech and unlike French, Modern Hebrew, Spanish and Hindi. When there is a choice between [*i*FEM], [*i*MASC] and [ANIMATE], then the more specified features are preferred over the less specified one, leading to semantic agreement that is spelled out as feminine/masculine rather than with default gender.

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A minimalist take on Setswana harmony[*]

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1 Introduction

Central to linguistic theory is the role of an innate human language faculty in shaping the types of grammars available to languages. Among the constructs generally attributed to such a faculty is the "underlying representation" or "input", a unique mental phonological representation from which the various surface realizations are derived (Chomsky & Halle 1968, Prince & Smolensky 1993, Krämer 2012). In this article, we question the "unique UR" imperative. We propose a model in which lexical entries are composed of morphs related by morphosyntactic features, where selection of the right set of morphs results from the interplay of phonological criteria, morphological criteria, and morphosyntactic criteria. Our focus is on the phonological criteria.

Our model (developed in Archangeli & Pulleyblank 2015, 2016, in press) takes as a working hypothesis that the innate human language faculty has quite a small role in structuring the phonological grammar, minimalist phonology.

Setswana is a Bantu language spoken by around 1.9m people in Botswana (Simons & Fennig 2017). Our data come from Dichabe 1997. Setswana is unusual in having three types of high vowels: high-retracted, high-advanced, and superhigh. The three degrees for high present a challenge to standard models of universal distinctive features (see Clements 1991), but are consistent with Emergent features (Mielke 2008): the learner acquires the distinctive categories in the language.

(1)   *Vowels of Setswana (see Khabanyane 1991 on the closely related Sesotho)*

superhigh advanced	i	u	*advanced superhigh*	$*\begin{bmatrix} \text{rtr} \\ \text{superhigh} \end{bmatrix}$
high advanced	ɪ	ʊ		
high retracted	ɪ̞	ɯ		
mid advanced	e	o		
mid retracted	ɛ	ɔ		
low retracted		a	*retracted low*	$*\begin{bmatrix} \text{atr} \\ \text{low} \end{bmatrix}$

In accordance with grounding (Archangeli & Pulleyblank 1994), low vowels are systematically retracted; superhigh vowels are systematically advanced.

As shown in (2), stems with nonlow retracted vowels in a neutral context have corresponding forms with advanced vowels when followed by a suffix with a super-high advanced vowel, such as {is} 'causative' or {ile} 'past'.

(2)   *Super-high trigger*

		neutral context		*pre-[i] context*	
a.	*[high] target*	lʊm-a	'plough'	lɪm-is-a	'plough-CAUS'
				lɪm-ile	'plough-PAST'
		rɵm-a	'send'	rʊm-is-a	'send-CAUS'
				rʊm-ile	'send-PAST'
b.	*[mid] target*	rɛk-a	'buy'	rek-is-a	'buy-CAUS'
				rek-ile	'buy-PAST'
		fɔl-a	'heal'	fod-is-a	'heal-CAUS'
				fod-ile	'heal-PAST'

We develop an analysis of Setswana without unique abstract representations for each morpheme. (We set aside consonant alternations such as [l/d], seen in (2b).)

2 Morph sets

Acquiring forms like those in (2) depends on the observation that in some cases, multiple phonological forms map to a single set of morphosyntactic features; e.g., 'plough' maps to both [lʊm] and [lɪm]. While early learning might class such pairs together idiosyncratically, creating the *morph set* {lʊm, lɪm} 'plough', observation of a sufficient number of such morph sets leads to generalization (Gerken & Bollt 2008), here pairing retracted vowels and advanced vowels, whether high ({lʊm, lɪm} 'plough', {rɵm, rʊm} 'send') or mid ({rɛk, rek} 'buy', {fɔl, fod} 'heal'). Generalization over such observations gives the *morph set relation* in (3). Note that morph set relations enable the learner to hypothesize related morphs on hearing a morph in only one context.[1]

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[1] There is an additional point that could be built into the actual formal expression of the MSR: MSR-tr affects all vowels in a morph simultaneously. See section 3.4.

> (3) *Morph Set Relation-tongue root* (MSR-tr)
>
> $$\exists\, M_i,\, M_i \ni \begin{bmatrix} V_p \\ rtr \end{bmatrix} \leftrightarrow \exists\, M_j,\, M_j \ni \begin{bmatrix} V_p \\ atr \end{bmatrix}$$
>
> Subject to $*\begin{bmatrix} rtr \\ superhigh \end{bmatrix}$, $*\begin{bmatrix} atr \\ low \end{bmatrix}$
>
> A morph set has a morph with a retracted vowel iff the morph set has a morph with a corresponding advanced vowel.
>
> {rɛk} 'buy' → {rɛk, rek} 'buy'   {rɔm} 'send' → {rɔm, rʊm} 'send'
> {rek} 'buy' → {rɛk, rek} 'buy'   {rʊm} 'send' → {rɔm, rʊm} 'send'

MSR-tr appears to be unexceptional with high vowels, but there are a handful of advanced mid-voweled morphs with no retracted counterpart (Khabanyane 1991, Dichabe 1997): *besa* 'make fire', *betla* 'mould', *boro* 'boar', *telele* 'long/tall', -*ile* 'past'.[2] We assume both that "surprise" (Gerken et al. 2015) helps the learner identify these forms as exceptions to MSR-tr, and that exceptional roots will be susceptible to change over time (Blevins 2004) while exceptional affixes will tend to remain stable (Archangeli et al. 2012).

Multiple morphs in morph sets lead to the problem of when to use which one. While morph set relations express some of the properties captured by "structural change" in the rules of generative phonology (Chomsky & Halle 1968), how to make the selection among morphs taps into those properties expressed by "environment".

3 Selecting among morphs

When relevant morph sets are accessed (by specific morphosyntactic features), the members of those sets are combined to give potential realizations of the morphosyntactic features. When morph sets contain multiple members, there is a choice to be made: which combination should be used? Selection may rely on factors external to a morph set, e.g., *phonotactics*, or on factors internal to a morph set, namely *default*.

3.1 Phonotactics

In (2), the advanced morph appears when preceding a superhigh verbal suffix. We establish three points about the pattern. First, the pattern is general. In (4), the pattern holds between noun and noun class prefix.

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2 Dichabe (1997) suggests a partial explanation in terms of the coronal consonants observed in such forms, but we do not pursue this question here.

(4)   *Nouns*
    a. *[high] target* lɪ-fifi   'darkness-C5'   cf. lɪ-rakɔ 'wall-C5'
                        lɪ-itlhɔ   'eye-C5'
                        mʊ-ru   'bush-C3'   cf. mɷ-jakɔ 'door-C3'
                        mʊ-dupɔ 'bad smell-C3'
    b. *[low] target* ma-ru   'clouds-C6'
                        tshadi   'women'

Further evidence is found with the nominalizing suffix on verbs, shown in (5). These forms also illustrate our second point: only one morpheme is affected, e.g., [lɪl-a], [mɷ-lɪd-i] 'cry', *[mʊ-lɪd-i].

(5)   *Examples with nominalizing suffixes on verbs*
       verb stem   *nominalization*
    a. [ʉ, ɪ]   lɪl-a   mɷ-lɪd-i   'cry'
    b.   lɪm-a   mɷ-lɪm-i   'plough'
    c. [ɷ, ʊ]   lɷg-a   mɷ-lʊg-i   'knit'
    d.   kɷlɷp-a   mɷ-kʊlʊp-i 'throw'
    e. [ɛ, e]   rɛk-a   mɷ-rek-i   'buy'
    r.   bɛlɛg-a   m-meleg-i   'carry on back'
    g. [ɔ, o]   bɔn-a   m-mon-i   'see'
    h.   kɔb-a   mɷ-kob-i   'bend'

Third, the pattern is asymmetric. Some stems contain an initial superhigh vowel; retracted vowels freely occur following such vowels.

(6)   *Vowels* following *a superhigh vowel*
    a. tirɔ   'work'   e. dikɛl-a 'sunset'
    b. puɔ   'language'   f. dumɛl-a 'agree'
    c. dimɷ   'ogre'   g. ditʉmʉ   'dialects'
    d. pula   'rain'   h. pina   'song'

These cooccurrence properties are expressed in a phonotactic penalizing retracted vowels that precede superhigh vowels. The phonotactic need not be formally restricted to nonlow vowels, because the low vowel has no advanced counterpart.

(7)   *Phonotactic*:   *[rtr][superhigh]

       *[rtr] C$_0$ [superhigh]:   assess a violation to a retracted vowel followed
                                by a superhigh vowel.

3.2   Internal factors: default

The phonotactic *[rtr][superhigh] identifies the appropriate morph when there is a
following superhigh vowel. But which morph is selected when there is no following
vowel, or the following vowel is not superhigh? In some cases there is no choice to
be made: There is only one morph in the set. This happens with morphs contain-
ing low vowels, superhigh vowels, and the sporadic cases with only advanced mid
vowels.

(8)   *Low vowels are always retracted*
         a.   ma-ru   'clouds'   b.   tshadi   'women'

(9)   *Superhigh vowels are always advanced*
         a.   phiri   'hyena'   d.   mmidi   'corn'
         b.   kubu   'hippopotamus'   e.   phuphu   'grave'
         c.   mmui   'speaker'

   Within morph sets with multiple members, there is a morph that is preferred
when no other factors make a determination, the *default* morph. In some languages,
the default morph may be determined idiosyncratically. In Nuu-chah-nulth (Archan-
geli & Pulleyblank in prep.), for example, many morphemes have both short and
long variants, with the choice of forms in a neutral environment being made on a
case-by-case basis. In other languages, such as Setswana, the default choice is made
systematically. In the Setswana case, when there are multiple morphs in a set, the
neutral form is retracted.

(10)   *Default vowels: retracted (unless superhigh)*
         a.   kɛrɛkɛ   'church'   g.   gɔg-a   'pull'
         b.   ɩmaɔ   'needle'   h.   bʊbɔkɔ   'hippopotamus'
         c.   sɩ-fakɔ   'hail-C7'   i.   thɛrɔ   'sermon'
         d.   lɩ-bɔgɔ   'hand-C5'   j.   kgɛtlanɩ   'collar bone'
         e.   lʊ   'egg'   k.   kʊbɔ   'blanket'
         f.   pʊlɛ   'heart'   l.   sɩ-lʊg-ʊlʊl-ɩ   'NEG-knit-REV-FV'

These forms support *[atr]: retracted vowels appear where there is no external rea-
son to prefer an advanced vowel.

(11)   Default *[atr]:   assess a violation to an advanced vowel.

MSR-tr (3) and the two conditions, *[rtr][superhigh] and *[atr], formally constitute
the Setswana grammar for the facts discussed here. In (12) and (13) we show how
to assess the various possible combinations.

3.3   Assessment

Assessments owe an obvious debt to Optimality Theory (Prince & Smolensky 1993), but there are crucial differences. The upper left cell shows the relevant morph sets and the leftmost column shows possible combinations of those morph sets; the pool of possibilities is no more and no less than the Cartesian product of the morph sets. The conditions in the top row are only those motivated by evidence in the language, not a ranking of a set of constraints provided by an innate language endowment.

In (12), the retracted vowel of [lʊm-a] satisfies all conditions while the advanced vowel of [lɪm-a] violates *[atr].

(12)   *Assessment for* [lʊm-a] 'plough'

{lʊm, lɪm}ₚₗₒᵤ𝓖ₕ - {a}_F.V.	*[rtr][superhigh]	*[atr]
→ a. lʊm-a		
b. lɪm-a		*!

With the superhigh-initial suffix [ile], the retracted vowel of *[lʊm-ile] in (13) violates the phonotactic *[rtr][superhigh]; the advanced vowel of [lɪm-ile] is preferred even though it violates the lower ranked condition *[atr].

(13)   *Assessment for* [lɪm-ile] 'plough-PAST'

{lʊm, lɪm}ₚₗₒᵤ𝓖ₕ - {ile}_PAST	*[rtr][superhigh]	*[atr]
a. lʊm-ile	*!	**
→ b. lɪm-ile		***

Morph sets with no retracted member, such as {-ile} 'past' in (13), will necessarily incur a *[atr] violation, but since there is only one morph, there is no alternative.

3.4   Consequences

First, given the bidirectional MSR-tr (3) and default *[atr] (11), advanced nonsuperhigh vowels appear only to avoid a violation that the [rtr] form incurs. A consequence of this constellation of properties is that for mid and high vowels the distinction between advanced and retracted forms is largely noncontrastive. Second, as noted, there is no need to refer to [low] vowels in *[rtr][superhigh] (7), even though [low] vowels do not have [atr] counterparts before superhigh vowels — the absence of [atr, low] vowels is a general property of Setswana, not specific to this envi-

ronment, (1). Third, within a morpheme, all vowels are affected by MSR-tr (3).[3] Consequently, in a morph with multiple relevant vowels, all vowels are either [atr] or [rtr]; e.g., [bɛlɛɡ-a], [m-mɛlɛɡ-i] 'carry on back' (5i). This gives the appearance of iterativity. But, as the next point shows, such iterativity is limited.

Finally, as defined by *[rtr][superhigh], the sequential condition refers to vowels immediately preceding a [superhigh] vowel (across C_0). Consequently, in tri-morph combinations, only the morph adjacent to the [superhigh] vowel is affected. This is illustrated in (14) with the nominalizing suffix [i]. (As comparison with (4) shows, the prefix {mɷ, mʊ} has two morphs.)[4]

(14)   *Assessment for* [mɷ-kʊlʊp-i] 'throw-NOMINALIZER'

{mɷ, mʊ}-{kɷlɷp, kʊlʊp}-{i}	*[rtr][superhigh]	*[atr]
a.　mɷ-kɷlɷp-i	*!	*
→ b.　mɷ-kʊlʊp-i		***
c.　mʊ-kɷlɷp-i	*!	**
d.　mʊ-kʊlʊp-i		****!

This aspect of the Setswana pattern raises a challenge for conventional treatments of harmony. Harmony applies to prefixes (e.g., [mʊ-dupɔ]) and harmony applies iteratively (e.g., [...-kʊlʊp-i]; cf. [kɷlɷp-a]). However, harmony does not apply iteratively to a prefix if it has already applied to a root; e.g., [mɷ-kʊlʊp-i], *[mʊ-kʊlʊp-i]. The account offered here, which does not require a single underlying form, is not forced to characterize this type of harmony as an iterative process. The Setswana distribution is a consequence of the MSR-tr (which results in morphs with retracted vowels and morphs with advanced vowels) together with the prohibition against retracted vowels immediately preceding superhigh vowels. This gives the appearance of iteration within the stem, but not crossing the prefix-stem boundary.

4　The distribution of advanced mid vowels

Mid vowels are advanced in another context, before high vowels. Since MSR-tr (3) results in morph sets containing both an advanced and a retracted morph, the

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3 We have found one exception to this statement, the item [kɷbong] 'blanket-LOCATIVE' (compare [kɷbɔ] 'blanket'). If this form represents a general pattern, the analysis would require an additional MSR or a modification to MSR-tr, perhaps limiting it to vowels of the same height within a morph.

4 Dichabe (1997) provides a few examples with multiple suffixes, but the data are insufficient to determine whether the analysis of Setswana involves morphotactic conditioning (if polymorphemic harmony occur with a subset of suffixes) or a domain-sensitive phonotactic (if harmony among multiple suffixes is a general pattern).

only addition needed to account for the additional data is a phonotactic specific to mid vowels. We propose (15), a prohibition on retracted mid vowels preceding high vowels (of any type).

(15)   *Phonotactic*:   *[rtr-mid] [high]

$$*\begin{bmatrix} \text{rtr} \\ \text{mid} \end{bmatrix} C_0 \text{ [high]}:$$ assess a violation to a retracted mid vowel followed by a high vowel.

The requirements on features and sequencing are supported by the forms in (16), (17), and (18). As (16) illustrates, advanced mid vowels must occur before high vowels within morphemes even though the high vowel is retracted.

(16)   *Distribution of advanced mid vowels within morphemes*

a.	lebʊg-a	'thank'	d.	senʊl-a	'disclose'
b.	sebʊg-a	'imagine'	e.	kgomʊ	'cow'
c.	menʊl-a	'overturn'	f.	mʊ-lomʊ	'mouth-C3'

The same pattern is found when the two vowels are in different morphemes, (17): Here root vowels are advanced because of a following high suffix. Note again that these suffixes have *retracted* high vowels yet are preceded by *advanced* mid vowels.

(17)   *Distribution of advanced mid vowels across morphemes*

	neutral		pre-high advanced	
a.	sɛl-a	'pick up'	sets-ɩ	'pick up-PAST'
b.	rɛk-a	'buy'	sɩ-rek-ɩ	'NEG-buy-FV'
c.	bɔn-a	'see'	bon-ɩ	'see-PAST'
d.	fɔl-a	'heal'	fots-ɩ	'heal-PAST'
e.	gɔg-a	'pull'	sɩ-gog-ɩ	'NEG-pull-FV'

Finally, this is an asymmetric pattern: high vowels are not [atr] before even [atr, mid] vowels.

(18)   *No advancement of high vowels before advanced mid vowels*

a.	mʊ-rek-i	'buyer'	d.	sɩ-rori	'truck'
b.	mʊ-feny-i	'winner'	e.	sɩ-bokolodi	'type of warm'
c.	lɩ-podisi	'police'	f.	gʊ-rek-is-a	'to sell'

This aspect of the Setswana pattern is a challenge to conventional treatments of harmony as spreading, aligning, or extending the domain of a feature. Harmony between mid vowels and [high, rtr] vowels cannot be due to feature sharing because the triggering high vowel is not [atr], while the mid vowel is [atr] in the harmony context. There is nevertheless a relation between highness of trigger and advance-

ment of target. The facts demonstrate the need for phonotactics relating features in a way that is neither assimilatory nor dissimilatory in terms of distinctive features — though there is a clear phonetic motivation in terms of both articulation and perception.

5 Conclusion

We have analyzed Setswana vowel harmony with no appeal to abstract, unique underlying representations of the conventional sort. The analysis makes at most limited appeal to an innate human language faculty, a mental faculty specific to language. What the model does appeal to are the components laid out above and summarized in (19).

(19)   *Properties of phonology without unique URs*
    a.   Morph sets are collections of phonological forms identified by morphosyntactic features.
    b.   Morphs may be systematically related by morph set relations.
    c.   Satisfying morphosyntactic features results in the Cartesian product of member morph sets.
    d.   Assessment selects among these forms.
    e.   Assessments involve the interaction of phonotactics and default.
    f.   Morphs, phonotactics, and default are deducible from surface forms.

We advocate for careful scrutiny of proposed universals, to determine whether the property is *necessarily* due to an innate human language faculty. Under this approach, phonology is (largely) driven by general properties of human cognition.

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More and more different

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In 1996, Kyle Johnson[1] got me interested in sentences like (1a). The truth conditions of the relevant, universal NP dependent reading are reasonably clear, (1b), but how to compositionally derive them is less so. It seems that the scope of the NP *every boy* is the relation in (1c) while the NP quantifies over pairs of boys. This is very stipulative. It has little to do with any normal meaning of the NP and the overt material in the sentence.

(1)   a.   Every boy read a different book.
          b. $\forall x, y[\text{boy}(x) \ \& \ \text{boy}(y) \ \& \ x \neq y \rightarrow x$ read a different book than $y]$
          c. $\lambda x. \lambda y. x$ read a different book than y

I have been worrying about this problem for the last 20 years. In Beck (2012) I developed an analysis of data like (2a) — pluractional comparisons — along the lines of (2b) ($e \leq E$ means e is a contextually relevant part of E). Plural quantification (2c) is a key feature of the analysis, and it is not particularly stipulative, except perhaps for the reference to the predecessor event of the event quantified over 'pred(e)', which is not overtly expressed in the sentence. The idea with the sequence saves us from quantifying over pairs of years in (2). There is universal quantification over parts of a plurality, and what would be the second member of the pair is the relevant other part of the plurality (the predecessor). The apparent universal NP *every year* is not a quantifier; instead, it indicates that the relevant parts of the plurality that is universally quantified over by the PL operator are years, (2d).

(2)   a.   Nutella gets more expensive every year.
          b. $\forall e[e \leq E \ \& \ \text{year}(e) \rightarrow \text{Nutella is more expensive in } e \text{ than in pred}(e)]$
              The situation/event E can be divided into years such that in each relevant year, Nutella is more expensive than in the predecessor of that year.
          c. $\text{PL}^{seq}(P)(E)$ is only defined if $\{e : e \leq E\}$ is a sequence.
              Then, $\text{PL}^{seq}(P)(E) = 1$ iff $\forall e[e \leq E \rightarrow P(e)]$
              i.e., the relevant parts of the big situation/event E are a sequence, and all of them are P events.

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1 Johnson (1996).

d. every year: $\forall e[e \leq E \rightarrow \mathrm{year}(e)]$
i.e. all relevant parts of the big event E are years.

e. ————————————————————————>
    | —e1— | —e2— | —e3— | —e4— |

    |————————E————————|

Nutella is more expensive in e2 than in e1, and in e3 than in e2,...

There is some reason to think that (1a) and (2a) are semantically parallel. It is possible to find examples in which the universal NP in pluractional comparisons like (2a) is an argument instead of an adverbial, (3b) and (4b). Parallel data with *different* can be constructed, (3a) and (4a).

(3)   a.   Each stage had a different challenge.
        b.   Each stage had yet a harder challenge.

(4)   a.   Every (subsequent) question added a different/yet another problem.
        b.   Every (subsequent) question added yet a harder problem.

But (3b), (4b) require a little bit of work. Simply replacing *different* with a comparative as in (5) does not work. (3), (4) suggest that indications that a sequence of events is talked about help with the acceptability of the comparative: *subsequent*, *yet*. (6) provides further illustration.

(5)   a.   Every boy read a different book.
        b. #Every boy read a longer book.

(6)   a.   Each stage had a different mountain.
        b. #Each stage had a taller mountain.
        c.   Each subsequent stage had yet a taller mountain.
           = each subsequent stage had a taller mountain than the stage before.

This difference between data like (1) and data like (2) can be motivated by the difference between the comparison made by the comparative vs. the comparison made by *different*: in order to be non-contradictory, the comparative requires a sequence while *different* does not, cf. (7). The sequence allows the predecessor to be identified. The PL^{seq} operator in (2c) presupposes that a sequence is given. If nothing indicates that this is the case, the example is not acceptable. This is what happens in (5b), (6b). In (3b), (4b) and (6c), indicators (*subsequent*, *yet*) that there is a sequence make PL^{seq} possible.

(7)   a.   Each stage had a different mountain than every other stage.   *OK*

b.   Each stage had a taller mountain than every other stage. *Contradiction*

So let us assume, then, that my 2012 analysis in (2) should be extended to (3b) and (4b) as sketched below:

(8)   a.   Each stage had yet a harder challenge.
      b. $\forall e[e \leq E$ & $\text{stage}(e) \rightarrow e$ had a harder challenge than $\text{pred}(e)]$
           The stages can be divided into a sequence of subevents such that in each subevent, there was a harder challenge than in the predecessor event.

(9)   a.   Every (subsequent) question added yet a harder problem.
      b.   The situation and the questions can be divided into a sequence of relevant subparts such that in each subsituation, the question in that subsituation was harder than the predecessor question in the predecessor situation.

That is, (3b) and (4b) are instances of plural quantification. This may seem surprising since they do not appear to contain any plural. But (i) we are concerned with pluralities of events here which are not directly visible in English, and (ii) the NPs *each stage* and *every question* are actually plural dependent expressions in this analysis, cf. (2d), hence they do indicate that there is plural quantification.

   The following data from coordination and ellipsis argue that this analysis also be extended to (3a) and (4a):

(10) a.   Every event lead to a different and ever more complex reaction.
      b.   Each new question added a different and yet more difficult challenge.

(11) a.   Each stage will produce a different outcome and each outcome, a yet more difficult challenge.
      b.   Each stage added a different challenge, or perhaps a more difficult problem.

I assume that in these examples, the compositional environment that licenses the relevant reading of the comparative and of *different* is the same. In (11b), for example, ellipsis requires an identical constituent 'each stage added', as seen in (12). The requirement of identity at an interpretively relevant level leads to the conclusion that the analysis with the PL^{seq} operator and a plural dependent reading of 'each stage' that the ellipsis clause requires (cf. (8b)) is also present in the antecedent clause.

(12) [[a different challenge] [each stage added __]] or perhaps
      [[a more difficult problem] [each stage added __]]

It follows that there is an analysis of universal NP dependent *different* in which universal quantification comes from a PL operator. The universal NP merely makes this visible. Such an analysis avoids the problems sketched for (1).

I leave the job of spelling this out to Kyle.

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Resetting the polysynthesis parameter: a preliminary proposal*

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1 Introduction

The existing literature on the L1 acquisition of polysynthetic languages makes two observations: first, when children make errors of omission, those omissions tend to be based on phonological rather than morphological units (e.g., maintenance of a stressed syllable, rather than the word root; Pye 1983, Mithun 1989). Second, children have relatively little difficulty acquiring the morphological systems of these languages and use both derivational and inflectional morphology productively from age 2 (Fortescue 1984, Mithun 1989, Allen & Crago 1996, Pye 1992; see Kelly et al. 2014 for an overview). However, very little is known about child L2 acquisition of polysynthetic languages, and the sparse evidence available suggests that the L2 acquisition of polysynthesis is quite different from its L1 counterpart. The purpose of this squib is to consider the relevant questions for studying child L2 acquisition of Cherokee, a severely endangered polysynthetic language, by children whose L1 is English, a majority language that is morphologically analytic/isolating. Such a study would be interesting as it can add to what is known about child L2 learners' acquisition of inflectional morphology and their representation of morphosyntax, in particular in comparison to L1 acquisition of inflection and polysynthesis.

An interesting possibility to consider is that the development of morphological structure may take the form of a type of parameter setting (see Baker 1996). While it does not seem practical to propose that a single parameter distinguishes analytic/isolating from synthetic/inflecting languages, since many languages exhibit mixed types, a parameter could distinguish polysynthetic languages from all others, as Baker suggests (see below). If child L2 acquisition involves transfer from the L1 but also access to UG (as in the Full Transfer/Full Access model; Schwartz & Sprouse 1996), L2 learners of polysynthetic languages whose L1 is isolating would need to "reset" this parameter, but they would be able to do so via access to

UG. Predictions can be made, then, about what else might be acquired "for free" once the parameter has been reset.

2   A polysynthesis parameter

Baker (1996) proposed that polysynthetic languages differ from non-polysynthetic languages in a fundamental way, and that this fundamental difference should be conceived as a kind of macroparameter. Informally, Baker defined the polysynthesis parameter as follows:

> Every argument of a head element [typically V] must be related to a morpheme in the word containing that head.   (Baker 1996: 14)

In other words, polysynthetic languages realize (theta-role bearing) arguments of the main predicate as empty categories that are coindexed with affixes bound to the predicate (a similar proposal was put forth by Jelinek (1984); I will focus here on Baker's version, but the underlying insights in both proposals are, I believe, equivalent for my purposes). According to Baker, a number of important syntactic patterns fall out from this property, and all of them distinguish polysynthetic from non-polysynthetic languages. For example, one important reflex of the polysynthesis parameter is that full NPs (NPs realized as free morphemes) always have adjunct status. This is because the arguments themselves are null pronouns linked to bound morphemes on the verbal complex, and if one assumes the Theta Criterion, both the null pronoun and the full NP cannot bear the same theta-role. Other properties that derive from the polysynthesis parameter include obligatory noun incorporation, the absence of NP anaphors, and the absence of referential quantified NPs.

3   Cherokee

Although Cherokee (Southern Iroquois) does not strictly meet all of Baker's criteria for polysynthesis,[1] it is both typologically and genetically similar to Mohawk (Northern Iroquois), a major source of data in Baker's work. Moreover, it is polysynthetic in the (widely accepted) sense that its verbs typically bear a large number of affixes that indicate the subject, object, as well as temporal and aspectual properties of the verb. A typical Cherokee verb is exemplified in (1) (from Montgomery-Anderson 2015: 116).[2]

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1 For example, it has infinitive verb forms, which Baker claims are absent in polysynthetic languages. According to Mithun (2000), Cherokee infinitives are likely an innovation based on a reanalysis of causative/instrumental markers in Proto-Iroquoian, possibly inspired by contact with speakers of Muskogean languages, such as Creek.

2 CMF = completive future, CMP = completive, APL = applicative, B = set B verb.

(1) daàgiiluhcheéli
da-iigii-luhj-eél-i

CMF-1B.PL-arrive:CMP-APL:CMP-CMF

"He will come up to us"

The question is, when an English-speaking child learns Cherokee as an L2, what does the changing of this parameter setting look like? This is a question about language acquisition, specifically child L2 acquisition, but the question cannot be asked in isolation from issues of language contact, in particular as there is some evidence that speakers' representation of polysynthetic morphological systems may be changing under contact conditions (Rice et al. 2002).[3]

4 Preliminary evidence

There is some preliminary data on child L2 acquisition of Cherokee. Peter et al. (2008) studied the linguistic abilities of thirteen kindergarten children in a Cherokee immersion school in the Cherokee Nation (CN) in Oklahoma. Their tests were designed to measure the productive and receptive vocabularies of the children, their ability to produce certain bound morphemes, and their ability to comprehend a short narrative in Cherokee. Eight of the children had been in the immersion preschool for one year before kindergarten, and five of the children had been in the preschool program for two years prior to kindergarten (for a total of 3 years of school-based exposure to the language). In studying the children's language production Peter and her colleagues focused on the verb system, and the children's ability to produce 3rd person singular and plural forms of verbs in the present continuous form (present tense, continuous aspect).

The overall result can be summarized as follows: children performed better on singular than plural verbs, they were better able to produce verb roots (uninflected verb stems) than verbs inflected with pronominal prefixes (agreement) or tense/aspect suffixes, and they were more accurate in producing pronominal prefixes than tense/aspect suffixes. Still, their best performance was only 51% correct, and this was simply the production of verb roots without any inflectional morphology added (i.e., they produced the right verb root but didn't inflect it). The results for verbs overall (singular and plural combined) are reproduced in Table 1.

The children's errors commonly involved overgeneralization of certain prefixes such as the 3pl *ani-* when another person or the singular form was required, as

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3 Rice at al. found that younger speakers of Dene Suliné (Athapaskan) were more likely than older speakers to segment words within certain morphemic "zones" (as opposed to between those zones), and they were somewhat more willing than older speakers to accept (judge to be real words) words with vowels that had been altered in non-stem morphemes.

Verb Morpheme	N Correct	% Correct (out of 312)
Roots	160	51%
Pronominal prefixes	50	16%
Aspect/tense	43	14%
Totally correct verbs	40	13%

Table 1   Child L2 Cherokee speakers' production of verbs (from Peter et al. 2008)

well as use of the 3sg prefix when plural was needed; failure to use the obligatory distributive prefix; use of a nominal form in place of a verb (e.g., N for 'paint' instead of the V); and, quite frequently, use of the imperative in place of the inflected present continuous verb.

While the children's overall rate of correct verb production seems low, a few observations are worth noting. First, Cherokee is a fusional language, so the fact that the children were able to identify and reproduce the verb root at least half the time means that the children were successfully applying a morpheme-based analytical procedure. This is already different from what is observed in the early stages of L1 acquisition of polysynthetic languages, where L1 learners' omissions tend to be syllable-based (e.g., Mithun 1989). Second, the children studied here had been exposed to between one and three years of Cherokee in a classroom setting. The amount of exposure to the language outside of the school is likely to be negligible, and the teachers are not specifically trained in content-based language instruction or other L2 pedagogy; a large proportion of the verbs in the children's input are likely to be imperatives (Peter et al. 2008; Benjamin Frey, p.c.). Thus, it is unsurprising that the children would have overgeneralized the imperative form.

I have collected some pilot data from children acquiring Eastern Cherokee, a dialect of Cherokee spoken in North Carolina, and these data paint a similar picture: spontaneous speech recorded from seven children ages four to twelve years revealed that only 31% of their verbs were correct without being prompted (i.e., the verb was entirely correct including the root and any inflections); another 26% were correct but only after being prompted by an adult native speaker. The remaining verb productions displayed various morphological errors, including imperative overgeneralizations (as in the CN data), incorrect prefixes or incorrect verb stems. Importantly, however, children did not appear broadly to omit weak syllables and preserve stressed syllables.

(2) hilhvna (target: gahliha) (age 6)
   sleep-IMP (target: 3SG-sleep)

Another pattern observed in the children's spontaneous language is that 50% of transitive sentences containing a verb and an NP object exhibited VO word order rather than OV order. Both word orders are acceptable in Cherokee, but OV is less marked.

(3) gadita ama   (age 7)
   drink water

   "I am drinking water"

Correct OV utterances, like that in (4), typically came after a prompt from the adult:

(4) gadu tsigia (age 7)
   bread eat

   "I am eating the bread"

The tendency to produce VO word orders could be indicative of the influence of English, the children's L1 and the majority language in the community; it could also be part of a more general shift toward a rigid SVO word order found in other contact situations, though much of the available data also involve English as the majority language (Schmidt 1985).

Another indicator of the influence of English is a reliance on the form *aya* '1sg' where this form is only required for emphasis in Cherokee, not as a subject pronoun, and also some apparently pidginized forms based on English. This is found especially among the younger children. Both of the following examples come from children in a kindergarten classroom.

(5) aya o:st hani
   1sg good here

   "I'm good here"

(6) na aya's   name on it
   that 1SG-POSS name on it

   "That's I's name on it"

These pilot data are preliminary and so a full conclusion about the children's language knowledge cannot be formed yet.

5   Relevant questions

With these observations as background, the specific questions I'd like to pursue in future work are the following:

i. If child L2 learners of Cherokee make errors of omission, will these omissions segment along phonological/syllable-based boundaries, as has been reported for L1 acquisition of K'iche' Mayan (Pye 1983) and Mohawk (Mithun 1989), or along morphological boundaries? Note that there is currently no available data on L1 acquisition of Cherokee. As noted above, the preliminary evidence suggests that child L2 learners do not do this.

ii. In child L2 acquisition, children have some difficulty early on with bound inflectional morphology that marks tense, but this difficulty is relatively short-lived compared to adult L2 learners (e.g. Haznedar 2001, Blom et al. 2006). Thus, child L2 learners are more similar to L1 learners in their trajectory of acquiring (certain types of) bound morphology. Will the same be true when the L2 is polysynthetic?

iii. Baker (1996) claims that various syntactic properties follow if a language is polysynthetic, such as the absence of NP anaphors and referential quantified NPs. Is there evidence that child L2 learners of Cherokee, once they reach sufficient proficiency to reliably produce verbs with noun incorporation and other complex morphological affixation, also show signs of knowing these other grammarical properties? It remains to be determined to what extent adult Cherokee in fact exhibits these particular properties, which Baker claims are found in Mohawk.

iv. In a contact situation in which a minority language is losing ground to the majority language, bound morphology (both inflectional and derivational) is rapidly lost in favor of periphrastic expressions of tense, aspect, purpose, etc. (Schmidt 1985). Also, word order becomes rigidified and becomes the primary means of indicating grammatical relations (as opposed to case markers, for example, which Cherokee does not have). How does this play out in child L2 acquisition of Cherokee?

6   Conclusion

To summarize, a thorough study of English L1 children's acquisition of Cherokee as an L2 can: (a) be informative about child L2 learners' representation of morphosyntax, (b) provide a comparison of L2 and L1 learners of polysynthetic languages, (c) tell us about the process of language shift and how child L2 learning happens in

contact situations, and (d) shed light on the hypothesis of a polysynthesis parameter. These and other important questions remain to be answered.

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Demonstrative surprises!

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1 Introduction

A property typically observed about English demonstratives is that they come in
two forms, singular and plural:

(1)   a.   *this* car, *these* cars
        b.   *that* car, *those* cars

This makes them unusual among English determiner elements. Other determiners,
such as the definite and indefinite articles, have a unique form that does not alternate
for number. But if we look carefully at the singular forms and compare them to the
plurals, we see that the alternation is not typical of other English singular–plural
pairs for at least three reasons: a) three of the four demonstrative forms display
word-final *-s* and one of those is a singular form (*this*); b) word-final *-s* is voiced in
the plural and voiceless in the singular; c) the vowel in the singular forms does not
match that in the plural forms. I will not adopt the idea that demonstrative word-
final *-s* is a plural marker.

   Curious and yet well known, plural distal demonstratives in many vernacular
varieties of English are morphologically accusative:

(2)   *them* cars

Generalizing from such vernacular varieties of English, I will suggest that En-
glish demonstratives bear morphological case quite generally, perhaps a vestige of
their historical development. In this way, they resemble personal pronouns in En-
glish. Pursuing this parallel with personal pronouns, I will also suggest that English
demonstratives express person.

2 Demonstratives: accusative and nominative

As seen above, vernacular varieties of English include demonstrative forms that dis-
play accusative morphological case (*them guys* 'those guys'). Probably less known
is the fact that nominative case is displayed on demonstratives in some other vari-

eties of English. This supports the idea that morphological case is not exceptional for demonstratives.

2.1 Accusative demonstratives

The plural distal demonstrative in Appalachian English (AppE) and African American English (AAE) bears morphological accusative case in nominative, accusative, and oblique contexts, independent of the structural case of the DP:[1]

(3)   a.   They watch you like a hawk, *them* prisoners does. (AppE; M&H 2004)

        b.   So, when *them* son-of-a-guns checked me, I had to pay taxes on all that money.

        c.   And *them* clerks all has, has learned me, and they talk about *them* cats, "Are you gonna kick *them* cats right on?"

                           (fieldwork; Mountain City, TN, 2008)

(4)   a.   *Them* boys call theyselves playing basketball.   (AAE; Green 2002)

        b.   Half of *them* things that be showed on TV don't be happening.

Schütze (2001: 206) (see also Pesetsky 2013: 73–74) applies the idea of 'default case' to the possibility of an accusative form in a non-accusative context with personal pronouns in English (examples from Schütze):

(5)   Left dislocation: *Me/*I*, I like beans.

(6)   Ellipsis: Who wants to try this game? *Me/*I*.

(7)   Gapping: We can't eat caviar and *him/*he* beans.   (Siegel 1987)

(8)   Coordination: *Us and them/*We and they* are gonna rumble tonight.

(9)   a.   Modified pronouns: The real *me/*I* is finally emerging.

        b.   Postpronominal modification: *We/Us* linguists are a crazy bunch.

Schütze's notion of default case is not "determined by syntactic mechanisms" (p. 206). I will not generalize the idea of default case to demonstratives (and Schütze himself never discusses demonstratives). For one thing, the case to be considered the default for demonstratives varies across varieties of English. In fact, there may be more than one case represented within a paradigm.

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1 Montgomery & Hall 2004 is abbreviated as M&H.

2.2 Nominative demonstratives

In Older Scots (OS) and also Scots, the plural distal demonstrative is *they* (not *them*),[2] also reported for Devon English (SW England) and English of the "far North" (Beal 2010: 48):[3]

(10) In *thai* caicis the richts…that ony of the saids parties hes.
'in they ('those') cases the rights…that any of the said parties has'

(OS; 1544, DSL)

(11) In *thae* days ye cuid buy a gey lot for sixpence.
'in they ('those') days you could buy a very lot for sixpence'

(Scots; Purves 2002)

(12) A lyke aipils, but *thae* is no verra guid.
'I like apples, but they ('those') are not very good'   (Scots; Purves 2002)

(13) Look at *they* spiders.
'look at they ('those') spiders'

(Devon English; Milroy & Milroy 1993: 65)

Although the plural distal demonstrative displays morphological nominative case in Scots, personal pronouns display morphological accusative in several contexts, including with conjoined DPs:

(14) *Hir* an me never gat on that weill.
'her and me never got on that well'   (Scots; Purves 2002)

(15) *Me* and Shon was haein a tram thegither in the Crown Hotel.
'me and John was havin' a dram (of whiskey) together in the Crown Hotel'

(Scots; Purves 2002)

Morphological accusative forms of conjoined DPs (in nominative contexts) are familiar to speakers of various varieties of English; nominative demonstratives are apparently not. The Scots examples show that although personal pronouns and demonstratives display case, it is not necessarily the same one and in neither instance does it correspond to structural case. Perhaps the overlap in some vernacular Englishes, where both sets of elements allow accusative (e.g., personal pronoun: *them and me*; demonstrative: *them guys*), is just a coincidence.

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2 Caroline Macafee (p.c.) informs me that accusative demonstrative forms are not part of Scots.

3 All Older Scots examples are from *Dictionary of the Scots Language* http://www.dsl.ac.uk.

2.3 Genitive demonstratives?

Both Older Scots (OS) and Scots have a proximal plural demonstrative that resembles the 3rd person plural genitive pronoun of General English (i.e., *their*):

(16) Thar-for is to be chosyne ane Of *thire* men that has…gane With ws;
      'therefore is to be chosen one of these men that has…gone with us'

(OS; DSL, 1380)

(17) *Thir* MacDonalds are ettling for a quarrel.
      'these MacDonalds are aiming for a quarrel' (Scots; DSL, 1931)

(18) *Thir* is real guid tatties!
      'these is real good potatoes' (Scots; Purves 2002)

King (1997: 169) states that the origin of Older Scots *thir* is obscure, but perhaps comes from Old Norse *their*. The presence of yet another morphological case for demonstratives may seem surprising. But once we see case as the norm for English demonstratives, it all starts to fit together.

What we've seen so far is that across vernacular varieties of English, *th-* forms functioning as demonstratives can display morphological case. This morphological case is independent of structural case and there is no support for positing a default case with demonstratives. In the next section, I'll suggest that the idea of morphological case is valid for General English as well.

3   General English (*this, that, these, those*)

General English displays four demonstrative forms that encode number as well as proximity to the speaker:

(19) a. *this* book (sg., proximal)
      b. *that* book (sg., distal)
      c. *these* books (pl., proximal)
      d. *those* books (pl., distal)

The *-s* (/s/ or /z/) of the plural forms is often taken to be a plural marker. But then why does the singular form *this* also display *-s*? The idea I pursue is that the vowel alternation rather than the presence of *-s* signals the number change. Such a pattern is already attested in irregular plurals in English:

(20) a. *goose - geese*
      b. *thesis - theses*
      c. *foot - feet*
      d. *tooth - teeth*

So if word-final /s/ or /z/ is not a demonstrative plural marker, what is it? I propose that the /s/ or /z/ of these forms is the genitive *-s*, a 'defective genitive'. I use the label 'defective' because these forms do not behave syntactically like genitives nor do they have the right sort of semantic relationship with the head noun, and neither do the accusative and nominative demonstrative forms we saw above. Nevertheless, the prenominal position in English is one that can host a genitive (*'s*) form.

These considerations lead me to the following proposed generalization about General English demonstratives:

(21)   General English demonstratives display defective morphological genitive.

There are four reasons for thinking that this is plausible:

A. Demonstratives appear in prenominal position, a position hosting genitive pronouns and also genitive lexical DPs in English.

B. Demonstratives and 3rd person plural pronouns have overlapping histories and functions in English.[4] The personal pronouns still display case morphology, including genitive case morphology, even while other DP elements (nouns, adjectives, articles) no longer do. So perhaps the General English demonstratives display morphological genitive as well.

C. The /s/ or /z/ of *this*, *these*, and *those*, may resemble the /s/ or /z/ of *its*, *his*, and *Mary's*. We can think of *those* as parallel to *whose* in terms of its internal structure (*th-* + genitive *'s*, *wh-* + genitive *'s*).

D. Other European languages (e.g., Polish) have genitive demonstratives. And demonstratives were marked for case, including genitive case, in earlier stages of English.

If word-final *-s* is a genitive marker for General English demonstratives, why does singular distal *that* lack *-s*? The answer may lie in the comparison with personal pronouns. Specifically, *that* resembles *her*, a suppletive form corresponding to the accusative that also functions as a possessive. (Note that like *her*, *that* is the most versatile of the demonstratives; see Kayne 2014.) So perhaps *that* is also a suppletive form.

4 Personal pronouns as demonstratives

In Section 2, on the basis of case considerations, the comparison was made between personal pronouns and demonstratives. In this section, I will strengthen this comparison with other shared properties:

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4 The *th-* forms of 3rd person plural pronouns (*they, them,* etc.) replaced the native *h-* forms of Old English under the influence of Scandinavian languages in the north (Howe 1996).

A. When used prenominally, both personal pronouns (in (22a)) and demonstratives (in (22b)) agree with a head noun in number:

(22)   a.   *us* kids
          b.   *them* kids

B. Both personal pronouns and demonstratives can appear without an overt noun:

(23)   a.   pronouns: *we, us, you*
          b.   demonstratives: *that, those, these*

C. Both personal pronouns and demonstratives have systematic lexicalized forms with (reduced) *one* in several varieties of English:

(24)   a.   *you'uns, we'uns, us'uns, they'uns, them'uns, this'un, that'un*
                                            (AppE: M&H 2004)
          b.   *yousuns, usuns, themuns*   (Belfast English; Henry 1995)
          c.   *yous'uns, thaim'uns*   (Ulster Scots; Robinson 1997)
          d.   *you yins, huz yins* ('us'), *us yins*   (Scots; DSL)

D. Both appear with reinforcers (*here*, *there*), which are essentially locative in nature and dependent on the demonstrative or personal pronoun (Bernstein 1997, Leu 2015):

(25)   a.   *These here guys* won't do it.
          b.   *Us here guys* ain't never gonna play like that.
                                     (from Kayne 2009: fn. 20)[5]

E. Both provide reference in terms of (relative) proximity to the speaker or addressee.

F. Both display person morphology (1st, 2nd, 3rd) if Bernstein (2008a,b) are right about *th-* as a person marker.

    That demonstratives can display person is illustrated quite clearly in Turkish, a language whose demonstratives are 'built' on the 1st, 2nd, and 3rd person pronominal forms (Kornfilt 1997, cited in Leu 2015: 38–39). The Turkish personal pronouns are illustrated in (26) and the related demonstratives in (27).

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5 Compare: *?*You there guys ain't never gonna play like that.* (from Kayne 2009: fn. 20).

(26)   Turkish pronouns:

	1st	2nd	3rd
	1st	2nd	3rd
Nominative	*ben*	*sen*	*o*
Accusative	*ben-i*	*sen-i*	*on-u*

(27)   Turkish demonstratives:

> *bu(n)* 'this one' (close to the speaker and hearer)
> *su(n)* 'that one' (further away from speaker and hearer)
> *o(n)* 'that one' (far away from speaker and hearer)

So the insight that emerges from consideration of the English facts, inspired by the Turkish data in (26) and (27) above, is that English demonstratives, like personal pronouns, encode case, person, and number and furthermore, that English has *th*-demonstrative forms (*these guys, them guys*, etc.) as well as 1st and 2nd person demonstrative forms (*us guys, you guys*). This characterization helps to make sense of some verbal agreement facts in Appalachian English. In particular, Appalachian English displays two agreement patterns: a) verbal *-s* is triggered with 1st, 2nd, or 3rd (*th-*) person demonstratives (including plural forms); b) null agreement is triggered with 1st, 2nd, or 3rd (*th-*) person personal pronouns:[6]

(28)   Personal demonstratives

    a.   Then *we-uns* ketches up and finishes him.   (AppE; M&H 2004)
    b.   …and if *you fellows* wants to preach up there.   (M&H 2004)
    c.   *Them gals* is purty, but they're crazy as Junebugs.   (M&H 2004)

(29)   Personal pronouns

    a.   …*we* need more changes in Mountain City…
                                        (fieldwork; Mountain City, TN, 2003)
    b.   Any…questions that *you* want to ask me?
                                        (fieldwork; Mountain City, TN, 2003)
    c.   *They're* ill little fellows, them black jackets is.   (M&H 2004)

The ideas developed here also offer new insight into the definite article *the* in English. While it's not novel to observe that *the* is an impoverished form, we can ask exactly how it is impoverished. No number is expressed or encoded (explaining why *the* appears with singular and plural nouns), and morphological case is also absent. If the ideas put forth here are correct, then the only feature that *the* displays

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6 The *h-* pronouns (*he, him*, etc.) trigger verbal *-s*. I have claimed elsewhere (see Bernstein 2008a,b) that *h-* is not a person marker in present-day English.

is person. This is evidently not sufficient for the definite article to serve as a pronoun or demonstrative, or to be an independent form.

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A syntactic amalgam in Hindi-Urdu?*

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1 Syntactic amalgams in English

In recent work, Kyle Johnson (Johnson 2014) has explored the syntax of an unusual construction, which looks as if it has been created by overlapping two independent sentences. Such structures were named 'syntactic amalgams' in Lakoff (1974). Following work by Kluck (2011) and Guimarães (2004), Johnson focuses on the following kind of amalgam that Lakoff calls 'Andrews Amalgams'.

(1)   John invited [you'll never guess how many people] to his party.

In these cases, the bracketed constituent, which contains a sluice, seems to function as an argument of the main clause. The intuition is that the meaning of (1) arises from combining the following two sentences.

(2)   a.   John invited *some number of people* to his party.
        b.   You'll never guess how many.

Executing this intuition has been very difficult because there is of course no *some number of people* in the first clause and even if there was, it would require 'some miracle' (to quote Lakoff 1974) to remove it and substitute it by the second clause that contains sluicing. Johnson cracks this hard nut by exploiting the additional geometries made available by his version of Multidominance and its associated linearization system. Setting aside almost all details, his analysis shares *how many* across the two sentences. In what follows, I will present a hitherto unstudied structure in Hindi-Urdu which I believe might be a syntactic amalgam. I am not in a position to offer an analysis but my hope is that the general system laid out by Johnson can extend to these constructions.

2 The Hindi-Urdu putative amalgam

2.1 Background on Hindi-Urdu

Hindi-Urdu is typically analyzed as a *wh*-in-situ language. The actual picture is more complicated as *wh*-phrases prefer to appear in the immediately pre-verbal position.

(3)   a. *Subject* wh-*question, default word order: OSV*

      Sita-se   kis-ne   baat kii
      Sita-with who-ERG talk.F do.PFV.F

      'Who talked to Sita?'

   b. *Subject* wh-*question with object focus: SOV*

      kis-ne   Sita-se   baat kii
      who-ERG Sita-with talk.F do.PFV.F

      'Who was it that talked to Sita?'

What is clear though is that there is no obligatory fronting of *wh*-phrases to an initial position. Certain *wh*-phrases can certainly be fronted but this fronting seems to be not associated with their *wh*-status. Moreover at least one *wh*-pronoun *kyaa* 'what' resists fronting.

    Further, Hindi-Urdu does not have expletive elements that would correspond to *there* or *it*.

(4)   a. *Existential construction*

      kamre-me cuuhaa   hai
      room-in   mouse.M be.PRS.3SG

      'There is a mouse in that room.'

   b. *Weather reports*

      baarish ho rahii   hai
      rain.F   be PROG.F be.PRS.3SG

      'It is raining.'

This is perhaps not too surprising given that it is a *pro*-drop language.

2.2 *yeh* 'this' + question

However, given the absence of expletives in the language, the existence of structures like the following is puzzling. Since these structures consist of *yeh* 'this' followed by a question, in the subsequent discussion, I will refer to them as '*yeh* questions'.

(5)   yeh + *question*

    a.   yeh tum   kis-se   baat kar rahii   ho?
        this you.F who-with talk do PROG.F be.2SG

        'Who is this that you are talking to?'

    b.   yeh ham kahã: aa   gaye   hẼ?
        this we   where come GO.PFV.M.PL be.PRS.1PL

        'Where have we come?'

The initial question is what the *yeh* 'this' is doing in this structure. The sequence that follow *yeh* is a well-formed *wh*-question and it is not clear that anything assigns a θ-role to *yeh*. A further question is how *yeh* questions come to have the meaning that they do. We will show that they have a meaning that is quite distinct from regular *wh*-questions. An initial intuition is that *yeh* questions don't directly ask for the answer to the *wh*-question; instead they ask for the identity of the individual answer provided by the *wh*-question.

2.3   *yeh* as a clausal expletive

In addition to being the proximal demonstrative pronoun and determiner, *yeh* also functions as a clausal expletive.

(6)   a.   yeh *with declarative CP associate*

      Ram-ko   (yeh) pataa   hai [ki Sita der-se   aaegii]
      Ram-DAT this   known is   that Sita delay-with come.FUT.3F.SG

      'Ram knows that Sita will come late.'

    b.   yeh *with a question CP associate*

      Ram-ne   mujh-se (yeh) puuchaa [ki Sita   kis-se   pyaar kartii
      Ram-ERG me-INST this   ask.PFV that Sita.F who-with love   do.HAB.F
      hai]
      be.PRS.SG

      'Ram asked me who Sita loves.'

    Clausal expletives can also appear in subject position.

(7)   (yeh) sac hai [ki vo mujhe   nahĩ: caah-taa]
    this   true is   that he me.DAT NEG want.HAB.M.SG

    'It's true that he doesn't want me.'

It is not, however, clear that the clausal expletives are truly expletive. It seems more plausible to analyze them as involving obligatory extraposition of the CP. One reason for thinking this is that in all the above cases of clausal expletives, the clausal expletive can be replaced by a full DP with a nominal head and with the proximal demonstrative as the determiner.

(8) a. yeh+*NP with declarative CP associate*

Ram-ko (yeh baat) pataa hai [ki Sita der-se   aaegii]
Ram-DAT this thing known is that Sita delay-with come.FUT.3F.SG

'Ram knows the proposition that Sita will come late.'

b. yeh+*NP with a question CP associate*

Ram-ne   mujh-se (yeh savaal) puuchaa [ki Sita   kis-se   pyaar
Ram-ERG me-INST this question ask.PFV that Sita.F who-with love

kartii   hai]
do.HAB.F be.PRS.SG

'Ram asked me the question of who Sita loves.'

Clausal expletives can also appear in subject position.

(9) (yeh baat) sac hai [ki vo mujhe   nahĩ: caah-taa]
this thing true is that he me.DAT NEG want-HAB.M.SG

'The proposition is true that he doesn't want me.'

But independently of how one analyzes these cases, the putative expletive seems to get a θ-role from the main clause; it's the CP one has to worry about. The situation with our *yeh* + question construction is very different. As noted at the outset, there is no source for the *yeh* to get a θ-role.

3 Syntactic properties of *yeh* questions

3.1 *yeh* is a fixed element

The proximal demonstrative, which appears at the beginning of a *yeh* question, keeps the same form *yeh* — independent of the *wh*-phrase involved in the *wh*-question that follows or the case-marking on the *wh*-phrase. This makes it unlikely the demonstrative forms a unit with the *wh*-phrase. Let us consider to two cases to bring out this point. First we consider a case where the *wh*-phrase — the proximal locative demonstrative is *yahã:* but it cannot substitute *yeh*.

(10)   *The locative proximal demonstrative is* yahã:

yeh/*yahã: ham **kahã:** aa   gaye   hẼ?
this/here   we   where come GO.PFV.M.PL be.PRS.1.PL

'Where have we come?'

Next we consider a case where the *wh*-phrase has a postposition. Phrases that combine with a postposition appear in a form called the oblique. In the following example, the *wh*-phrase is in the oblique form *kis* because it combines with the postposition *-se*; in the absence of a postposition, this *wh*-phrase would surface as *kaun*. Similarly the proximal demonstrative also has an oblique form *is*. But *is* cannot substitute for *yeh*.

(11)   yeh/*is tum **kis-se**   baat kar rahii   ho?
       this   you.F who-with talk do   PROG.F be.2.SG

'Who are you talking to?/Who is this that you are talking to?'

A further demonstration of the fact that the *yeh* in *yeh* questions is a fixed element comes from the fact that it cannot be replaced by an NP where the demonstrative functions as a determiner. This seems to be possible with most instances of clausal expletives as can be seen in (8). However the addition of any kind of nominal material to *yeh* in a *yeh*-question leads to ungrammaticality.

(12)   yeh + *NP: *

yeh (*jagah) ham **kahã:** aa   gaye   hẼ?
this place   we   where come GO.PFV.M.PL be.PRS.1PL

'Where have we come?'

3.2   Location of *yeh*

In all the examples we have seen so far, *yeh* appears clause-initially and this does seem to be the most neutral location for it. But material can precede *yeh*.

(13)   a.   yeh *S Adverb* **wh-IO** *DO V*

yeh Ram-ne   aaj   kis-ko   [vo kitaab] de   dii
this Ram.ERG today who.DAT that book.F give GIVE.PFV.F

'Who is this who Ram has given that book to today?'

b. *S* yeh *Adverb* **wh-IO** *DO V*

Ram-ne yeh aaj kis-ko [vo kitaab] de dii
Ram.ERG this today who.DAT that book.F give GIVE.PFV.F

'Who is this who Ram has given that book to today?'

c. *S Adverb* yeh **wh-IO** *DO V*

(?)Ram-ne aaj yeh kis-ko [vo kitaab] de dii
Ram.ERG today this who.DAT that book.F give GIVE.PFV.F

'Who is this who Ram has given that book to today?'

However, the *yeh* cannot follow the *wh*-phrase.

(14) *S Adverb* **wh-IO** yeh *DO V: ***

*Ram-ne aaj kis-ko yeh [vo kitaab] de dii
Ram.ERG today who.DAT this that book.F give GIVE.PFV.F

Intended: 'Who is this who Ram has given that book to today?'

If the *yeh* follows the *wh*-phrase, the sentence reads like word salad – one gets the feeling that there is one DP too many. This is in a sense what one would expect for all *yeh* questions but evidently they have a distinct parse available which does not run into the 'too many DPs' problem.

3.3 Restrictions on the question

This has been implicit in the preceding discussion but the clausal constituent that follows *yeh* must be a question. If what follows is a declarative or an imperative, the resulting structure is ungrammatical.[1]

(15) a. yeh + *declarative: ***

*yeh Ram kal aayaa thaa
this Ram yesterday come.PFV be.PST.M.SG

b. yeh + *imperative: ***

*yeh Ram-ko bulaa
this Ram.DAT call

Intended: 'Call Ram!'

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1 I am marking these sentences as * but I have the intuition that while these sentences are definitely bad, they feel less bad to me than the corresponding English sentence '*It Ram had come yesterday' or '*It call Ram!'

But not just any question suffices. *yeh* seems to require the question that follows it to be a *wh*-question. Y/N questions are impossible.

(16) *yeh (kyaa) Ram kal   aayaa   thaa?
       this Q_{YN}   Ram yesterday come.PFV.M.SG be.PST.M.SG

   Intended: 'Had Ram come yesterday?'

Multiple *wh*-questions are degraded with *yeh*. They are not quite impossible but to the extent they are possible they do not allow for a pair-list reading; only a single pair reading seems to be available.

(17)   a. *Multiple* wh-*question: pair list possible*

       Sita kis-ko   kyaa de rahii   hai?
       Sita.F who-DAT what give PROG.F be.PRS.SG

       'Who is Sita giving what?'

       b. yeh + *multiple* wh-*question: degraded, pair list impossible*

       ???/*yeh Sita kis-ko   kyaa de rahii   hai?
            this Sita.F who-DAT what give PROG.F be.PRS.SG

       'Who is Sita giving what?'

Finally *yeh* is also degraded with negative questions.

(18)   *Context: there is one student who Sita is ignoring. We want to find out who this student is.*

       a. *Negative question*

       Sita kis   chaatra-se   baat nahĩ: kar rahii   hai?
       Sita which student-with talk NEG do PROG.F be.PRS.3SG

       'Which student is Sita not talking to?'

       b. yeh + *negative question: degraded/**

       ???/*yeh Sita kis   chaatra-se   baat nahĩ: kar rahii   hai?
            this Sita which student-with talk NEG do PROG.F be.PRS.3SG

       Intended: 'Who is this student who Sita is not talking to?'

4   Semantic properties of *yeh* questions

We have already seen *yeh* questions where the *wh*-phrase is a *who/what*. We have also seen *yeh* questions with *where*. *yeh* questions are also possible with *how*, *how many*, *when*, and *why*.

(19) a. *kitne* 'how many':

    yeh tum-ne **kitne** sweater khariid liye?
    this you-ERG how.many sweater.M.PL buy   TAKE.PFV.M.PL

    'What is this, the number of sweaters that you have brought?'
    (suggests that you have brought many sweaters)

    b. *kaise* 'how'

    yeh tum Mina-se **kaise** baat kar rahe   ho?
    this you Mina-with how   talk do PROG.M.PL be.2PL

    'What is this, the way you are talking to Sita?'
    (suggests that the way you are talking to Sita is odd/rude)

    c. *kab* 'when'

    yeh tum **kab-se**   yahã: baiṭhe   ho?
    this you when-since here   sit.PFV.M.PL be.2SG

    'What is this, the time since you have been sitting here?'
    (suggests you've been sitting here for a while)

    d. *kyõ*

    yeh Ram yahã: **kyõ** aayaa   hai?
    this Ram here   why come.PFV.M.SG be.PRS.3SG

    'Why has Ram come here?'
    (suggests that Ram has come here for a not entirely satisfactory reason.)

The translations for these *yeh* questions indicate that *yeh* questions do something other than just ask the associated *wh*-question. In this section, we will try to make precise the semantic restrictions that are part of *yeh* questions.

4.1 Existential entailment

Ordinary *wh*-questions are sometimes taken to have an existential presupposition. If a speaker asks the question *What did John eat?*, the speaker is taken to presuppose that John did eat something. However this presupposition can be cancelled as this question can be answered by the proposition that he ate nothing. This seems to also be the case in Hindi-Urdu. However *yeh* questions do not entertain negative answers of this kind.

(20) a. Ram-ne   kyaa khaayaa?
          Ram-ERG what eat.PFV.M.SG
          'What did Ram eat?'
          Possible answer: 'He ate nothing.'

     b. ?yeh Ram-ne   kyaa khaayaa?
          this Ram.ERG what eat.PFV.M.SG
          'What is this that Ram ate?'
          Not a Possible answer: 'He ate nothing.'

The reader will note that (20b) is marked with a question mark. One way to make it perfect is to use the 'compound verb' construction, which in questions comes with an existential entailment – a negative answer is not acceptable. This is the case even without *yeh*.

(21) a. Ram-ne   kyaa khaa liyaa?
          Ram-ERG what eat   take.PFV.M.SG
          'What did Ram eat?'
          Not a Possible answer: 'He ate nothing.'

     b. yeh Ram-ne   kyaa khaa liyaa?
          this Ram-ERG what eat   take.PFV.M.SG
          'What is this that Ram ate?'
          Not a Possible answer: 'He ate nothing.'

Yeh questions bring in an existential entailment and the contrast between (20bb) and (21b) suggests that all else being the same, a *wh*-question that comes with a built-in existential entailment is preferred. Elsewhere where there is no choice between a question with a built-in existential entailment and a closely related question without such an entailment, we don't find such a contrast.

(22) a. darwaazaa kaun khaṭkhaṭaa rahaa   hai?
          door   who knock   PROG.M.SG be.PRS.SG
          'Who is knocking on the door?'
          Speaker thinks someone is knocking on the door, but. . .
          Possible Response: It's no one. It's just the wind.

     b. yeh darwaazaa kaun khaṭkhaṭaa rahaa   hai?
          this door   who knock   PROG.M.SG be.PRS.SG
          'Who is this that is knocking on the door?'
          Speaker has evidence that someone is knocking on the door. 'It's no one; it's just the wind' is not a possible response.
          (there is an irrelevant parse here where *yeh* modifies *darwaazaa*.)

4.2 Direct involvement

yeh questions require the person asking the question to be involved in the situation that the question is about.[2] While it is not straightforward to characterize what it means for the speaker to be involved, there are some clear contrasts. Suppose you fall asleep on a train that you take regularly. You wake up to find the train stopped in an area where it doesn't usually stop and that you do not recognize. In such a context, you can utter the following *yeh* question:

(23) yeh hamaarii train   kahã: pahũc gayii   hai?
     this our.F   train.F where arrive GO.PFV.F be.PRS.SG

     'What is this place where our train has reached?'

Now I might know that you are on a train and so I might call your secretary and ask the following question. Let's assume your name is Kostas.

(24) (*yeh) Kostas-kii   train   kahã: pahũc gayii   hai?
     this   Kostas-GEN.F train.F where arrive GO.PFV.F be.PRS.SG

     'Where has Kostas' train reached?'

Here we find that *yeh* is not felicitous.

However, the involvement does not have to be direct. Suppose you've been reading the newspaper about various odd events that have been happening. You can ask the following *yeh* question even though you have not been directly involved in the various odd events.

(25) yeh kyaa ho rahaa   hai?
     this what be PROG.M.SG be.PRS.3SG

     'What is this that is happening?'

4.3 Disapproval, incomprehension, and surprise

An important aspect of *yeh* questions is that they are often used to indicate incomprehension and surprise. Consider (23). Here the speaker is not just asking where the train has reached. The speaker is conveying that this place is an unexpected and surprising place for the train to have reached. This question is, however, not a rhetorical question – the speaker does not in fact know the identity of the place where the train has reached and is asking for that.

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2 An intuition I have is that *yeh* questions very often involve 1st and 2nd person arguments and involve the present progressive and the present perfect. If this intuition is borne out by looking at a corpus, it would fit the involvement idea explored here.

In other cases, *yeh* questions can be used to express disapproval. Suppose I see you talking to someone who I can identify but who I think is a lowlife that I think you shouldn't be associating with. Then the following *yeh* question feels apt.

(26) yeh tum kis-se   baat kar   rahii   ho?
     this you who-with talk.F PROG.F be.PRS.2PL

'Who is this that you are talking to?'
('what kind of person are you talking to?')

5 Towards An analysis

I started this short collection of facts with an appeal to Andrews Amalgams, an example of which is repeated below.

(27) John invited [you'll never guess how many people] to his party.

Johnson's treatment for these is, very loosely, to share *how many people* across the two sentences *John invited [...]* and *You'll never guess [...]*. Is it possible to construct a similar account for these *yeh* questions? My initial intuition was that the *yeh* questions could be seen as two questions: the *wh*-question and an identity question with the *yeh* pointing to the individual evoked by the answer and the *wh*-word in the question doing double duty. This would look something like then following:

(28) this [$_{question}$......?x.......]

   a. *this* refers to individual evoked by [$_{question}$......?x.......]
   b. *this* = ?y

This is very far from the elegant treatment Johnson has for the Andrews Amalgams. I see many problems that would keep such an account from even getting off the ground; for example (28b) requires a copula but *yeh* questions don't always have copulas.

Instead I will suggest a solution based on an idea from the work of Angelika Kratzer. Let's explore the idea that *yeh*, which is the proximal demonstrative, picks out a situation that is salient to the speaker. The question that follows is now restricted to this situation. The situation being so restricted blocks ordinary interpretations of the question. Let's take a specific case.

(29) yeh hamaarii train   kahã: aa   gayii   hai?
     this our.F   train.F where come GO.PFV.F be.PRS.SG

'What is this place where our train has come?'

Here the *yeh* limits the question to be a question about this situation proximal to the speaker. In such a situation, the speaker cannot be asking about the location

per se because the location is already provided by the situation restriction. Instead the question becomes a question about the identity of this location and perhaps a comment on why the identity of the location cannot be identified. This is of course only the barest of an outline. I will conclude though with the claim that what *yeh* does is restrict the situation in which the subsequent question must be answered. This allows us to derive one syntactic fact about *yeh* questions, namely that the *yeh* must precede the *wh*-phrase. The explanation for this is straightforward: it is the presence of the *wh*-phrase that makes the clause where it appears into a question. If the *wh*-phrase precedes the *yeh*, then the constituent that follows *yeh* is in the relevant sense not a question. So whatever blocks *yeh* from appearing with ordinary declaratives also blocks *yeh* from following the *wh*-phrase in a question.

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Having the edge: a new perspective on pseudo-coordination in Danish and Afrikaans[*]

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1 Introduction

The current state of our knowledge of how speakers of many languages communicate effectively despite often failing to produce the VP-component of the clauses they utter owes a lot to the work of Kyle Johnson: gapping and VP ellipses of different kinds facilitate a constrained set of interpretations in the languages that permit them; yet not every language supplies its speakers with this apparently economical option. In this short paper, we would like to focus on another V(P)-related phenomenon that does not occur in all languages, but that might in some ways seem to be the inverse of those that Kyle has probed so extensively over the years: verbal pseudo-coordination.

As (1) shows, verbal pseudo-coordination (PC) structures at first sight seem to feature too many rather than too few lexical verbs:

(1) a. They **went and submitted** the paper late!   *English*
     b. Desværre   **gik** de **hen og glemte** tidsfristen!   *Danish*
         unfortunately went they over and forgot deadline.DET
         'Unfortunately, they went and forgot the deadline.'
     c. Hulle **loop (en) vertel** ons dit is grammatikaal!   *Afrikaans*
         they   walk and tell   us it is grammatical
         'They go and tell us it's grammatical
         (when that was **really** not what we wanted to hear)!'

As these examples show, PC involves apparent coordination, which, however, fails to exhibit the symmetrical properties associated with coordination more generally (see among others Johannessen 1998, Munn 1993, Haspelmath 2007). More

specifically, the first lexical verb (V_1) does not have to contribute its full lexical semantics. This is very clear in (1), where the presence of *go/gå/loop* does not only not require walking to have occurred, there need in fact be no physical change of location or even movement of any kind beyond that required for speaking; more generally, the physical motion component of motion V_1s is typically backgrounded or entirely absent. Furthermore, we see that extraction is possible from such structures, in apparent violation of Ross's (1967) Coordinate Structure Constraint:

(2) Hvad går du og laver _ for tiden?   *Danish*
     what go you and do   for time.DET
     'What are you doing these days?'

Given that V_1 may only be drawn from a restricted V-inventory, it is initially tempting to conclude that these verbs are not properly lexical anymore, and that they have undergone grammaticalization, turning them completely into auxiliaries. There is no question that certain components of the grammaticalization process have affected these verbs: consider again the semantic bleaching alluded to above, and also the fact that the coordinator seems to be optional in a subset of these structures, e.g., Afrikaans (1c). Nevertheless, these verbs cannot just be classified as auxiliaries. Consider, for example, the compatibility between PC-structures and uncontroversial members of the auxiliary class illustrated below:[1]

(3) a. They **will** just **go and ask** for yet another extension!   *English*
     b. Desværre   **var** de **gået hen og blevet** ret   *Danish*
         unfortunately were they gone over and become rather
         'Unfortunately, they had become rather
         glemsomme!
         forgetful.PL
         forgetful.'
     c. Hulle het sowaar   loop en sê dis grammatikaal!   *Afrikaans*
         they   have so.true.MP walk and say it's grammatical
         'They actually went and said it's grammatical!'

As (3) shows, V_1 and bona fide auxiliaries may co-occur, indicating that V_1 cannot simply be analyzed as an auxiliary (see Section 2.1 below for further discussion and evidence in support of the idea that V_1 is more V-like than prototypically

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1 In (3), MP = modal particle. These are a very common feature of PC-structures, for reasons we will return to in Section 3. The translation challenges posed by these elements are well known, and will not specifically concern us here (see Bayer et al. 2015 among others for overview, discussion and references). What is worth noting is that the English translation as *actually* is intended to convey the presence of speaker-perspective-related meanings, notably also of the evaluative, unexpectedness-oriented type highlighted in recent work by Bianchi et al. (2016) and Ross (2016).

auxiliary-like). Furthermore, while V_1 can certainly add meanings prototypically associated with auxiliary elements — e.g., aspectual meanings such as those to be discussed in Section 2.1 below — it need not do so; consider the examples in (1–3) above. What V_1 does consistently add to structures in which it occurs, however, is a lively colloquial flavour, and, in a subset of cases, an unambiguously speaker-coloured perspective on the event/state of affairs being reported; hence the liberal use of exclamation marks in our examples thus far.

Several recurring themes in Kyle's career suggest to us that some preliminary new thoughts on the formal make-up of PC-structures as these manifest in Afrikaans and Danish might appeal to him. Firstly, there is the integration challenge: Kyle's work on so-called *Andrews Amalgams* (Lakoff 1974, Johnson 2013) — *Kyle advised* [[*I don't know how many*] *students*] — and on multi-dominance structures more generally tackles this challenge which arises in relation to apparently "extra" material head-on. Secondly, the PC-structures give the impression of requiring an analysis which appeals to *renumeration* or layered derivation of the kind to the best of our knowledge first advocated by Kyle in Johnson 2002 (see also Zwart 2011 for a particular working out of this general idea). Thirdly, PC can give rise to some rather unusual V_2 structures in Afrikaans — so-called *quirky* V2:

(4)   a.   Sy het die maraton in rekordtyd **loop staan en wen**! *Afrikaans*
              she have the marathon in record-time walk stand and win
              'She went and won the marathon in record time!'

       b.   **Loop staan en wen** sy toe wragtig die marathon in rekordtyd?!
              walk stand and win she then really the marathon in record.time
              'Did she really then go and win the marathon in record time?!'

As the examples show, these structures involve a seemingly quite excessive amount of verbal material fronting to what appears to be the C-position. *Staan* 'stand' is one of Afrikaans' four V_1 verbs — alongside *lê* 'lie', *sit* 'sit', and *loop* 'walk', the latter distinct from the initial V in the verb-string in (4) (see Section 2.1 below); thus the verb-cluster in (4) features a light motion verb plus PC-structure, all of which seems to be located in the V2 slot. Unusual V2 has, of course, also featured in Kyle's research, with Sten being his partner in crime on that occasion (Johnson & Vikner 1994).

The remainder of this paper is structured as follows: Section 2 will briefly introduce key aspects of the phenomenon in Danish and Afrikaans; Section 3 outlines the key components of a novel analysis, appealing to Kyle's past work; and Section 4 is the conclusion.

2 The empirical facts

2.1 PC and aspect

PC is often connected to the realization of aspect (see, among others, Lødrup 2002, de Vos 2005, Ross in progress), a property that is also evident in Afrikaans and Danish. Consider first the contrast between (5) and (6)–(7):

(5)   a.   We look at Kyle. He **smiles**.   SIMPLE PRESENT   *English*
       b.   We look at Kyle. He is **smiling**.   PRESENT PROGRESSIVE

(6)   a.   Vi ser på Kyle. Han **smiler**.   SIMPLE PRESENT   *Danish*
             we look at Kyle he   smiles
             'We look at Kyle. He smiles.'
       b.   Vi ser på Kyle. Han sidder og **smiler**.   PC
             we look at Kyle he   sits   and smiles
             'We look at Kyle. He is (sitting and) smiling.'

(7)   a.   Ons kyk vir Kyle. Hy **glimlag**.   SIMPLE PRESENT *Afrikaans*
             we look for Kyle he smiles
             'We look at Kyle. He smiles.'
       b.   Ons kyk vir Kyle. Hy sit en **glimlag**.   PC
             we look for Kyle he sits and smiles
             'We look at Kyle. He is (sitting and) smiling.'

The English pattern in (5) demonstrates a difference between the simple present and the present progressive that can also be replicated — via slightly different grammatical contrasts and not necessarily in the same tenses — in other languages (see, for example, Vikner & Vikner 1997: 267–268). In (5a), Kyle only started smiling when we looked, whereas in (5b), the smiling was already underway at the point at which our looking was initiated. In (6)–(7), we see that the simple present (a) is ambiguous between these two readings in both Danish and Afrikaans, whereas the PC structure (b) necessarily takes the overlapping reading that is also unambiguously expressed by the English progressive. PC-structures in both languages, then, can evidently be harnessed to realize progressive aspect. Strikingly, both languages additionally have other aspect-marking structures at their disposal (Lundskær-Nielsen & Holmes 2011: 115, Breed 2012, 2017), with PC — or, more accurately, the V_1-component of PC — not representing the most grammaticalized of these.

The extent to which V_1 is grammaticalized is of central relevance to our discussion, so we turn next to this matter. The fact that all of the V_1s in both Danish and Afrikaans *can* still contribute their original lexical semantics to the PC-structures they form part of constitutes the first indication that V_1 in both Danish and Afrikaans is a minimally grammaticalized element; contrast the highly bleached

semantic contribution of auxiliaries-proper, and the more general fact that semantic bleaching is an "early" component in the grammaticalization processes (see among others Hopper & Traugott 2003, Traugott & Trousdale 2010). Danish features both postural and directional V_1s (see Kjeldahl 2010 for detailed discussion), while the Afrikaans V_1 inventory encompasses the 3 posture verbs and *loop* 'walk', as indicated in Section 1. Although Danish/Afrikaans *gå/loop* 'walk', *stå/staan* 'stand' and *sidde/sit* 'sit' in particular need not contribute their literal meaning to structures in which they occur (see again (4), and the discussion in Breed 2017), this meaning is still available in PC-structures. Further, the non-omissibility of the coordinator element also points to V_1 being less grammaticalized than the kinds of light verbs that may serve aspectual functions in other languages; *come-* and *go*-based aspectual verbs, which combine with lexical verbs without coordination or other linking elements, are a case in point here (see Devos & Van der Wal 2014, and consider also Afrikaans *loop* 'walk' in (4)). In this connection, Biberauer (2017) highlights the need to distinguish between the *en*-requiring *loop* 'walk' that surfaces in PC-structures and the *en*-less *loop* which patterns with Afrikaans' other motion light verbs, *kom* 'come' and *gaan* 'go'. As (8) shows, the latter class can combine with PC V_1 *loop* ((8a); cf. also (4) above) and other V_1s (8b):

(8) a. Hy **gaan loop en   vertel** die studente hulle punte.   *Afrikaans*
         he go   walk and tell   the students their marks
         'He goes and tells the students their marks (walking optional).'
     b. Hy **gaan/kom/loop sit en lag**   oor sy onwaarskynlike analise.
         he go/come/walk   sit and laugh over his unlikely   analysis
         'He goes and sits down to laugh about his unlikely analysis.'

The kind of andative aspect expressed by these light motion verbs is known to be low in the Cinque hierarchy (see among others Cardinaletti & Giusti 2001, and de Vos 2001). PC V_1 must therefore be even lower in the clausal structure, if PC-structures are monoclausal. And that they are indeed monoclausal becomes clear if we consider standard monoclausality diagnostics (see Ross in progress for general discussion of the application of monoclausality diagnostics to PC-structures). V_1 and V_2 cannot be independently negated, for example:

(9) a. …fordi   han **ikke** sad og smilede.
         …because he   not   sat and smiled
         '…because he wasn't smiling.'
         Cannot mean 'he was smiling but not sitting.'
     b. *…fordi   han sad og **ikke** smilede.
         …because he   sat and not   smiled

Furthermore, Kjeldahl (2010: 74ff) demonstrates that V_1 cannot be combined with anything other than a lexical V_2 (i.e., a V in traditional terms) and that the inflection possibilities of this V_2 are severely restricted: in Danish, it has to have the same morphological form as V_1; and in Afrikaans, it, like V_1, is necessarily bare. This is true even in cases where one would expect an inflected form, as in (4) above; (3c) is repeated below as (10a), while (10b) and (10c) demonstrate what regular V-inflection for the relevant verbs in a past-marked sentence would look like:

(10)   a.   Hulle **het** sowaar **(*ge)loop en** sê dis grammatikaal!*Afrikaans*
              they   have so.true.MP walk   and say it's grammatical
              'They actually went and said it's grammatical!'

        b.   Hulle het   sowaar   *(**ge**)**loop**!
              they   have so.true.MP walk.PART
              'They actually walked away/left!'

        c.   Hulle het   sowaar   so *(**ge**)**sê**!
              they   have so.true.MP so say.PART
              'They have actually gone and said that!'

Further evidence that Afrikaans V_1s occupy very low positions in a monoclausal structure comes from the fact that:

(11)   (i)   they are (optionally) able to undergo quirky V_2 (see (4) above), V_2 being unambiguously a single-clause phenomenon (although not necessarily one restricted to finite clauses, as Johnson & Vikner (1994) show).

        (ii)   they can undergo predicate-doubling of the kind illustrated in (11); predicate-doubling in Afrikaans is clause-bounded, as Biberauer (2012) shows.

(12)   a.   **Sing SING hy**!   *Afrikaans*
              sing sing   he
              'As for singing, he really sings!/He'll sing no matter what you try to tell him!'

        b.   **Staan en teëstribbel** sal hulle maar **staan en teëstribbel**!
              stand and against.argue will they but.MP stand and against.argue
              'They will just always raise objections (no matter what!)'

Kjeldahl (2010: 74–80), similarly, argues at length both for the low placement of V_1 (see above) and for the monoclausality of Danish PC-structures. These are therefore also the structural conclusions with which we will proceed here.

2.2 PC and speaker perspective

An aspect of PC-structures that was noted early (see Schmerling 1975, Carden & Pesetsky 1977) and that has recently become a focus of interest in the PC-literature more generally (see Ross 2016 for discussion and references) is their affinity for speaker-perspective-related meanings. The speaker "colouring" that (a subset of) these structures readily seem to attract, already noted in Section 1, is further illustrated in (12) below (see also (1c), (3c), (4) and (8) featuring V$_1$ *loop* 'walk' above):

(13)   a.   Det **gik hen og regnede** på hendes bryllupsdag!
          Danish went over and rained on her wedding-day
          'It went and rained on her wedding day!'   (Kjeldahl 2010: 57)

        b.   Dit het **loop**/(gaan) **staan** en reën op haar troudag!   *Afrikaans*
            it has walk/gone stand and rain on her wedding-day
            'It went and rained on her wedding day!'

Crucial in relation to these structures is the observation that they very systematically harness lexical items with built-in deictic components. In Danish the itive (i.e., motion away from speaker) verb *gå* 'go' combines with the anti-indexical (Roßdeutscher 2009) *hen* 'over'. The use in Afrikaans of inherently non-directional V$_1$s *loop* 'walk' and *staan* 'stand' at first sight undermines this generalization, but here it is important to note two things: firstly, that *loop*+V combinations are strongly if not obligatorily associated with itive motion, presumably on account of the frequent use of *en*-less *loop* (see Section 2.1 above) in imperatives, where it serves as a more emphatic/"colourful" counterpart of *gaan* 'go' and contrasts with *kom* 'come'; and secondly, that *staan* most naturally occurs with light motion-verb *gaan* in these cases, i.e., with the same itive verb as in Danish. We return to the significance of these deixis-centric considerations in Section 3 below.

A second aspect of the speaker-orientation aspect of Danish and Afrikaans PCs that is relevant to our concerns is the naturalness with which modal and perspectival particles occur in these structures. Consider Afrikaans *sowaar* 'so true' in (3)/(10) and *wragtig* 'really' in (4b), and also elements like *immers* 'after all' and *vir jou* 'for you', and, in Danish, *minsandten* 'indeed', *sørme* 'sure, indeed', *desværre* 'unfortunately', and *heldigvis* 'luckily'. While these elements are unquestionably optional, like other modifiers, it is worth noting that native-speakers systematically agree that PC-structures sound maximally natural in their presence. This is a point to which we will return below.

3 The outlines of an analysis

As noted at the outset, our purpose in this section is a fairly modest one, namely to outline the key components of a novel analysis of Danish and Afrikaans PC-structures, which capitalizes both on certain recent theoretical developments and on insights from Kyle's own work.

Our starting point is phase theory (Chomsky 2001 and following), and the Lexical Array-based approach to structure-building it assumes, i.e., every phasal domain is defined by a Lexical Array (LA). In line with Marantz (2007), we assume that the phase-by-phase derivation typically assumed for clausal and nominal (and other sub-clausal) phrases also has a word-level counterpart. One aspect of this assumption is that it becomes crucial, on the one hand, to assume a root-based approach to lexical categories, and, on the other, to distinguish "verbalizing" v from the valency-altering v that has been associated with various diathesis- and aspect-related "flavours" in recent years (see D'Alessandro et al. 2017 for overview discussion). Another key aspect is that we might expect renumeration (Johnson 2003), or the return of already-constructed tree-structures to a later LA, where it will once again be part of the input for further derivation. Following, among others, Harwood (2015), Wurmbrand (2013) and Bošković (2014), we additionally adopt the view that phase size is defined relative to the elements in the relevant LAs: a phase has a "maximum size", defined by the structurally highest element that may be part of a given LA, but completion of a phase does not depend on merger of that element; instead, a phase is complete whenever the last (and thus structurally highest) element is removed from the LA. Finally, and very importantly in view of the properties of Danish and Afrikaans PC-structures, we harness the evidence that has been accruing in recent years that discourse — or, more specifically, speaker–hearer-oriented — domains may be found not just in the left-peripheral domain of the clause and the nominal, but at phase edges more generally (see among others Poletto 2012, Cognola 2013, Wiltschko 2014, 2017, Biberauer in press).

With these ingredients in place, let us reconsider the PC-structures that are our main focus of interest. Central to our proposed analysis is the idea that the "pseudo" component of PC-structures rests on the use of *og* and *en* in Danish and Afrikaans respectively as "edge markers" associated with V_2. More specifically, we assume that PC-structures differ from their non-PC lexical-verb-containing counterparts in being the product of a derivation in which the LA associated with the lexical verb (=V) contains not just the root of V_2 (e.g., $\sqrt{\text{REGN}}$-/$\sqrt{\text{REËN}}$ 'rain' in (12a,b) above) and verbalizing v, as would usually be the case, but also *og/en*. Upon completion of the V-level phase, the *og*-V/*en*-V structure is renumerated into the LA defining the lower clausal domain, i.e., vP. This LA, in turn, contains, in addition to potential argument DPs and modifiers, a further renumerated V, namely V_1, the

minimally grammaticalized light verb that appears to be coordinated with V_2 in PC-structures. In the absence of more grammaticalized light verbs (see below), we assume it to be merged at the edge of the vP-domain, thus closing off the phase (recall the "dynamic" approach to phases outlined above). Being structurally higher and clearly distinct from V_2 in structures of this kind, this V_1 will always undergo Verb-Second in the usual Germanic manner. This is the correct prediction for Danish, and also for "non-quirky" V_2 structures in Afrikaans, which exist alongside those discussed above. Additionally, the fact that V_2 is merged at the edge of the vP-phase leads us to expect that it may, over time, accrue specifically speaker-oriented meanings — which may then be formalized via grammaticalization — of the sort more generally found at the vP-edge.[2] This is particularly expected to be the case where a V_1 starts off with a semantics which includes deictic components. That Danish *gå hen* 'go over' and Afrikaans *loop* 'walk' are so commonly found in speaker-coloured PC-structures therefore follows very naturally on this view.

And the same is true for Afrikaans *gaan* 'go', which very commonly combines with non-deictic V_1s like *staan* 'stand' and *sit* 'sit' to realize unambiguously speaker-coloured PCs. In this case, the presence of *gaan* in the vP LA will mean that the vP-phase is not complete once the relevant V_1 has been merged at what could otherwise have been the edge of this phasal domain. Instead, *gaan* is merged at the vP-edge, thereby creating a deictic edge which is, as before, very naturally interpreted as reflecting speaker perspective.

Finally, a further empirical observation that becomes less puzzling in light of the peripheral activation at issue here is that mentioned at the end of Section 2.2., relating to the not-quite-optional perspectival particles found in PC-structures. If our proposal here is on the right track, we would expect such elements to be particularly natural/frequent owing to the fact that PC-structures necessarily activate the left periphery of the lower clausal phase.

One striking property of the PC-structures that has not yet been accounted for is the obligatory formal identity of V_1 and V_2. Here we appeal to the Late Insertion assumptions that are central to the Distributed Morphology approach within which the words-as-phases approach is grounded (Halle & Marantz 1993 and following). More specifically, we propose that V_2-adjoined *and* blocks assignment of an independent inflectional form, as would be usual in structures containing finite lexical Vs. In other words, the presence of the directly V-adjoined coordinator precludes

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2 We remain agnostic here as to whether these additional speaker-oriented meanings are actually grammaticalized, i.e., formally represented in featural form, or whether they arise from a combination of their phrase-structural position and implicature. It may in fact be the case that some more highly grammaticalized V_1s encode grammaticalized speaker-relevant properties — with their original lexical meaning having become bleached — whereas other, less grammaticalized V_1s rely on implicatures.

retrieval of the relevant lexical V, allowing access only to the relevant root. In addition to its blocking function, we would also expect the coordinator to serve its usual syncategorematic function of signaling the combination of two categorially identical elements. This, we argue, is what produces the obligatory formal identity between V_1 and V_2.

So far, then, we have accounted for Danish and Afrikaans PC-structures that exhibit the expected Germanic V2 pattern. The same account will clearly not explain the quirky V2 patterns that surface in Afrikaans, however. A striking aspect of the grammar of Afrikaans is the extent to which its light-verb inventory has expanded relative to what is available in Dutch (see among others Ponelis 1993, de Vos 2001, 2005, Biberauer 2017). de Vos (2001) investigates the combinatorial options of the non-*have* and be verbs that may combine lexical Vs, and derives essentially the hierarchy in (13) (see also de Vos 2005: 118):

(14)   ... $\text{Mod}_{Necessity}$ > $\text{Mod}_{Ability}$ > ... *hoor/sien*$_{Perception}$ > *gaan*$_{Ingressive}$ > *stop/ophou*$_{Terminative}$ > *laat*$_{Permissive}$ > *aanhou*$_{Continuative}$ > *bly*$_{Durative}$ > *probeer*$_{Conative}$ > *laat*$_{Causative}$ > *begin*$_{Inchoative}$ > *kom* > *loop*$_{Andative}$/*leer* > *help*$_{Benefactive}$ > *loop*$_{PC}$ > *staan*$_{PC}$ > *sit*$_{PC}$/*lê*$_{PC}$ > Lexical V

Particularly relevant for our purposes is the already noted fact that Afrikaans PC V_1s occupy a very low position in the clausal spine (see Section 2.1 above). We have also seen that PC V_1s can combine with other very low verbs, e.g., andatives like *kom* 'come' and *loop* 'walk' (cf. (8) above). The fact that andative-plus-V_1 combinations always exhibit the andative-V_1 order shown in (8) and never the reverse makes it clear that the V_1s in these structures cannot be merged at the edge of the lower clausal phase, as proposed for the Danish and Afrikaans PC-structures discussed until this point: andatives are clearly *v*P-internal; thus V_1-merger at the edge of *v*P would produce the unattested V_1-andative order (**staan loop/kom* 'stand walk/come' instead of *loop/kom staan* 'walk/come stand', i.e., 'come and stand'). If V_1, however, has the option of merging either at the *v*P-edge or at the edge of the word-level V-phase, the linearization facts fall out straightforwardly, and we also have the means to make sense of Afrikaans' unique quirky V_2 option. Let us see how that is the case.

Firstly, assume that V_2 is verbalized and merged with *en*, as before. Instead of the word-level verb-phase being complete at this point, however, a higher phase is constructed on top of the one that is, by assumption, common to all root-verbalization derivations. The LA associated with the higher phase contains the root of the relevant V_1 and a verbalizer. Since there is no (c-)selection relationship between the output of the first word-level verb-phase (the V, *en*-V_2) and either of the elements contained in the higher LA, either could in principle be the first to merge with the

existing structure. Given the apparently generalized nature of what Richards (2010) calls the *Distinctness Requirement* in human language, however, it should not in fact be possible to select the verbalizer first. This means that a converging — or, at least, interface-legible — derivation will necessarily involve merger of the root of V_1 prior to merger of the verbalizer, whereafter the entire word-level V will be renumerated, and ultimately spelled out. Since the verbalizer sits at the very edge of this phasal-V structure, the entire structure "counts" from the perspective of higher clausal probes as a single V; and this, then, is the source of the quirky V_2 effects.

What we see, therefore, is that Afrikaans appears to permit two distinct kinds of PC-structure: (i) a *v*P-phase-level structure where V_1 is merged at or very near the edge of the *v*P-domain, which is a PC-option that is also available in Danish, and (ii) a V-phase-level structure where V_1 is merged at the edge of a word-level phasal structure. It is tempting to view the innovation of this parallel structure as yet another reflection of the fractal-like system that is natural language syntax.

4 Conclusion

We began this paper by highlighting the fact that verbal pseudo-coordination appears to involve an excess of verbal material. As our programmatic discussion has hopefully shown, the consequences of merging this verbal abundance are no less intriguing and potentially significant for our understanding of natural-language syntax and its interfaces than the silence Kyle Johnson has shed so much light on.

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Come here and/or I'll kiss you!

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The coordinator *and* prototypically expresses logical conjunction, which is reflected by the fact that the order of the two clauses in (1) can be reversed without affecting the truth conditions of the sentence in accordance with the commutativity law of conjunction. This type of coordination is therefore also referred to as symmetrical coordination.

(1)   a.   [[John is ill] and [Mary is on a vacation]].
            b.   [[Mary is on a vacation] and [John is ill]].

There are, however, many cases of asymmetrical coordination with *and*, which characteristically receive an interpretation that goes beyond pure logical conjunction. Two prototypical cases are given in (2): although all examples are impeccable from a syntactic point of view, the primed examples are surprising in that they clash with our knowledge of the world due to the fact the linear order of the coordinands appears to be interpreted such that it coincides with the temporal order of the eventualities expressed by them: (2a′) is surprising because it refers to the unconventional state-of-affairs of Jan getting dressed in (before leaving) his bed, and (2b′) is surprising because it refers to the unconventional state-of affairs of Jan undressing in (after getting into) the bath. The hash sign is used to indicate that the example is marked for non-syntactic reasons.

(2)   a.   [[Jan stond op] en [hij kleedde zich aan]].
                 Jan   stood up and he dressed REFL PRT
                 'Jan got out of bed up and he dressed.'
            a.′   #[[Jan kleedde zich aan] en [hij stond op]].
            b.   [[Jan kleedde zich uit] en [hij ging in   bad]].
                 Jan   dressed REFL PRT and he went into bath
                 'Jan undressed and he took a bath.'
            b.′   #[[Jan ging in bad] en [hij kleedde zich uit]].

Note in passing that I will use Dutch examples because some of the arguments given below will be based on the fact that Dutch present tense constructions exhibit certain ambiguities that cannot be found in English and, of course, because it enables me to rely on my own acceptability judgments. The conclusions do carry over to English, however.

   Asymmetrical coordination normally occurs only if the coordinands entertain a certain semantic relation and form an integrated semantic whole in the sense that "we understand the two events as being connected as part of a larger event" (Culicover & Jackendoff 1997). This is only possible when the eventualities referred to by the coordinands are conceived as being *inherently* related, for which reason Zhang (2009) refers to such cases as "natural" coordination. This all amounts to saying that the temporal interpretation is a pragmatic effect triggered by our knowledge of the world. The temporal ordering can also be made explicit by means of a deictic temporal adverbial phrase, as in (3), but such cases differ from asymmetric coordination in that the temporal order of the eventualities expressed by the coordinands does not have to coincide with the linear order of the coordinands: it does if *daarna* 'after that' is used, but not if *daarvoor* 'before that' is used. Note in passing that the choice of the temporal adverbial affects the scope of the adverbial clause: in (3a) the clause provides the reason for John getting dressed while in (3b) it provides the reason for John getting dressed before getting up.

(3)   a.   [[Jan stond op] en [[hij kleedde zich daarna   aan omdat   het
              Jan   stood up and he   dressed REFL after.that PRT because it
              koud was]].
              cold was
              'Jan got up and he dressed after that because it was cold.'
       b.   [[Jan stond op] en [hij kleedde zich daarvoor aan]] omdat het koud
              was.
              Jan stood up and he dressed REFL before.that PRT because it cold was
              'Jan got up and he dressed before that because it was cold.'

Schmerling (1975), Haeseryn (1997: Section 25.1), Culicover & Jackendoff (1997), and Huddleston & Pullum (2002: 1299ff.), among others, have shown that other, more complex, relations can be expressed as well. Seymour Chatman's examples in (4), for instance, are like the examples in (2) in that a temporal order of the eventualities expressed by the coordinands is implied but there is yet another meaning aspect: (4a) would normally be interpreted such that the death of the female person in question is the reason for burying her, while (4b) gives the burying as the cause of her death.

(4)   a.   [[Ze stierf] en   [we begroeven haar]].
              she died   and we buried   her
       b.   [[We begroeven haar] en [ze stierf]].

The examples in (5) show that the relations of reason and cause can be made explicit by adding the deictic adverbials *daarom* 'for that reason' and *daardoor* 'because

of that' to the second clause. These adverbials seem to be mutually exclusive for reasons having to do with our knowledge of the world, which suggests that the interpretations of the examples in (4) are also pragmatic in nature.

(5)   a.   [[Ze stierf] en   [daarom/#daardoor   begroeven we haar]].
              she died   and for.that.reason/because.of.that buried   we her
              'She died and we buried her for that reason.'
       b.   [[We begroeven haar] en   [daardoor/#daarom   stierf ze]].
              we   buried   her   and because.of.that/for.that.reason died   she
              'We buried her and she died because of that.'

Another case mentioned by Huddleston & Pullum (2002) is illustrated by (6): while (6a) is readily interpreted as concessive, this interpretation is not easy to get for (6b). Again the implied relation between the two clauses can be made explicit by means of a deictic adverbial: *desondanks* 'despite of that' fits in naturally in (6a) but not in (6b).

(6)   a.   [[Jan eet   voortdurend] en   [hij blijft   (desondanks) te   mager]].
              Jan   eats continuously and he   remains despite.of.that too skinny
              'Jan eats continuously and (in spite of that) he remains too skinny.'
       b.   #[[Jan blijft   te   mager] en   [hij eet (desondanks)   voortdurend]].
              Jan   remains too skinny   and he   eats despite.of.that continuously

The restrictions on the adverbials in (5) and (6) show that information of the available semantic relations between the eventualities is part of the common ground. This suggests that the basic characteristic of asymmetric coordination is temporal ordering (or perhaps some more general notion such as priority; see Schmerling 1975) and that the more specific interpretations can be superimposed on that on the basis of our knowledge of the world. This can be further supported by the fact that replacing the predicate *te mager* 'too skinny' in (6a) by *te dik* 'too fat' changes the interpretation from a concessive into a causal one: addition of the concessive adverbial *desondanks* 'despite of that' to (7) would clash with our expectation, while addition of the causal adverbial *daardoor* 'because of that' is quite natural.

(7)   [[Jan eet   voortdurend] en   [hij blijft   (daardoor)   te   dik]].
       Jan   eats continuously and he   remains because.of.that too fat
       'Jan eats continuously and he remains too fat (because of that).'

The remainder of this paper will discuss the even more special cases of asymmetric coordination with a conditional interpretation such as given in (8). At an observational level, these examples differ from those discussed earlier in that the conditional interpretation cannot be made explicit by means of a deictic adverbial. An-

other surprising fact about these cases is that the first clausal coordinand can be an imperative: imperative and declarative clauses normally cannot be coordinated because declaratives have a truth value in a specific situation while imperatives do not as they are normally used to persuade the addressee to bring about a certain state-of-affairs:

(8)   a.   [[Jan komt   binnen] en   [hij begint te praten]].
              Jan   comes inside   and he   starts to talk
              'Jan enters and he starts talking' or 'If Jan enters he will start talking.'
       b.   [[Kom hier] en   [ik kus je]]!
              come   here and I   kiss you
              'Come here and I'll kiss you.'

It seems clear that the conditional interpretation of the examples in (8) is not an idiosyncratic property of the construction because we find the same phenomenon in various languages. However, there does not seem to be a generally accepted view on how to account for the conditional interpretation of examples such as (8): Huddleston & Pullum (2002: 1301) suggest that we are dealing with a pragmatic implicature, while Culicover & Jackendoff (1997) suggest that the interpretation is due to specific correspondence rules linking syntactic and semantic structures but, unfortunately, the two proposals are not worked out in sufficient detail to evaluate them. Here I will argue that a pragmatic approach is the most promising one and that, consequently, no correspondence rules are needed. Huddleston & Pullum (2002) suggest that the link between the conjunctive and conditional interpretation is that p ∧ q and p → q both exclude cases where p is true and q is false. They thus suggest that the speaker and the addressee only "see" the shaded rows in the following truth table.

p	q	$p \wedge q$	$p \rightarrow q$
1	1	1	1
1	0	0	0
0	1	0	1
0	0	0	1

Table 1   Truth table for conjunction and material implication

The starting point of my account for Huddleston & Pullum's intuition is that the conditional reading does not (easily) arise in past tense constructions; while present

tense (8a) is ambiguous between a conditional and a non-conditional reading, its past tense counterpart in (9) has only the latter, non-conditional, reading.

(9)   [[Jan kwam binnen] en   [hij begon te praten]].
        Jan   came inside   and he   started to talk
        'Jan entered and he started talking.'

This difference between present and past tense is due to the fact that the latter is normally used for describing states-of-affairs that have actually occurred before speech time, while the former can have various functions in Dutch: it is normally used for describing states-of affairs occurring at speech time, but if the context provides clues favoring this it can also be used as an irrealis form for expressing wishes, expectations, etc. concerning future states-of-affairs or as a form expressing generic statements.

(10)   a.   Jan wandelt op de hei.   [realis (default); statement]
             Jan walks   on the moor
             'Jan is walking on the moor.'
        b.   Jan wandelt morgen   op de hei.   [irrealis]
             Jan walks   tomorrow on the moor
             'Jan will be walking on the moor tomorrow.'
        c.   Jan wandelt normaal gesproken op de hei.   [generic]
             Jan walks   normally speaking   on the moor
             'Jan normally walks on the moor.'

The hypothesis that presents itself is that the conditional reading only arises in asymmetric coordinate structures with a non-realis (irrealis/generic) interpretation. In such cases, the eventualities referred to by the two coordinands are normally not actualized at speech time: $\neg p \wedge \neg q$. Huddleston & Pullum's intuition that the link between the conjunctive and conditional interpretation is that $p \wedge q$ and $p \rightarrow q$ both exclude cases where p is true and q is false can now be related to the earlier conclusion that asymmetric coordination has the characteristic property of temporal ordering by means of the following pragmatic reasoning based on Grice's (1975) cooperative principle, where p and q correspond with the propositions expressed by the first and second clause in (8a), respectively.

(11)   a.   Utterance (8a) does not describe an existing state-of-affairs because p
             = 0, which entails that $p \wedge q = 0$. The utterance should therefore be
             interpreted as non-realis; cf. maxim of relation.
        b.   Speaker S commits himself to $p \wedge q = 1$ at some time t; cf. maxim of
             quality.

   c.   The truth of $p \wedge q$ is not checked for any time t at which $p = 0$ because
         $p < q$; the truth of $p \wedge q$ will only be checked for some/any time t at
         which $p = 1$.
   d.   Only the first two rows in Table 1 are relevant, and these are compat-
         ible both with a conjunctive and with a conditional interpretation of
         (8a).

Although imperatives cannot be assigned a truth value, it seems even easier to de-
rive the conditional interpretation of utterance (8b). The crucial thing is that because
imperatives are used to urge the addressee to bring about a certain truth transition
(that is, to make a certain proposition true), we can again account for the condi-
tional reading by appealing to temporal ordering of the asymmetrically coordinated
clauses and Grice's cooperative principle. The pragmatic reasoning is given in (12),
where p refers to the proposition that the addressee is urged to make true and q
corresponds to the proposition expressed by the second clause in (8b).

(12)   a.   Utterance (8b) does not describe an existing state-of-affairs because p
             = 0, which entails that $p \wedge q = 0$.
       b.   The imperative invites the addressee A to make p true.
       c.   If A does not make p true, S cannot make $p \wedge q$ true; if A does make
             p true, speaker S can make $p \wedge q$ true by making q true. Therefore,
             S commits himself to making q true if A makes p true; cf. maxim of
             quality.
       d.   Only the first two rows in Table 1 are relevant, and these are compat-
             ible both with a conjunctive and with a conditional interpretation of
             (8b).

Note that examples such as (13a) can be used either as an encouragement or as a
warning depending on the question as to whether or not proposition q is favorable
for addressee A: (13a) will be seen as an encouragement if both A and S know that
A would liked to be kissed by S, but as a warning if they both know that A does not
want to be kissed by S. The lines of reasoning leading to these results are given in
(13b,b′), which take the conclusion in (12c) as their point of departure.

(13)   a.   [[Kom hier] en   [ik kus je]].
             come here and I   kiss you
             'Come here and I'll kiss you.'
       b.   S commits himself to making q true if A makes p true. Since S knows
             that A likes q to become true, (13a) is intended as an encouragement.
       b.′   S commits himself to making q true if A makes p true. Since S knows
             that A does not like q to become true, (13a) is intended as a warning.

The discussion above has shown that the conditional interpretation of the clausal coordinate structures with *en* 'and' can be derived by appealing to the temporal ordering inherently expressed by asymmetric coordination in tandem with more or less standard pragmatic reasoning.

Although there is no space to discuss conditional interpretations of coordinate structures with *of* 'or' at length, I would like to conclude by sketching an account for the question as to why examples such as [[*Ik ga*] *of* [*ik kom te laat*]] 'I will go (now) or I'll be late' cannot receive a run-of-the-mill disjunction interpretation, but must be construed as a conditional with the more specific use as a motivation for the speaker's departure (that is, for making the proposition expressed by the first clause true). That the conditional interpretation is possible need not surprise us given that the disjunction $p \lor q$ is logically equivalent to $\neg p \to q$. The fact that a run-of-the-mill disjunctive interpretation is not possible needs an explanation, however. The key to this problem is that this example does not have a past tense counterpart: [#]*Ik ging of kwam te laat* (literally 'I went or came too late') seems incoherent. This suggests that the obligatoriness of the conditional interpretation is a byproduct of the fact that the sentence cannot receive a realis interpretation. The line of reasoning that leads to the conditional reading may therefore go as follows.

(14) a.   The utterance does not describe an existing state-of-affairs: $p \lor q = 0$, and should therefore be interpreted as non-realis; cf. maxim of relation.
      b.   Speaker S commits himself to $p \lor q = 1$ at some time t; cf. maxim of quality.
      c.   If S makes p true, q may be false or true in order for $p \lor q$ to be true; if S makes p false, q must be true in order for $p \lor q$ to be true.
      d.   Because q is not favorable for S, the conditional reading $\neg p \to q$ provides a reason for making p true.

Although imperatives cannot be assigned a truth value, it is even easier to derive the conditional interpretation of utterances such as [[*Sta op*] *of* [*je komt te laat*]]*!* 'Get up or you'll be late', which are normally used as a warning. The line of reasoning may take the following form:

(15) a.   The utterance does not describe an existing state-of-affairs: $p \lor q = 0$.
      b.   The imperative invites the addressee A to make p true.
      c.   If A makes p true, $p \lor q = 1$ regardless of the truth of q; if A makes p false, $p \lor q = 1$ only if $q = 1$.
      d.   Because q is not favorable for A, the conditional reading $\neg p \to q$ provides a warning to A not to make p false.

Although I have had to put aside various issues for reasons of space, this paper has shown that it is possible to account for the conditional interpretation of asymmetric coordination with *en* 'and' and *of* 'or' by means of more or less standard pragmatic reasoning. This conclusion is important since it makes it unnecessary (and therefore undesirable) to introduce special syntactic or semantic apparatus such as the correspondence rules proposed in Culicover & Jackendoff 1997 to account for such cases, which undermines their argument in favor of such rules. In fact, it is my firm belief that appealing to this kind of pragmatic reasoning may solve more problematic issues in syntactic and semantic theory and may therefore contribute to achieving certain "minimalist" goals that would remain beyond reach otherwise; see Broekhuis 2016 for another illustrative example concerning free word order (object scrambling/shift).

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Cryptoconstructionalism[*]

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1 Introduction

This note addresses the question of just how "explanatory" are derivational analyses of syntactic phenomena. I will get to that momentarily. But let me start with a small bit of autobiography. I completed my MIT dissertation (Culicover 1971) in 1970 and started teaching at UC Irvine in that year. A few years later I met Kyle Johnson. He was a student in a syntax course that I was teaching, just after the publication of *Formal Syntax* (Culicover et al. 1977). It was clear even then that Kyle had an uncanny gift for syntax. The subsequent years have confirmed this judgment many times over. I'm delighted and honored to contribute to this collection.

Back to the dissertation. I made two main arguments there in response to Generative Semantics, which held that semantic representations were read directly off of and in fact reducible to syntactic representations. One was that syntax is *autonomous*, in that it cannot be reduced entirely to semantics. The second was that the grammar is *constructional*, in that there are individuated syntactic configurations in a language that enter into a range of interpretations, and there are interpretations that must be associated with a range of syntactic configurations. So the correspondences are not one-to-one in either direction, contrary to what was assumed by Generative Semantics. One-to-one form/meaning correspondence is characteristic as well of most if not all mainstream generative grammar (MGG), including Minimalism (Culicover & Jackendoff 2005). So the issues that I was concerned with in the 1960s are still relevant today.

The first type of constructional mismatch is exemplified by English subject–auxiliary inversion (SAI), which has no fixed interpretation of its own but is seen in yes–no questions (*Do you like pizza?*), *wh*-questions (*What kind of pizza do you like?*, wide scope negation (*Not a single piece of pizza did she eat*), *so*-(*that*) (*So much pizza did she eat that . . .*), and imperatives (*Don't you dare touch that!*). The second type is seen in the imperative, which can be signaled in a number of different ways, e.g., *Sit down! Don't sit down! Do not sit down! You sit down! Will you please sit down? Can't you sit down? Why don't you sit down? Why not sit down?*, etc.

What we see in these and similar cases are correspondences between the form of sentences and their interpretations. The job of a grammar is to provide a description of such correspondences. The job of the theory of grammar is to explain what sorts of correspondences are possible in a natural language.

The standard approach to these tasks in MGG is to assume that there are operations that derive the phonological form and the semantic interpretation from the syntactic structure ('syntactocentrism'). In contrast, the constructional approach is non-derivational: the correspondences between syntactic structure, phonology and semantics are represented directly. This is done without the mediation of MGG devices such as abstract syntactic structure, movement, empty functional heads, empty feature checking, deletion, empty structure, etc. (Culicover & Jackendoff 2005).

I suggest here that in order to successfully apply the derivational mechanisms of MGG, it is necessary to stipulate details of form–meaning correspondences, much the same as constructions do. To the extent that the derivational mechanisms are not independently motivated, analyses that use them with such stipulations are 'cryptoconstructional'. If there is no value added by the derivations, they do not explain anything. Occam's Razor suggests that cryptoconstructional analyses should be dispensed with in favor of more transparent and direct constructional analyses.

2 Imperatives

I focus here on imperatives, since there is a particularly rich derivational literature dealing with their idiosyncrasies. First, however, a couple of general observations about how grammatical theories approach grammatical phenomena. A key feature of the derivational approach in MGG is its universality: it is assumed that every language draws from the same inventory of grammatical devices for expressing a particular semantic function or relation. It means that the syntax of an imperative must be the same across all languages at some level of representation. And the derivations of the positive imperative and the negative imperative in a language should be essentially the same. These and similar consequences fall under the rubric of 'uniformity'. (For a survey and a critique, see Culicover & Jackendoff 2005: Chapters 2 & 3.)

In contrast, a constructional approach is not bound by uniformity considerations. However, identity, similarity of representation and degree of generalization reduce representational complexity and contribute to the ranking of a grammar according to the evaluation metric (Chomsky 1957, Jackendoff 1975, Culicover 2013). A constructional approach readily accommodates constructional idiosyncrasy against the backdrop of broad generalizations (Culicover 1999, Culicover & Jackendoff 2005, Culicover 2013).

Universality of representation predicts, *ceteris paribus*, that the syntactic representation of some phenomenon will be the same across every language, up to parametric variation. For example, if it was actually possible to derive every type of imperative in every language from the same abstract configuration, without ad hoc stipulations, we would have a striking confirmation of the explanatory power of the theory.

But if imperatives vary dramatically not only cross-linguistically, but even within a single language, the explanatory power is lost. Under such circumstances we have to make ad hoc stipulations about the structure and features of particular constructions in order to get not just the linear order but the morphological form right. This is cryptoconstructionalism — the importation of construction-specific stipulations into analyses formulated using the formal vocabulary of derivations.[1]

In fact such cryptoconstructionalism is endemic to the analysis of imperatives. There is a extensive literature that seeks to devise a uniform account that will accommodate the phenomena of English, the Romance languages such as Italian, Spanish and French, and Greek and other Balkan languages. The phenomena are quite diverse, and are not easily accommodated under a uniform analysis:

- *Positive/negative:* In many languages, a negative imperative is not simply a positive imperative with a negative particle in the canonical position of negation with respect to the verb.
- *Arguments:* In many languages that have pronominal clitics, the clitics do not necessarily appear in the same position with respect to the verb in the imperative as they do in the indicative, and there are even differences between positive and negative imperatives.
- *Subjects:* In many languages, even those that lack *pro*-drop, the subject need not be overt in the imperative.
- *Auxiliaries:* In English, which has a well-developed auxiliary system, the distribution and form of the auxiliary is far from regular, and does not resemble what appears to be going on in the other languages.

3 Derivations

An influential attempt to account for this diversity in derivational terms is Zanuttini 1997. For Zanuttini, 'true' imperatives are those that have forms that are unique to the imperative function, while 'surrogate' imperatives are those that are "morphologically identical to a form used for the same person in another paradigm." One interesting property of Italian is that pronominal clitics are proclitic in indicative

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1 It is of course possible to incorporate the ad hoc stipulations in 'micro-parameters'. I argue in Culicover 1999 that doing so renders parameter theory vacuous.

sentences, but enclitic in imperative sentences, regardless of the form of the verb: *Le telefonate* 'You call her'; *Telefonate-le* 'Call her!'.

The third person singular and plural subjunctive may also be used to convey polite imperative force; in this case the pronouns are proclitics. To complicate the situation further, some of the Romance languages also show additional suppletion in negative imperatives, using the infinitival form of the verb. And a negative indicative form may be used in the imperative in Italian with either proclitics or enclitics (Zanuttini 1997: 149): *Non date-mi il libro!; Non mi date il libro!* 'Don't give me the book!'.

Zanuttini (1997: 146) assumes the uniform structure in (1) for imperatives.

(1) [$_{CP}$ Spec [$_{C'}$ C[IMP] [$_{...}$ ... [$_{NegP}$ Spec [$_{Neg'}$ Neg [$_{MoodP}$ Spec [$_{Mood'}$ Mood VP]]]]]]]

Crucially, when one assumes a uniform underlying structure such as this for a diverse set of surface forms, it becomes necessary to assume various triggers for moving pieces of the structure around so that only the well-formed surface orders are derived, and so that they correspond to the proper interpretations. Here is how Zanuttini's solution works for Italian:[2]

> Assume that the IMP feature in C must be checked. Assume that movement of V to C checks this feature, hence V is initial and precedes the clitics. Assume that when there is Neg, it checks the IMP feature (because it is closer to C than V is). Then V is not initial and follows the clitics. Assume that the features of Mood must be checked. Assume that overt or abstract auxiliary verbs check the features of Mood. Assume that a true imperative verb cannot adjoin to and check the features of Mood, which is why negation is incompatible with a true imperative. Assume that suppletive imperatives can adjoin to and check the features of Mood. Assume that in a negative suppletive imperative there are various options for adjunction to Mood.

One might say that such an analysis, with a healthy number of specific assumptions including the specifics of (1), is standard practice for the field. Be that as it may, there are no actual empirical facts underlying these assumptions that would *independently* lend support to the existence of the phonetically invisible heads or the assumed features or the need to check them. The motivation is the need to derive the

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2 Because space is limited, please see the literature for the full range of data and the derivational details.

observed linear order from the assumed uniform structure with the observed meaning. Whether an invisible head actually exists, whether it has a feature, and whether this feature must be checked by negation, or a verb, are all matters of stipulation designed to get the correspondences to work out.

Such stipulations are not restricted to Italian. Zanuttini's analysis extends to Italian dialects, Spanish and Catalan. The imperatives in these languages are similar to those Italian but differ in various details having to do with which inflections are used in which persons, and the location of clitics in positive and negative imperatives. And other researchers have made similar proposals, but with different stipulations, for Greek and other Baltic languages (Rivero & Terzi 1995, Isac 2015).

4 What about English?

One might reasonably wonder how to extend an analysis such as Zanuttini's to the English imperative. Potsdam (2007) assumes that there are two approaches to explaining word order in this case: (i) in the inverted imperative, *do(n't)* is in C, and in the uninverted imperative, it is in I; (ii) in the inverted imperative, the subject is below *don't* and doesn't raise, while in the uninverted imperative, it does. However, Potsdam does not explain why raising occurs, or why *do* shows up. Moreover, his assumptions incorrectly predict the grammaticality of **Do you sit down!*; **You don't touch that!*; **You do be quiet!*.

If we try to accommodate the English facts within the framework of an analysis like (1), we see that just as in the case of the Romance imperatives, the analysis requires constructional stipulations framed in the vocabulary of feature checking and movement. For instance, the fact that we get *do*-support in English means that we have to assume that there is an imperative inflection — call it SUBJUNCT — that cannot attach to V if it is blocked by negation, just as in the indicative case. However, this SUBJUNCT is different from the true subjunctive, which does not allow *do*-support: *It is absolutely imperative that she not/*don't be there late.*

In order to get inversion with *don't* but not with *do*, we could assume that there is an imperative feature in C that is checked off by V in the positive imperative and by negation in the negative imperative. So we would get *don't you...*, but not **do you...*. However, V itself does not invert in the positive imperative, so we could assume that there is something invisible between the subject and V, call it X, that checks the feature in C. (2) suggests one possible analysis along these lines.

(2)   C[IMP] NP X V+I[SUBJUNCT] ... $\Rightarrow$ X+C[IMP] NP V+I[SUBJUNCT] ...

Finally, we have to address the fact that the *you* subject may be omitted in English imperatives. Since English is not a pro-drop language, we cannot attribute this possibility to a parametric property of English. We have to state it as a property

of the English imperative. This trick can be accomplished by stipulating, that the imperative C has a feature that licenses null subjects (Zanuttini 2008). This is a constructional stipulation, of course.

As the observations above suggest, I do not believe that couching the phenomena in stipulations of this sort counts as an advance over simply stipulating the correspondences between form and meaning. The number of assumptions and stipulations in a derivational treatment based on a uniform underlying structure is at best the same as the number of direct constructional stipulations, and uses considerably more formal machinery. A construction would stipulate, for example, that the simple imperative in English is of the form *VP*; there is no overt subject, and the addressee is the external argument of the corresponding interpretation. Again, space limitations prohibit elaboration; suffice it to say that in a constructional analysis of English the constructions also directly license the bare negative imperative and the other forms given above.

5   Everywhere you turn

Not surprisingly, the cryptoconstructional approach is everywhere in the literature, presented as explanation when it is stipulation. To take just one example more or less at random, consider the following set of assumptions about the ordering of subject and tensed verb in English and other languages from Biberauer & Roberts 2010, who claim to "show how the proposed analysis facilitates a new understanding of relevant aspects of the modern English verbal system and its diachrony." The assumptions are by no means atypical, although perhaps a bit extreme in their opacity, complexity and use of scare quotes.

> Assume that T c-commands V and that T and C are in an Agree relation. For English, assume that T has an unvalued V-feature. Assume that Agree licenses V's tense morphology. Assume that agreement inflection is "poor", which yields expletive subjects. Assume that there is an EPP feature that triggers movement of the subject to Spec,TP. Assume that a tensed V is a "compound" consisting of T and V—this gets V into the second position in the clause. For languages with V2, assume that movement of V is "triggered by a T-related feature of C and that full V2 languages in some sense involve a 'hybrid' C". Assume that in English, "Tense features are lexicalized as auxiliaries". Finally, "the Match component of Agree simply copies the value from the Probe to the empty slot in the Goal (the unvalued Aspect feature on the V-Goal can be thought of as the feature that makes it 'active' here, parallel to the manner in which

> unvalued Case renders DPs 'active', and T's feature-matrix will also
> [...] include an unvalued V-feature, which is the basis for its Probe
> status) ... the appearance of overt *do* is regulated by the presence of
> an 'extra' feature on T."

It is perhaps belaboring the obvious to point out that all of these assumptions are made with the sole goal of guaranteeing something that can be stated very simply: in English, the overt auxiliary must undergo SAI and precede *not* (and not the tensed main V), and if there is no such auxiliary, expletive *do* satisfies these constructional conditions.

6   Conclusions

To recapitulate, accounts of linear order using movement to abstract elements whose positions are stipulated and whose existence is not independently motivated are cryptoconstructional: they are ways of importing constructional stipulations into a derivational framework. Significantly, the fact that such accounts can be formulated in no way justifies the derivational approach.

While such an approach is characteristic of contemporary work, it is interesting to note that it was explicit in the earliest days of generative grammar, e.g., Katz & Postal 1964. Katz and Postal argued that there is an abstract marker Q in clause-initial position in the syntactic representation of interrogatives, and an abstract marker I in clause-initial position in imperatives. The purpose of these markers was to mediate between the linear ordering of the constituents of a sentence and its interpretation. For example, the form of a yes-no question is derived by moving the finite auxiliary to Q, and the interrogative interpretation is borne by Q.

But it is straightforward, and in fact simpler, to stipulate that in the English question, the subject and the finite auxiliary are spelled out in the order AUX > NP, without assuming that there is movement of the AUX from a structure where it follows the subject.

To sum up, there are certain facts about the form–meaning correspondence that have to be explicitly stated in a grammar. They do not follow from general principles, and in this sense they are constructional. To the extent that derivational accounts of form-meaning correspondences of imperatives as in Section 3, or interrogatives as dealt with by Katz and Postal, are ways of stipulating the correspondences, they are actually constructional. We can state them explicitly as constructions, or we can couch them in the MGG vocabulary of uniform abstract structure, empty functional heads, features, movement and feature checking. In that case they are cryptoconstructional. To the extent that no independent evidence can be found to

motivate these derivational devices, I suggest that we apply Occam's Razor and dispense with the extra machinery.

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Towards an etiology of outer indices[*]

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1 Constraints on reflexive interpretation

One of the core pieces of conventional wisdom about reflexive pronouns is the idea that they must be interpreted as bound variables, where the variable binder is (an abstraction operator just below) the local antecedent. It is not sufficient, according to this wisdom, for reflexives to be coreferential with their antecedents; they must be semantically bound by them. A classic demonstration of this requirement features a focus-sensitive element like *only* added to an otherwise referential subject.

(1)   Only Sally evaluated herself.

Sentence (1) says that apart from Sally, no one had the property of being an x such that x evaluated x. That's what we get by interpreting the reflexive via variable binding. The sentence can't mean that apart from Sally, no one had the property of being an x such that x evaluated Sally – a meaning that would have been expected if we allowed mere coreference in this type of example.[1]

   In terms of Heim's (1993) inner and outer indices, a requirement for semantic binding amounts to a requirement that the inner index on a reflexive pronoun match the outer index on its antecedent:[2]

(2)   [Sally]$_1$ evaluated [herself$_1$].

How is this requirement enforced? In his paper *In search of phases*, Johnson (2007) proposes that reflexive pronouns simply carry an inner-to-outer matching requirement, (3), as part of their semantic contribution. (The rest — in particular, the size restriction on P — arises from the phase theory.)

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1 For purposes of coreference, the term coreferent with the reflexive could be *Sally*, which is only a part of the surface subject. For that reason, this type of example raises well-known questions about binding and c-command. See, e.g., Heim 1993, Safir 2004: Ch. 4, and Büring 2005b for discussion. I won't have anything to say about this here.

2 I suppress an inner index on *Sally* here.

(3)   *Principle A* (Johnson 2007: 155)

Some P containing an anaphor, α, must be interpreted as $\lambda x_1.[_P \dots \alpha_1 \dots]$.

The statement in (3) improves on traditional formulations of Principle A in that it clarifies the role of inner and outer indices in reflexive binding. When we say that reflexives must be syntactically bound — coindexed under c-command with an antecedent in an A-position — we mean, if (3) is correct, that their inner index must match the outer index of such an antecedent.

What I want to show in this short paper is that (3) — and, in turn, the conventional wisdom it represents — is in fact not correct. Reflexives as a class do not require that their inner index match a locally c-commanding outer index, i.e., semantic binding. Reflexives in ECM subject position reveal a weaker requirement: their inner index may only match a locally c-commanding *inner* index, leading to the possibilities of coreference and co-binding alongside semantic binding. However we account for a semantic binding requirement in cases like (1), then, it should not go simply by way of the lexical representation of reflexive pronouns. Whether semantic binding is indeed required is instead to be determined by the pronoun's syntactic context.

To get this view off the ground, we will need to address some lingering questions about where inner and outer indices come from. I suggest, following much recent work, that indices are features whose distribution is regulated in part by Agree. These features may originate both on DPs and on heads in the clausal spine. I will implicate the former as the source for inner indices and the latter as the source for outer indices.

2   Broadening the constraints: ECM subject reflexives

Kiparsky (2002) and Safir (2004) have pointed out that ECM subject positions fall into a gap between syntactic and semantic binding. Reflexives in this position are not exempt in the sense of Pollard & Sag 1992; they require syntactic binding, and so cannot be discourse-governed. Semantic binding, however, is not required. An illustrative example is (4):

(4)   Only Kyle considers himself to not be photogenic.

(4) is ambiguous in a way that (1) is not. One reading is the semantic binding reading: apart from Kyle, no one had the property of being an x such that x considered x to not be photogenic. The second reading reports that no one besides Kyle considers Kyle to not be photogenic. That is the coreference reading that is missing in (1). We see that difference in the two LFs shown below, each prefaced with its representation in terms of inner and outer indices.

(5)   a. [Only Kyle]$_1$ considers [himself$_1$] to not be photogenic.
           Only Kyle [$\lambda x_1. x_1$ considers x_1 to not be photogenic]

       b. [Only Kyle$_1$]$_2$ considers [himself$_1$] to not be photogenic.
           Only Kyle$_1$ [$\lambda x_2. x_2$ considers x_1 to not be photogenic]

There is a third possibility as well for the interpretation of ECM subject reflexives, nicely shown by an example from Safir 2004. Consider his sentence (6).

(6)   Every Democratic candidate insisted that only she expected herself to win.

Safir observes that the sentence is ambiguous. It has two LFs which may be represented in our terms as (7b) and (8b), again prefaced with Heimian double-indexed representations. Safir's paraphrases are given in (7c) and (8c).

(7)   a. [Every Democratic candidate]$_1$ insisted that [only she$_1$]$_1$ expected [herself$_1$] to win

       b. Every Democratic candidate [$\lambda x_1. x_1$ insisted that only x_1 [$\lambda x_1. x_1$ expected x_1 to win]]

       c. Each candidate insisted that no other candidate expected to win.

(8)   a. [Every Democratic candidate]$_1$ insisted that [only she$_1$]$_2$ expected [herself$_1$] to win

       b. Every Democratic candidate [$\lambda x_1. x_1$ insisted that only x_1 [$\lambda x_2. x_2$ expected x_1 to win]]

       c. Each candidate insisted that everyone else thought she would lose.

In (7), the reflexive is semantically bound by its local subject; there is local inner-to-outer index matching. In (8), the reflexive is semantically bound by the higher subject *every Democratic candidate*. It is merely co-bound with its local subject; both the reflexive and its local subject are bound by the higher subject semantically.

ECM subject reflexives may be semantically bound by, coreferential with, or co-bound with their local antecedents. What is in common across these options? There is a simple generalization about the LFs above:

(9)   *Inner Index Matching*

       If A syntactically binds B, A and B must match in inner index.

That is, what these examples suggest is that we can understand the interpretation of syntactic binding in terms of inner indices, the very indices that determine how each DP is itself interpreted. It does not matter how abstractors are indexed (which is a matter of outer indices), and therefore, it does not matter whether there are

relationships of semantic binding. Semantic binding is one outcome among several that are compatible with Inner Index Matching.

Let us see how far this will get us. We should consider the further LFs possible for Safir's example (6) where the intermediate subject is not semantically bound by the highest one. In this case the pronoun *she* acquires its referent contextually; it is syntactically and semantically free. Two readings are possible when this is so.

(10) a. [Every Democratic candidate]$_1$ insisted that [only she$_2$]$_2$ expected [herself$_2$] to win

    b. Every Democratic candidate [$\lambda x_1 . x_1$ insisted that only x_2 [$\lambda x_2 . x_2$ expected x_2 to win]]

    c. Each candidate insisted that only $g(2)$ expected to win.

(11) a. [Every Democratic candidate]$_1$ insisted that [only she$_2$]$_3$ expected [herself$_2$] to win

    b. Every Democratic candidate [$\lambda x_1 . x_1$ insisted that only x_2 [$\lambda x_3 . x_3$ expected x_2 to win]]

    c. Each candidate insisted that only $g(2)$ expected $g(2)$ to win.

These possibilities are consistent with Inner Index Matching. And of course the reading is missing where the reflexive is entirely semantically unbound, but contextually mapped to a referent:

(12) *Missing reading 1*

    a. [Every Democratic candidate]$_1$ insisted that [only she$_1$]$_2$ expected [herself$_3$] to win

    b. Every Democratic candidate [$\lambda x_1 . x_1$ insisted that only x_1 [$\lambda x_2 . x_2$ expected x_3 to win]]

    c. Each candidate insisted that everyone else thought $g(3)$ would lose.

A further missing reading is one where the reflexive is bound semantically by the matrix subject but does not share the (inner or outer) index of its local subject.

(13) *Missing reading 2*

    a. [Every Democratic candidate]$_1$ insisted that [only she$_2$]$_3$ expected [herself$_1$] to win

        Every Democratic candidate [$\lambda x_1 . x_1$ insisted that only x_2 [$\lambda x_3 . x_3$ expected x_1 to win]]

    b. Each candidate insisted that only $g(2)$ expected that candidate to win.

Where things become more interesting is in the case of LFs which violate Inner Index Matching but are alphabetic variants of the examples with semantic binding, (7) or (10), e.g.:

(14) a. [Every Democratic candidate]$_1$ insisted that [only she$_1$]$_2$ expected [herself$_2$] to win

  b. Every Democratic candidate [$\lambda x_1. x_1$ insisted that only x_1 [$\lambda x_2. x_2$ expected x_2 to win]]

  c. Each candidate insisted that no other candidate expected to win.

Here the reflexive is semantically bound by the abstractor just below its local antecedent. Any index could be substituted for the three occurrences of the index 2 in (14b), with no effect on the meaning. This makes it hard to judge on the basis of meaning alone whether the reflexive and its antecedent must match in inner index. Faced with semantically equivalent LF pairs like (7)/(14), then, we could maintain the pure Inner Index Matching generalization (thereby maintaining that (7) is an admissible LF but (14) is not) – after all, the only examples where we can really *tell* if Inner Index Matching holds are those where the reflexive is not (locally) semantically bound. Alternatively, we could move to a more permissive generalization which admits both (7) and (14):

(15) *Either Index Matching*
  If A syntactically binds B, A and B must match in either inner or outer index.

The question will have to be decided on theoretical grounds. In the next section, I will propose a theory that makes Either Index Matching the slightly more natural of the two generalizations.

3 The road to LF

If Index Matching (Inner or Either) is the correct generalization, what kind of generalization is it? We could think about this type of pattern as an artifact of anaphor-antecedent agreement. This becomes natural if indices are represented in the syntax by index features, as a number of authors have recently concluded.[3] Presumably, index features are features of D, like Case, which are not inherent in D elements, but which are obligatorily added to them as they are entered into a numeration.[4] Syntactic binding certainly requires at least some feature matching between reflexive and

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3 See, e.g., Rezac 2004, Hicks 2009, Kratzer 2009, and Moulton 2009.
4 Chomsky (1995: §4.2.2) calls these features 'optional', though that must be taken as a technical term. A D cannot be merged into a structure without a Case feature of some type (modulo default case in the sense of Schütze 2001); likewise, it cannot be merged without an index feature. It is merely the choice of one index feature over another that constitutes the option.

antecedent, and Index Matching can be thought of simply as a particular instance of this wider requirement. The question is now how we produce LFs that contain inner and outer indices for the antecedents of reflexives. Outer indices, in particular, must be scrutinized. If indices are ϕ-features (Rezac 2004: ch 3), indicating how a DP itself should be interpreted, how do outer indices fit in to the system?

Let's assume with Heim & Kratzer (1998) that the lambda binders we have been positing arise in some sense from movement of the associated arguments. (Since all our examples involve subject binders, the movement in question can be ordinary A-movement to SpecIP.) Let's further suppose that movement is driven by functional heads which bear their own indices, added to them (as to Ds) as they enter a numeration. In the narrow syntax, then, (external) Merge builds structures like (16), where head F bears index feature m and DP bears possibly distinct index feature n.

(16)

$\qquad$ F$_m$ $\qquad$ XP

$\qquad\qquad$ ... DP$_n$ ...
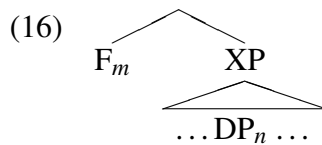
The next step is Move, and following Chomsky (2000), that is a composite of two operations. One is Agree between F and the XP-internal instance of DP. The other is Merge of a new copy of DP in F's specifier. What, exactly, are the features that are subject to Agreement? Usually, in movement of subjects to SpecIP, it is ϕ-features that play the central role. If index features are ϕ-features, index feature agreement should take place in (16).

But wait. Both F and DP have index features that are valued. (If probes always have unvalued features, it must be other ϕ-features on F that trigger ϕ-Agree in this case.[5]) In terms of index features, starting from structure (16), the result of Agree and Merge could in principle be either (16a), where the index of F is shared with DP, or (16b), where the index of DP is shared with F. (A key assumption here is that sharing of an index feature overwrites the previous index feature associated to the relevant locus. For clarity, I represent the original indices with strikeouts below.)

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5 That is to say that Agree for some ϕ feature [uG] brings back both [G] and and index feature [i] to the probe. This could be thought of as part of a larger generalization that Agree brings back (i.e., interacts with) the entire ϕ set whenever a particular ϕ feature forms the satisfaction condition for Agreement (Deal 2015).

(16) a. FP

DP$_n$

 F$_m$ XP

    …DP$_{\not n m}$…

b. FP

DP$_n$

 F$_{\not m n}$ XP

    …DP$_n$…
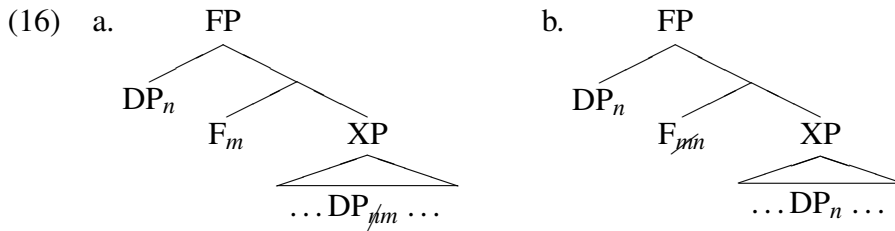
I propose a simple outcome: the grammar makes both options available. Both structures serve as potential inputs to an algorithm for semantic interpretation.

The first step of this algorithm is to translate syntactic objects and their purely syntactic features into semantically interpretable objects. I'll use the name 'LF' for the result of this step. Given the role of functional heads in driving movement, it would be reasonable to suppose that the binders we have been positing are simply the LF translations of the functional heads involved in DP movement.[6] The LFs corresponding to structures like (16) have translated the functional head as a binder and the lower copy of the moving DP as a variable (compare Fox 2002).

(16) a. FP

DP$_n$

 λx_m XP

    …x_m…

b. FP

DP$_n$

 λx_n XP

    …x_n…
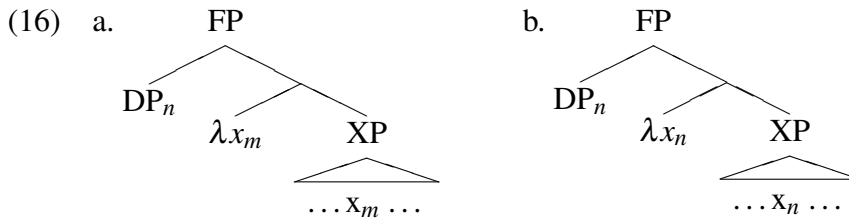
These are LF representations of the type we have been positing, simply in tree-structural form. By introducing functional heads and DPs with independent index features, and interpreting these as variables on DPs and as abstractors on functional heads, we have effectively produced the split between inner and outer indices. The proposed route to these representations shares with Büring 2005a the result that lambda binders are in principle indexed freely; they need not share the index of the DP in their specifier position. This is what makes it possible to tell apart semantic binding and co-binding in ECM examples like (6), and semantic binding and coreference in ECM examples like (4).

Overall, what this setup makes possible is a scenario where the in-situ copy of the local antecedent for an reflexive doesn't match the moved copy in index features. The source of the disjunctive requirement imposed by Either Index Matching is now apparent: the reflexive must agree in index features with its antecedent, but either the higher or lower copy thereof can be considered. Matching of the higher copy

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6 Important antecedents here are Adger & Ramchand 2005 and Kratzer 2009, who argue that semantic binding may be established directly between bindees and binding functional heads, rather than DP "antecedents".

produces inner index matching. Matching of the lower copy produces inner-to-outer index matching. By contrast, a theory adopting purely Inner Index Matching would need to additionally require that only the higher (and less local) of the two copies be considered.

4   Constraining the system

If there has been progress thus far, it comes at the cost of a new problem of overgeneration. By replacing Johnson's (3) with Index Matching (whether Inner or Either), we have come to predict that a requirement for semantic binding should be absent not just for ECM subject reflexives, but also for reflexives in other syntactic positions. While this is correct for ECM structures like (4), it is incorrect for simple reflexive sentences like (1). What makes these two cases different?

What I will say here will be brief and will follow closely in the footsteps of previous work. What is needed is a principle along the lines of (16) (cp. Safir's (2004) Locally Reflexive Principle). This encodes both a preference for one type of LF over another, and a restriction on that preference's scope.

(16)   *Preference for semantic binding*

Only semantic binding, and not coreference/cobinding, is possible between reflexive and antecedent, when the two are arguments of the same semantic predicate.

We should put both pieces of the proposal in (16) in perspective. The preference itself recalls a seminal idea from Reinhart 1983a,b which has informed much of the following work on Principle B (Grodzinsky & Reinhart 1993, Heim 1993, Büring 2005b, Roelofsen 2010). The central insight of that literature can be appreciated via the formulation from Grodzinsky & Reinhart 1993:

(17)   *Rule I: Intrasentential Coreference*

NP A cannot corefer with NP B if replacing A with C, C a variable A-bound by B, yields an indistinguishable interpretation.

The preference for semantic binding posited in (16) is different from Rule I in two ways. First, it is different in lacking the caveat about indistinguishable interpretations. In (1), for instance, coreference and semantic binding yield distinguishable interpretations, but this does not improve the status of the LF with coreference.

(1)   Only Sally evaluated herself.

    a.   ✓LF: Only Sally$_1$ [$\lambda x_1 . x_1$ evaluated herself$_1$]

    b.   ✗LF: Only Sally$_1$ [$\lambda x_2 . x_2$ evaluated herself$_1$]

Second, the preference for semantic binding (16) and Rule I are different in their domains of application. The preference for semantic binding applies only to bindees in ordinary object position, not ECM subject position. But Rule I considerations are visited equally on ordinary objects and on ECM subjects. The broad scope of Rule I makes sense in view of Reinhart's proposal that Rule I effects are in essence pragmatic and driven by norms of efficient conversation. Speakers and hearers in discourse consider entire sentences or sequences of sentences at a time, and draw conclusions from them. The narrow scope of the preference for binding in (16), by contrast, makes sense if this condition is in essence grammatical and driven by constraints on efficient computation. Chomsky (2001) conjectures that such constraints induce cyclicity. Grammatical mechanisms sequentially consider limited windows of structural representation. The generalization expressed in (16) accords with the intuition of Johnson (2007) that we might identify these windows of computation, or phases, by considering locality domains for the grammar of reflexives.

The ultimate result we arrive at should be distinguished from Johnson's, however, and from that of other authors working to understand locality in binding in terms of the phase theory (e.g., Lee-Schoenfeld 2008, Hicks 2009, Rooryck & Vanden Wyngaerd 2011, Despic 2015). We can now see that the syntax and semantics of reflexive binding are sensitive to subtly different domains of locality. Syntactic binding relations are established in domains which include both the matrix and embedded subjects in simple cases of ECM. It is this type of domain — a syntactic domain for syntactic binding — which is featured in going accounts of binding locality within a phase theory. Let's call this domain the *syntactic phase*. A different type of domain is involved in the grammaticized preference for binding. This preference winnows the range of LFs created by syntactic binding. The winnowing is internal to the semantic component and operates only on structures that are local in crucially semantic terms — the domain of a verb and its semantic arguments. We could call this the *semantic phase*. That name is meant to suggest a parallel between components of grammar in their use of limited windows of representation as a route to computational efficiency.

5   The end result

Are reflexive pronouns indeed always interpreted as semantically bound by their local antecedents, as the conventional wisdom would have it? No: that is what we learn from ECM subject reflexives. A theory that hopes to deal with these reflexives adequately must allow for the broader range of interpretive possibilities that comes about when the local antecedents of reflexive pronouns are associated with mismatching inner and outer binding indices. In this case, reflexives reveal the abil-

ity to be coreferential or co-bound with their local antecedents, rather than strictly semantically bound by them.

The tasks are then two-fold: to explain where the mismatching outer indices come from, and to explain why mismatches between inner and outer indices are not tolerated in *all* cases of reflexive binding. My suggestion on the first count goes by way of a crucially syntactic component for the binding theory. Index features are present in syntax and transferred by Agree between DPs and the functional heads that attract them. My suggestion on the second count puts together Reinhart's (1983a, 1983b) idea that semantic binding is preferred by linguistic systems with Johnson's (2007) view that we find locality domains in grammar by considering the domains that are relevant for the evaluation of interface constraints.

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Incremental syntactic processing and the Right Roof Constraint[*]

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1   Introduction

In this brief note, I will discuss the prospects of a processing-oriented account of the Right Roof Constraint (RRC), a topic I spent the better part of two years discussing with Professor Johnson at length. To preview my conclusion: I suggest that given current understanding of how incremental syntactic analysis proceeds, it is unlikely that the RRC can be reduced entirely to the difficulty associated with constructing an incremental parse of right-extraposed constituents. Instead, to the extent that the RRC is the result of processing pressures, it seems more likely a grammaticized reflection of those pressures (Fodor 1979, Grosu 1973, Berwick & Weinberg 1986).

1.1   The empirical generalization

Let me begin by stating the empirical generalization to be explained:

(1)   *Right Roof Constraint (RRC)*
        Rightward movement may move an element X to the right edge of the cyclic node that most immediately contains X, but no further.

                                                            (McCloskey 1999: 207)

(1) is McCloskey (1999)'s formulation of the Roof Roof Constraint, which expresses an observation about the somewhat stringent locality conditions on rightward movement that goes back to Ross 1967 (see also Akmajian 1975 and Grosu 1973). Let us assume that at least CP constitutes a cyclic node. If at least CP is a cyclic node, then the RRC expresses a solid empirical generalization: there seems to be relatively broad (if not universal) agreement that rightward movement to a higher clause is severely limited (but cf. Rochemont 1992). At the outset I should add that

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[*] To be completely honest, this note really ought to have had Professor Johnson as a coauthor. But then it would have been quite difficult to keep the Festschrift secret, so I can only hope I have not too gravely distorted what he taught me during our discussions. The content of this note greatly benefitted from discussions with the participants of Professor Johnson and myself's 2013 seminar: Rajesh Bhatt, Alex Drummond, Lyn Frazier, Stefan Keine, Claire Moore-Cantwell, Jason Overfelt, Yangsook Park, and Shayne Sloggett. All remaining errors remain my own, of course, forever and ever.

whether other phrasal nodes are also cyclic (and so create a barrier to rightwards movement) remains an open question. In particular, although DPs are commonly assumed to be cyclic nodes, sub-clausal locality restrictions imposed by the RRC are particularly controversial (Overfelt 2015, Strunk & Snider 2008). I will only focus on rightward movement across a tensed clause boundary.

The RRC, then, is responsible for the perception that the (a) examples in (2)–(4) are more well-formed than the (b) examples:

(2)   a.   I will claim that someone __ arrived yesterday [who was responsible for the murder.]
        b.   *I claimed that someone __ will arrive yesterday [who was responsible for the murder.]   Extraposition from NP:RC

(3)   a.   I will claim that you arrested __ yesterday [someone who was responsible for the murder.]
        b.   *I claimed that you will arrest __ yesterday [someone who was responsible for the murder.]   Heavy NP shift (HNPS)

(4)   a.   I will claim that someone __ arrived yesterday [from the shadowy assassin's guild.]
        b.   *I claimed that someone __ will arrive yesterday [from the shadowy assassin's guild]   Extraposition from NP:PP

In each of (2)–(4), the constituent in brackets has been extraposed from the position marked with the underscore; I'll use 'extraposition' to generally refer to this potentially heterogenous class of rightward displacement operations. Following the psycholinguistic tradition, I will refer to the base position of the extraposed constituent as a gap, and the extraposed constituent as a filler (e.g., Fodor 1978). I do not take this terms to imply any particular theoretical analysis of the extraposition operation, or indeed, to even imply that the three types of extraposition in (2)–(4) necessarily involve the same grammatical mechanism.

(2)–(4) are constructed so that the adverb that intervenes between the extraposed filler and its gap either attaches low, inside the embedded clause (the (a) examples), or high, in the matrix clause (the (b) examples). When the adverb modifies the matrix clause, the extraposed constituent is correspondingly forced to occupy a structural position inside the matrix clause. This creates a violation of the RRC, because extraposition has displaced the filler to a position (a matrix adjunction site) above the most minimal cyclic node containing the gap (the embedded CP). No such violation need arise in the (a) examples; this underlies the apparent acceptability differences between these structures.

One of the most interesting features of the RRC is that suggests much tighter locality restrictions on rightward displacement than are associated with leftward

movement. At least superficially, fillers that are displaced leftwards can be sited in positions outside of their minimal containing cyclic node (potentially mediated by cyclic movement); indeed, a leftward moved filler can be indefinitely far away from its gap as long as there are no island boundaries that intervene on the dependency. This essential left-right asymmetry is stipulated in various accounts of locality conditions of extraposition: Baltin's (1981) Generalized Subjacency is one very explicit example, but there are many others (see also Baltin 1983, Culicover & Rochemont 1990, Drummond 2009, Rochemont 1992, among many others).

If it is empirically correct that right-displaced fillers are subject to stricter locality requirements than their leftward-displaced counterparts, then this asymmetry seems to cry out for a processing-oriented explanation. Why else should the locality constraints on displacement operations be sensitive to the linear direction of that displacement? By 'processing-oriented,' I mean any account of this observation that attributes the directional locality asymmetry implied by RRC to some aspect of the incremental processing or construction of syntactic structure (as opposed to a constraint on the well-formedness of the outputs of such a process). These types of explanations are tempting to pursue because in reversing the linear order of the filler and gap, extraposition creates a very different problem for an incremental parser than does leftward movement. Leftward movement overtly locates the filler before its gap, allowing the parser to engage predictive, forward-looking 'gap-finding' routines once a filler has been recognized (e.g., Wanner & Maratsos 1978, Stowe 1986). In contrast, rightward movement generally leaves no overt cue to the displacement at the gap site, and the filler is encountered only after the gap site has been processed. In a sense, then, filler-gap dependencies are fundamentally prospective, forward-looking dependencies, and gap-filler extraposition dependencies are generally retrospective, backwards looking dependencies. Prospective and retrospective dependencies are associated with different processing profiles, presumably due to the different functional demands the two linear orders place on the parser (Phillips et al. 2011). Might the differences in the parsing steps necessary to construct filler-gap and gap-filler extraposition dependencies be the source of the locality asymmetry?

1.2 Incremental processing and the Fodor/Rochemont hypothesis

This idea is tempting, and I am by no means the first to moot the idea that the RRC has its roots in sentence processing: Grosu (1973), Berwick & Weinberg (1986), Fodor (1978) and Frazier (1985) all offer takes on this issue from varying perspectives. For present purposes, I would like to focus on one particular version of this hypothesis described by Fodor (1979) and subsequently elaborated by Rochemont (1992).

An anachronistic formulation of the Fodor/Rochemont hypothesis is that i) the parser incrementally processes filler-gap dependencies, ii) it is more difficult for the parse to modify completed structure than incomplete structure, iii) the parser 'cycles' on cyclic nodes, in the sense that structure is considered 'complete' when a complete cyclic node is identified, and iv) gaps cannot be posited in advance of their fillers. If these conditions are met, then the RRC results: once the parser recognizes a complete cyclic node, its analysis will be frozen at that point and so resist further modification. By (iv), we do not expect that analysis to contain a gap (as the filler has not been encountered), and so the parser will essentially lock in an analysis of the cyclic node that has no gap. Step by step, this goes something like:

(5)　　a.　[$_{CP}$ I claimed [$_{CP}$ that someone arrived ...
　　　　b.　[$_{CP}$ I claimed [$_{CP}$ that someone will arrive] yesterday ...
　　　　c.　[$_{CP}$ I claimed [$_{CP}$ that someone will arrive] yesterday [$_{PP}$ from the shadowy assassin's guild]]

At point (5a) in the incremental parse, both CPs are open to modification. No gap has been associated with someone because the filler has not been encountered and therefore there is no evidence for this analysis. In (5b), the adverb is encountered, and it must modify the matrix clause. This 'high attachment' has the effect of causing the parser to 'complete' the embedded CP, freezing the analysis of that phrase as-is (indicated by italics). When the extraposed PP (5c) is encountered, the parser has no incomplete structure into which it can be attached (setting aside the analysis where the PP is construed as a VP-modifying matrix adjunct). Because the parser cannot find an open attachment site for the unfortunate extraposed PP, a perception of unacceptability results. In essence, the parser has been catastrophically, irreparably garden-pathed, as it cannot find a home for the extraposed material when doing so requires modification of an already-completed constituent.

Rochemont observes that this hypothesis would be a viable explanation of the RRC only insofar as the four component assumptions made above are each independently motivated (see also Fodor 1979, 1978 on more general considerations on the viability of this type of functional explanation for movement constraints). At least three of these four assumptions enjoy a good degree of independent motivation. For one, that the parser incrementally processes filler-gap dependencies is now entirely uncontroversial (Fodor 1978, Stowe 1986, among many others); there is a substantial body of experimental and intuitive evidence to support this assumption.

Equally important: there is good evidence for a slightly modified version of (iv). That is, the parser does not appear to incrementally posit gaps for extraposition unless there is very strong evidence to do so. For example, Staub et al. (2006) offer eye-tracking-while-reading data that suggests that readers do not predictively posit

a gap for HNPS at the verb or adverb in structures like (6a), which has a verb that is merely very likely to take a direct object (e.g., *watch*); instead, readers only do so in examples like (6b) where the verb is obligatorily transitive (e.g., *praised*; examples in (6) from Staub et al. 2006):

(6) a. *Optionally transitive*
         Jack watched from the stands his daughter's attempt to shoot a basket.
     b. *Obligatorily transitive*
         Jack praised from the stands his daughter's attempt to shoot a basket.

Similarly, Levy et al. (2012) present evidence from self-paced reading that readers experience more difficulty with extraposed relative clauses than in-situ relative clauses. This suggests that comprehenders do not in general anticipate extraposed material, which in turn supports the assumption in (iv). Like Staub et al. (2006), however, Levy and colleagues observed that readers can predictively anticipate an extraposed relative clause for NPs like *only those producers* compared to *the producers*; in their data, introducing *only those* seems to have imposed a near-obligatory requirement for some kind of postnominal modification. Thus it seems that unless it is grammatically necessary, comprehenders will refrain from incrementally positing a gap in anticipation of an extraposed constituent. This constitutes independent evidence for (iv). If we take this seriously, then (iv) also has an important corollary: processing extraposition will, in the general case, create a garden path of some sort, insofar as previously created structure will need to be retroactively modified to accommodate a gap position for extraposed material when that material is encountered. The exceptions should be when the grammar forces the parser to predictively create a gap position before the filler is encountered, as in (6b). I return to this observation below.

So we have every reason to believe that filler-gap processing is incremental (assumption (i)), and good evidence that the parser is conservative in the sense that it will not generally anticipate gaps in advance of fillers (assumption (iv)). Given just these two assumptions, processing extraposition would seem to routinely create a garden path of some sort for the comprehender.

1.3   From the garden path of extraposition to ungrammaticality

If the reasoning above holds, then the Fodor/Rochemont hypothesis does receive some measure of independent justification. Whether or not it ultimately provides a satisfying account of the RRC then turns on the question: is the garden path associated with extraposition severe enough, when it crosses a closed cyclic node, to be the underlying source of the RRC? One observes that there is something of a gulf between the observation that the parser generally commits itself incremen-

tally to an extraposition-free parse (the upshot of the preceding section), and the conclusion that reanalyzing that parse to accommodate extraposed structures can be so difficult as to appear ungrammatical to analyst after analyst in the relevant literature.

Assumption (ii) of the Fodor/Rochemont hypothesis is that reanalyzing completed structure entails measurable difficulty. The core of this assumption is the claim that syntactic reanalysis can sometimes be difficult and create a perception of unacceptability, and it is crucial (see footnote 2 above). This assumption receives a great deal of independent support; I refer the reader to Fodor & Ferreira 1998 for an excellent overview of the topic. Here I wish to make two points concerning the relationship between reanalysis and perceived acceptability. First, the difficulty associated with syntactic reanalysis varies dramatically across different examples (Frazier & Clifton Jr 1998). Importantly, some garden paths do create a palpable sense of ungrammaticality/unacceptability. Consider the ambiguities in (7):

(7)   a.   *NP/S ambiguity*
             I heard <u>the professor with the fedora</u> was making fun of my button-
             down collar.
       b.   *NP/Z ambiguity*
             While the syntactician dressed <u>the poor assistant professor</u> sized up
             his collar in the mirror.
       c.   *MV/RR ambiguity*
             The syntactician <u>raced</u> into the classroom laughed.

In all of the examples in (7), the underlined phrase is incrementally ambiguous, and in each case, the ambiguity is resolved to the dispreferred analysis; in other words, I expect the reader to have been garden pathed in each example. From (7a) to (7c) there is a cline of difficulty: the difficulty in recovering from that garden path is barely noticeable in (7a), to catastrophic in (7c). The second point to make concerning the relationship between syntactic reanalysis and acceptability is that the impact of reanalysis on acceptability is surprisingly durable; in experimental contexts, it demonstrably impacts intuitive judgments of acceptability. Importantly for present purposes, existing evidence suggest that it does so to a comparable degree for speeded judgments and more slow, deliberate judgments alike (Ferreira & Henderson 1991, 1993, Tabor & Hutchins 2004, Van Dyke & Lewis 2003, Warner & Glass 1987). In light of findings such as these, I do find it plausible that a persistent and pathologically difficult garden path could have been systematically misanalyzed as having a grammatical basis (and doubly so if the analysts were possessed of a strong prior inclination to attribute unacceptability to a grammatical source). The perception of indelible unacceptability does not, in itself, settle the question of

whether that unacceptability is seated in the grammar (i.e., that it has a representational basis) or instead results from the operation of the processing mechanisms that assemble grammatical structure in real time (see also Abney 1996, Frazier 2008, Hofmeister et al. 2013, Lewis & Phillips 2015 and Sprouse 2008 for other perspectives on this issue).

1.4 Cyclic nodes and accessing syntactic encodings

To now, I have argued that three out of the four assumptions underlying the Fodor/ Rochemont hypothesis are very well motivated. Importantly, given what we know about syntactic reanalysis, it is not far-fetched to imagine that a systematic and pathologically difficult garden path could be so difficult to reanalyze that it could have been systematically misanalyzed as having a grammatical basis. This leaves us with assumption (iii) of the Fodor/Rochement hypothesis, that the parser commits to an analysis once a cyclic node has been identified, therefore making reanalysis particularly difficult. This I will argue is the assumption that we do not have good evidence for, and thus, this is where the hypothesis founders. On a number of theories of reanalysis, one major constraint on syntactic reanalysis is the parser's ability to reaccess the to-be-amended structure in memory (Ferreira & Henderson 1991, Frazier & Clifton Jr 1998, Sturt 1996, Van Dyke & Lewis 2003). In some theories, this is made difficult because this structure has decayed or otherwise become unavailable (Ferreira & Henderson 1991, Staub 2007, Sturt 1996, Van Dyke & Lewis 2003); on other theories it is because the parser has actually removed and/or deleted that structure in question (Kimball 1973, Weinberg 2000). The distinction between these two views is not critical here; on either view, we are left with the claim that the parser cannot locate the structure that must be reanalyzed, and so reanalysis cannot be successful. From this perspective, we may slightly reframe assumption (iii) of the Fodor/Rochemont hypothesis: we must assume that the syntactic structure of a completed cyclic node is dramatically less available for reaccess or reactivation at the point at which the filler is encountered than would material inside of an open syntactic domain. This would make constructing an extraposition dependency across a cyclic node especially difficult, thereby explaining the RRC.

Is this a plausible assumption? Unfortunately, at present our best evidence suggests that it is not. In fact, available evidence seems to suggest rather the opposite: material inside of cyclic nodes appears to hang around longer than it should during incremental processing, interfering with subsequent syntactic processing when it really ought not to. In a series of influential studies, Julie Van Dyke and colleagues investigated examples structurally similar to (8):

(8)   The pilot remembered that the lady who said that the man was smelly yes-
        terday afternoon moaned about a refund for the ticket.

Upon reaching the embedded verb *moaned*, the parser must identify the appropriate
subject phrase *the lady* in order to integrate it with the verb. Van Dyke's experiments
show that a linearly intervening but structurally inaccessible subject encoding *the
man* creates interference during this process, and is sometimes erroneously attached
(Van Dyke & Lewis 2003, Van Dyke 2007; see also Arnett & Wagers 2017). Thus,
syntactic material inside of a 'completed' syntactic node appears to be visible or
available to the parser, to the point that it intrudes on syntactic processing when it
is not grammatically licensed to do so.

This is not an isolated phenomenon. Similar interference or intrusion effects
have been observed with verb agreement dependencies (Dillon et al. 2013, Wa-
gers et al. 2009), reflexive-antecedent dependencies (Parker & Phillips 2017), NPI
dependencies (Drenhaus et al. 2005, Vasishth et al. 2008, Xiang et al. 2009), and
filler-gap dependencies (Dillon et al. 2017, McElree et al. 2003, Van Dyke & McEl-
ree 2006, Wagers 2008). In all cases, we find evidence that syntactic material inside
of 'closed' cyclic domains remains available to some degree in working memory. It
can interfere with subsequent processing and even illegally participate in syntactic
dependencies. If it were indeed true that the material inside of closed cyclic do-
mains were rendered entirely unavailable in some fashion, these results would be
surprising. Insofar as these findings suggest that the syntactic encodings associated
with closed or completed cyclic nodes remain available, it suggests that assumption
(iii) is not plausible. Syntactic encodings can outlive their usefulness and interfere
with subsequent processing when not licensed by the grammar; thus there is no firm
reason to suspect that an extraposed filler could not find a gap position inside a fin-
ished cyclic node if such a thing was, in fact, licensed by the grammar. I qualify
this conclusion by acknowledging is an area where we have relatively little data.
Although it is true that syntactic material inside of closed cyclic domains can per-
sist and interfere, in absolute terms the effect of this interference is relatively small
(Wagers 2013). It remains possible that the relative availability of material in open
versus closed cyclic domains differs dramatically; further research is necessary to
establish this.

A final observation before I close this short note. Given the processing evidence
reviewed above, the Fodor/Rochemont hypothesis makes an interesting prediction
about the acceptability of rightward movement. If the parser predictively creates a
gap in anticipation of extraposed material, then RRC violations should be alleviated
because the parser will not fall prey to the garden path associated with extraposition.
The examples in (9) use the cues that (we think) allow the parser to predictively

posit a gap for extraposition: obligatorily transitive verbs, and *only those* (Staub et al. 2006, Levy et al. 2012):

(9) a. Everyone agreed that you should hire __ yesterday [someone who actually knows Python 3.0.]
     b. Everyone agreed that only those people __ will arrive yesterday [who know how to use Google Maps.]

To my ear, these examples do not noticeably ameliorate the RRC violation. If these judgments prove reliable, this would provide further evidence against the specific version of the Fodor/Rochemont hypothesis pursued here.

2 Conclusion

I have argued that the Fodor/Rochemont hypothesis does not receive strong support given existing models of the parser. Although many of the component assumptions of this hypothesis are plausible and well-supported, findings concerning the availability of syntactic encodings in working memory during incremental processing do not lend support to the claim that material inside closed cyclic nodes is especially unavailable for further modification, a key assumption of this hypothesis.

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Non-local extraposition: a modification of Williams's Generalization[*]

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1 Introduction

In this squib I would like to discuss a case of extraposition that appears to violate the Complex NP Constraint, CNPC. I will propose that the apparent violation follows from the possibility of combining local QR with deeply embedded Late Merge (LM).

2 Apparent non-locality

It is well known that movement out of CNPs leads to unacceptability, (1). But parallel extraposition is — relatively speaking — acceptable, (2).

(1)   a.   I bought a car owned by Fred.
        b.   *By whom did you buy a car owned?

(2)   ?We [[[looked at [a house owned by someone]] yesterday] who teaches at UCLA].

If extraposition involved movement of the extraposed relative clause, this contrast would be mysterious. Under the proposal advocated by Fox and Nissenbaum (QR + LM), it also seems surprising, since the relevant environment seems to be a scope island:

(3)   #We [[[looked at [a house owned by every faculty member]]]]
        compare: *We looked at a house **jointly** owned by every faculty member.*

The sentence in (3) entails the existence of a single house that is owned by every faculty member, and, thus, conflicts with world knowledge (common assumptions about ownership, as opposed to joint ownership). If the universal quantifier could

take matrix scope, an alternative interpretation would be available for the sentence, one that would be natural. It is thus reasonable to conclude that QR is subject to the CNPC (as is standardly assumed; see Ruys & Winter 2010, Lechner 2015, among others).

3   Proposed analysis

I would like to propose that the apparent violations of the CNPC we've seen are derived if LM can apply in deeply embedded positions. Specifically, the sentence in (2) can be derived by QR of the complex NP *a house owned by someone*[1] followed by LM of the RC to the deeply embedded QP, someone. The derivation is given below:

(2′)   We looked at a house owned by someone yesterday who teaches at UCLA.

a.
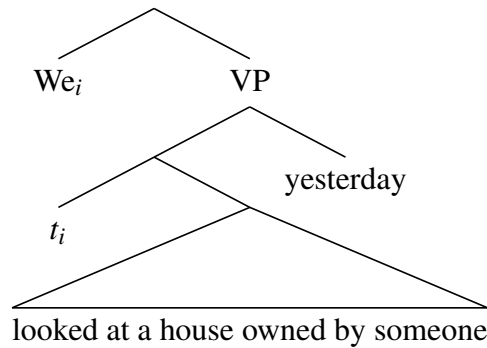
b.   *QR* ('overt')

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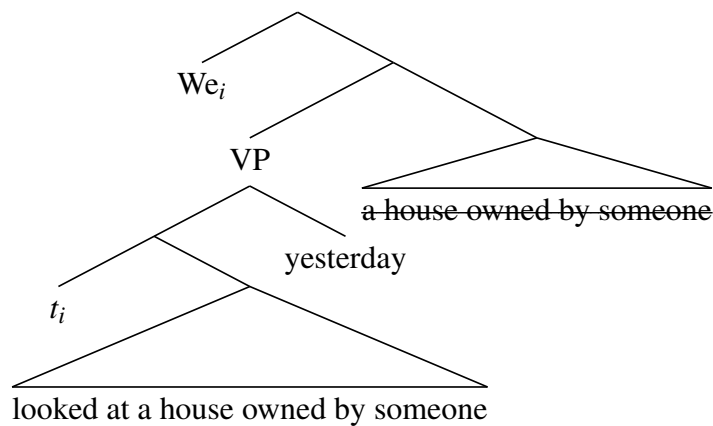
1 Whether this form of embedded LM is possible can also be tested by looking at overt movement if we have ways of investigating the properties of the trace (e.g. Condition C of the Binding Theory, see section 4). Judgments, however, are not as straightforward as one would hope for. For conflicting reports, see Tada 1993, Sauerland 1998, Sportiche 2016.

c. *Late Merge* ('overt')

We$_i$

VP

a house owned by someone who teaches…

yesterday

t_i

looked at a house owned by someone
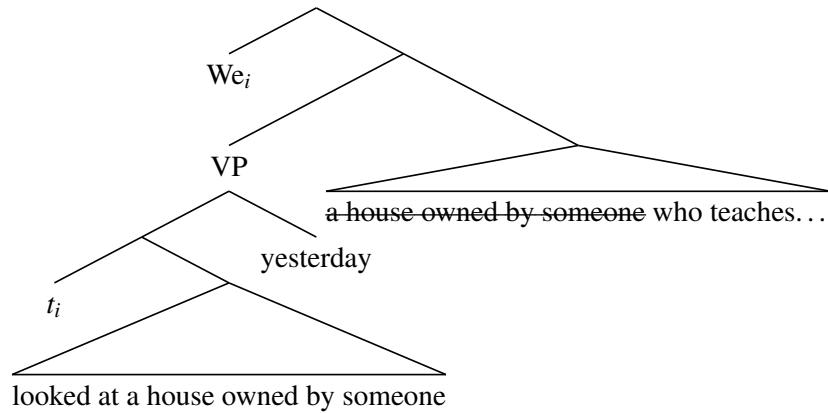
What I propose is that a complex QP can undergo QR, with LM applying to an NP that is deeply embedded within this complex QP. In the next section I would like to investigate a prediction that this proposal makes for the scope of the DPs involved in such non-local extraposition.

4 Scope

Fox & Nissenbaum (1999), following an earlier proposal by Guéron & May (1984) and a related proposal in Reinhart 1991, argue that extraposition of NP modifiers involves Quantifier Raising (QR) in its derivation. Specifically, they propose that the derivation involves QR followed by LM of an adjunct (proposed by David Lebeaux for *wh*-movement).[2]

(4) We saw a painting yesterday that John talked about.

a.

We$_i$ VP

yesterday

t_i

saw a painting

b. *QR* ('overt')

We$_i$

VP

saw a painting

yesterday

t_i

saw a painting

---
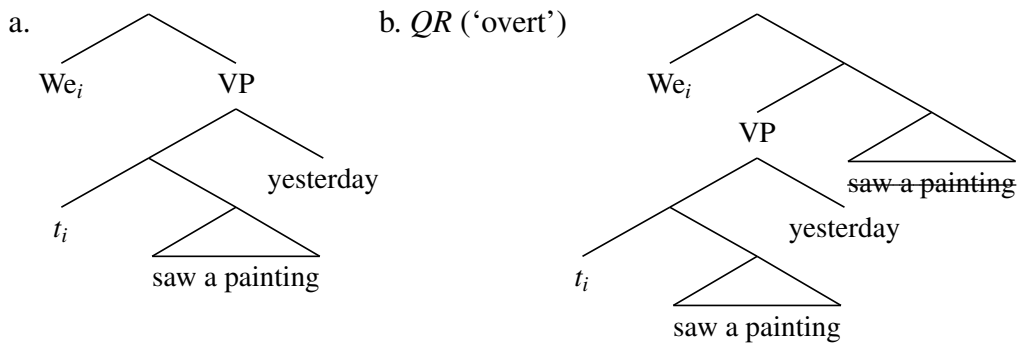
2 Nothing in this paper relies on specific claims about the nature of the derivation. What is important, in the context of this paper, is the final LF representation. For different views about the nature of the derivation which agree with Fox & Nissenbaum (1999) about the relevant properties of the LF representations, see Johnson 2012 and Sportiche 2016. See also below.

c. *Late Merge* ('overt')
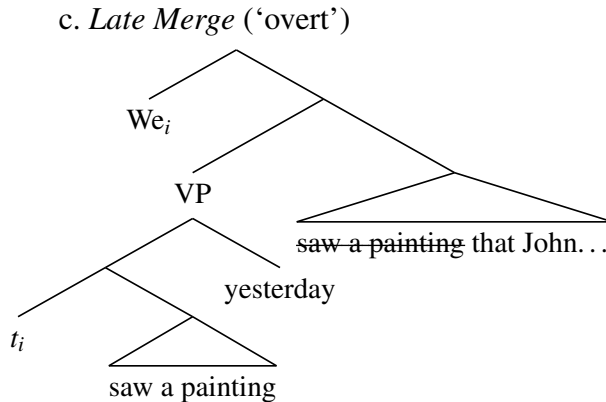
This proposal leads to the prediction that the scope of the relevant QP in an extraposition construction should be at least as high as the extraposition site, (5), a prediction that has been corroborated by contrasts such as that in (6). (See Fox 2002, 2003, Fox & Nissenbaum 1999, 2000 for discussion and additional examples.)

(5)   *Williams's generalization (WG)*
        When an adjunct β is "extraposed" from a "source QP" α, the scope of α is at least as high as the attachment site of β (the extraposition site).[3]

(6)   a.   I read a book before you did.
              ($\exists > before$) (*before* $> \exists$)
        b.   I read a book that John had recommended before you did.
              ($\exists > before$) (*before* $> \exists$)
        c.   I read a book before you did that John had recommended.
              ($\exists > before$) *(*before* $> \exists$)

WG states that extraposition has consequences for the scope of the source QP. But if embedded LM is possible, this is no longer predicted. Extraposition need not affect the scope of the source QP because the relevant sequence of words can sometimes result from QR of a properly containing QP as in (2′). Still extraposition should always have consequences for the scope of some QP that dominates (or is identical to) the source QP. We thus predict a weaker generalization than (5):

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3 By the source QP, we mean the minimal QP that dominates the item that β modifies. By 'the scope of α is at least as high as the attachment site of β' we mean that every node dominating the base position of α which does not dominate β is in the scope of α. (5) is a slight modification (due to Fox & Nissenbaum 1999) of the original statement of the generalization (Williams 1974: chapter 4. Williams (in contrast to Fox and Nissenabum) did not restrict himself to adjuncts, perhaps because he did not look at extraposition from NP (see Fox & Nissenbaum 1999) but comparative- and result-extraposition, where, as Bhatt & Pancheva (2004) argue, complements pattern with NP adjuncts (for reasons having to do with the nature of Trace Conversion).

(7)   *Modified Williams's generalization (MWG)*
        When an adjunct β is "extraposed" from a "source QP" α, there must be a
        QP α' which is either identical to or dominates α (α' reflexively dominates
        α) and the scope of α' must be at least as high as the attachment site of β
        (the extraposition site).

Counterexamples to WG, which motivate the weaker formulation, are provided in
(8) and (9). In these examples an NPI would not be in a downward entailing envi-
ronment if WG were correct. From the derivational perspective, if extraposition of
the RC in these cases involved QR of the NPI headed by *any*, we would expect the
requirements of the NPI (that it be in a downward entailing environment) not to be
satisfied, contrary to fact.[4]

(8)   a.   I'll [[read [every paper that was recommended by any linguist] next
               year] who teaches at UCLA].

(9)   a.   I'll [[talk to you about [every paper that was recommended by any
               linguist] when we meet] who teaches at UCLA].
        b.   I'll [[do [nothing that was prohibited by anyone] when I am a student]
               who would have any authority over me].

The acceptability of these sentences is expected with embedded LM, since the
source QP need not QR to the position where the extraposed material is linearized;
instead the higher QP (the one that dominates the source QP) can QR. But the
argument for embedded LM would be stronger if it were based on non-trivial con-
sequences of MWG for cases in which MG is counter-exemplified. To test such
consequences, we would have to look at the scope of the non-local QP.

Stated somewhat differently, Fox & Nissenbaum 1999 and subsequent work
focused on cases in which only one QP dominates the source QP. For such cases,
whether or not embedded LM is possible has no consequences, and, in particular,
WG and MWG are equivalent. When two distinct QPs dominate the source QP,
embedded LM allows the non-local QP to QR, and thus predicts counter-examples

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4 This argument would not go through if the relative clause could license the polarity item indepen-
dently of its external argument (what Dayal 1998 has called sub-trigging). But if this were possible,
we would expect the following to be acceptable.

(i)   *I read anything yesterday that John had recommended.

One, of course, still needs to understand why sub-trigging is incompatible with extraposition. If sub-
trigging requires reconstruction of the head-noun to its base position, things would follow from the
observation of Hulsey & Sauerland 2006 that LM is incompatible with head-raising diagnostics. See
Sportiche 2016 for further discussion.

to WG. That the local QP need not have wide scope has been verified, but now we would like to examine the scope of the non-local QP.

4.1 Setting the stage

To set the stage, I would like to introduce an environment in which the relevant scopal relationships, which are normally quite difficult to detect by introspection, can be controlled for by plausibility considerations. Consider the two sentences in (10), which differ minimally in the boldfaced material, a difference that has clear consequences for scope assignment. The natural interpretation of (10a) involves wide scope for the negative QP (*nothing prohibited*) over the *without*-phrase. Under this interpretation, the sentence states that there is nothing prohibited that John did without (as a consequence) being reprimanded for doing it (i.e., that he was reprimanded for everything prohibited that he had done). The sentence can also be interpreted with narrow scope for the negative QP (below *without*). Under this less natural interpretation, the sentence states that John did nothing prohibited and that he was not reprimanded (as a consequence of doing nothing prohibited). This interpretation is probably less natural because no one would expect anyone to be reprimanded for avoiding what is prohibited. In any event, the status of this second interpretation of (10a) is not going to be important for our purposes.

(10)   *Plausibility Considerations Determine Scope*
   a.   John did nothing **prohibited** without being reprimanded.
        (preferred reading: *nothing > without*)
   b.   John did nothing **required** without being reprimanded.
        (*without > nothing*; #*nothing > without*)

What is important is that this second scopal relationship (narrow scope for the negative QP) is the only plausible option in (10b). For (10b), in contrast to (10a), wide scope for negative QP is entirely implausible. The sentence states that John did nothing required and (nevertheless) was not reprimanded. In other words, it states that the school was not particularly harsh in enforcing its requirements. Had the negative QP received wide scope, the sentence would have stated that there is nothing which is required that John did without (as a consequence) being reprimanded for it, i.e., that the school penalized John every time he did something which was required, and that, of course, is not particularly plausible. The same contrast can be seen in (11), which differs from (10) just in the presence of a complex *by*-phrase, a difference that will turn out to be useful in distinguishing WG from its modification in (9).

(11)   *Plausibility Considerations Determine Scope*

    a.   John did nothing **prohibited** by anyone who teaches in this school without being reprimanded.
(preferred reading: *nothing > can*)

    b.   John did nothing **required** by anyone who teaches in this school without being reprimanded.
(*can*, *without > nothing*; #*nothing > can*, *without*)

4.2   Where WG and MWG are equivalent

Before we get to our crucial test case, consider the contrasts in (12) and (13), which instantiates both WG and MWG. In both the (a) and the (b) cases, extraposition of the relative clause rules out a parse in which the source QP receives narrowest scope (below the *without*-phrase). In the (a) cases, this scopal requirement is consistent with a natural interpretation, whereas in the (b) cases it conflicts with the plausibility considerations outlined above. More specifically, in the (b) cases extraposition leads, by WG, to an implausible interpretation (suggesting that students are penalized when meeting the school's requirements).

(12)   a.   John did nothing, without being reprimanded, that is prohibited.
           b.   #John did nothing, without being reprimanded, that is required.

(13)   a.   John can do nothing, without being reprimanded, that is prohibited.
           b.   #John can do nothing, without being reprimanded, that is required.

Since no distinct QP dominates the source QP, the contrast follows under MWG as well and cannot serve to distinguish the two generalizations. The same holds, of course, for (14) and (15).

(14)   a.   John did nothing, without being reprimanded, prohibited by anyone who teaches in this school.
           b.   #John did nothing, without being reprimanded, required by anyone who teaches in this school.

(15)   a.   John can do nothing, without being reprimanded, prohibited by anyone who teaches in this school.
           b.   #John can do nothing, without being reprimanded, required by anyone who teaches in this school.

4.3   Distinguishing WG from MWG

Consider now the facts in (16) and (17). The (a) sentences, although difficult to parse, provide counter-examples to WG of the sort we've seen in (8) and (9), and

likewise argue that MWG is a better generalization. More specifically, here, just like in (8) and (9), we see that the source QP (the NPI) need not take scope at the extraposition site, since this would place it outside the scope of its licensing operator. However, in these sentences, in contrast to (8) and (9), we can test the consequences of extraposition for the scope of the non-local QP (the one that properly dominates the source QP).

(16) a. John did nothing prohibited by anyone, without being reprimanded, who teaches in this school.
      b. #John did nothing required by anyone, without being reprimanded, who teaches in this school.

(17) a. You can do nothing prohibited by anyone, without being expelled, who teaches in this school.
      b. #You can do nothing required by anyone, without being expelled, who teaches in this school.

For the NPI to be licensed (and for the CNPC to be satisfied) the derivation must involve QR of the negative QP *nothing required/prohibited...* followed by embedded LM of the relative clause to the source NP. The consequences of QR for scope (MWG) are corroborated: we see that the negative QP must take scope over the *without*-Phrase and that subsequently there is a contrast between the (a) and the (b) sentences which parallels what we've seen in (12) and (14).

5   Consequences

Assume that the LF structures suggested by the scope judgments are correct. The question we should ask (following Bachrach & Katzir 2009, Johnson 2012, 2016, Sportiche 2016) is whether LM is literally needed or whether there is, instead, a way to derive the required LF representation that is (a) not counter-cyclic and (b) consistent with a multi-dominance view of movement. This is a question that will have to be discussed on a different occasion.

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Rule-I, intensional predicates, and children's pronominal reference assignment*

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1 Introduction

The birthday of Kyle Johnson, my friend, colleague, and co-author of a (yet-to-be-published) paper on parsing, is an opportunity for reflection on thoughts past. During my long friendship with Kyle, the world of pronominal reference has seen debates and developments. Much of the little I understand of this world is due to Kyle's patient and lucid explanations. It is thus with gratitude that I dedicate this squib to him.

My intention here is to briefly revisit the intra-sentential coreference rule, known as Rule I in its various incarnations (Reinhart 1983, Grodzinsky & Reinhart 1993, GR henceforth, Heim 1998, 2009, Fox 2000, Büring 2005). I will bring up data that are not typically considered in the context of syntactic binding, and interpret them using Heim's perspective on Rule I. Then, I will show how this perspective can help to evaluate children's notorious failure to assign the right referential value to pronouns in certain contexts at a certain age. I will use this perspective to argue that, contrary to GR's account, children at age 4 are in full command of Rule I and its implementation, and are hampered by no processing deficiency in this respect. Children's errors, I will argue, stem from an inability to recover from failed semantic composition.

2   The current picture and how we came to have it

2.1   Counterexamples to Condition B

A syntactic binding theory in which locality is the divide between pronouns and reflexives (e.g., Chomsky 1981) is immediately confronted with counterexamples, most notably, instances in which a pronoun and a local antecedent have the same referential value:

(1)   *Local Coreference — "apparent violations of Condition B"*
 a.   John and Mary have a lot in common. He loves her and *she* loves *her*.
 (Evans 1980)
 b.   I dreamt I was Brigitte Bardot and *I* kissed *me*.   (Lakoff 1972)
 c.   Q: Who is this woman?
 A: She must be Zelda. *She* praises *her* to the skies. Only Zelda would do that.   (Evans 1980)

A well-known account (Reinhart 1983, Grodzinsky & Reinhart 1993) proposes that when this shared referential value results in a special interpretation, it does not fall under the Binding Theory. Each of the above is said to meet this requirement.

2.2   Rule I

Reinhart builds on an idea of Bach & Partee (1980), who propose to handle strict/ sloppy pronominal ambiguities in VP-ellipsis by distinct grammatical modules. A pronoun, on this view, may be either a bound variable (as in sloppy identity meanings of VP-ellipsis), or a referential pronoun whose assignment is invariant, and that has the same referential value as some antecedent (strict identity). Reinhart makes use of the distinction between bound and referential pronouns, and argues that phenomena like those in (1), henceforth Local Coreference, are due not to binding, but rather, to sameness of referential value of a pronoun and a local antecedent, which is licit in (1), but not elsewhere (2a):

(2)   a.   **Mary* likes *her*
 b.   *Mary* likes *herself*

The need, then, is to distinguish coreference from variable binding on the one hand, and on the other hand, to regulate it so that cases like (2a) are ruled out. Thus a special rule is proposed, relying on the observation that pronominal coreference is blocked in environments where a pronoun that shares referential value with a local antecedent can be replaced by a bound one (2b). The rule expresses the intuition that

Local Coreference is possible only when it accomplishes something that binding cannot do, according to which:

(3)   *Rule I*   ([Grodzinsky & Reinhart 1993](#))
        NP A cannot corefer with NP B if replacing A with C, C a variable A-bound by B, yields an indistinguishable interpretation.

2.3   Heim's refinement

The idea behind all versions of Rule I is that of alternative meaning: in GR's version, if the coreferential meaning is "indistinguishable" from the bound one, then the former is blocked. However, the notion of distinguishability is vague. [Heim](#) (1998, 2009) makes this notion precise. The referential value that the "offending" pronoun is assigned is determined by the utterance context. This enables its value to be the same as that of a local antecedent, but in the absence of binding. Covaluation, the relation between two coreferential pronouns that are not bound, is defined thus:

(4)   *Covaluation*   ([Heim 2009](#))
        Let α and β be occurrences of DPs of type e in an LF ϕ, and let C be a subjective utterance context. Then β is covalued with α in ϕ and C iff for all $\langle w, g \rangle \in C$ and all $g' \supseteq g$, $[\![\phi]\!]^{w,g'} = [\![\phi^{\alpha/\beta}]\!]^{w,g'}$, where $\phi^{\alpha/\beta}$ is the result of replacing β by α in ϕ.

Heim assumes a version of Rule I that is has the same structure as GR's, except that her system, which ties the referential value of the pronoun to the utterance context, allows for a meaning difference between the two alternatives — the meaning of an utterance with two covalued pronouns may be distinct from the meaning of that utterance with a bound alternative. Thus, by Heim's Rule I, Local Coreference is possible if covaluation produces a meaning that is distinct from binding. But why is that so in (1)? Heim's answer: the referential value of the pronoun in these cases is distinct from the bound one because the pronoun is an individual concept, and as such, covaluation with a local antecedent produces a meaning that is distinct from a bound one. In (1a), Mary loves the person that she is.

3   Further predictions

Heim's claims can be put to the test (along lines suggested in [Grodzinsky 2007](#) and [Grodzinsky & Sharvit 2008](#)). First, if a bound and a covalued meaning are distinct, then coordinating one with the negation of the other would not lead to a contradiction. Thus, given S, a sentence with a covalued pronoun, we construct S′ by replacing that pronoun with a bound one, and check whether S&¬S′ is contradic-

tory. Mary may love the person that she is in (1a), but that doesn't mean that she is in love with herself. By this logic, these elaborations of (1) should be acceptable:

(5)   a.   John and Mary have a lot in common. [He adores her] and [$_S$ *she* adores *her*], although [$_{S'}$ *she* does not (necessarily) adore *herself*].
      b.   I dreamt I was Brigitte Bardot and [$_S$ *I* kissed *me*], but [$_{S'}$ *I* didn't kiss *myself*].
      c.   Who is this woman? She must be Zelda. [$_S$ *She* praises *her* to the skies], but I wouldn't say [$_{S'}$ *She* praises *herself* to the skies].

To convince a skeptical reader that (5) is acceptable, let's set up a context against which (5a) needs to be evaluated: modest John and modest Mary are watching a movie. They both adore the main actress, but being at a distance from the screen, they fail to realize that the actress is actually Mary. Thus modest Mary, who doesn't adore herself, *does* adore that woman on the distant screen, who, unbeknownst to her, happens to be she herself. This situation makes (5a) true. Similar contexts can be set up for the other cases in (5).

Descriptively, it is easy to see that the pronoun in S is has a *de re* reading, whereas the one in S′ is *de se* (Lewis 1979), and that $[\![S_{de\ se}]\!] \neq [\![S'_{de\ re}]\!]$, and thus for (5), it holds that $[\![S_{de\ se}]\!] \& \neg [\![S'_{de\ re}]\!] \neq \perp$.

The *de re/de se* distinction is typically attributed to *believe*-type predicates. However, it can also be obtained with intensional predicates that combine with an individual, not a proposition, namely, with an individual concept (Moltmann 1997, Grodzinsky & Sharvit 2008). As it turns out, this is exactly the type of predicate in (1):

(6)   a.   In May 2017, John admired the president of the United States, but he did not admire Trump.
      b.   John praised the president of the United States, but he did not praise Trump.
      c.   John dreamt about the president of the United States, but not about Trump.

The president who John admired at the date mentioned in (6a) could have been Obama (who John happens to falsely believe continued for a third term), and not Trump (who he despises in May 2017). Likewise, he may have praised the U.S. president, whoever this person may have been (6b), or dreamt about that personality (6c), but not about Trump. Yet as there is a single individual who is the U.S. president at any given time, John could not have met two different individuals who were president at that date. Replacing the intensional predicate with an actional one therefore results in a contradiction:

(7)   #In May 2017, John met the president of the United States, but he did not meet Trump.

These observations can be summarized thus: (a) Rule I only permits Local Coreference where covaluation produces a meaning that is different from binding; (b) this difference is contingent on there being an individual concept in object position. If these observations are valid, we expect actional predicates to block Local Coreference. With such predicates, the extension of the pronoun should be the same in all possible worlds, and covaluation should not produce a reading that is distinct from binding. This expectation is borne out, as noted in Grodzinsky 2007. Replacing the predicates in (1) with actional ones results in blocked Local Coreference:

(8)   a.   John and Mary do the same thing on Tuesdays. #He lends *her* money and *she* lends *her* money.
        b.   #I said I was Brigitte Bardot and *I* kissed *me*.
        c.   Q: Who is this woman? A: She must be Zelda. #*She* just gave *her* money.

Heim's account predicts the contrast between (1) and (8). Moreover, it opens the way for the construction of contexts that are contrived so that an individual concept object can sneak even into a sentence with an actional predicate:

(9)   a.   Walking into the crowded stadium, John and Mary stumbled upon the same object. It was so crowded that they didn't even realize that he kicked her and *she* kicked *her*.
        b.   Dick and Jane each have Jane's home number on the top of their speed dials. When they came to the party, they both left their cell phones on the couch. Oddly enough, they then sat down with equal clumsiness: they both sat on their phones inadvertently, and hit the speed-dial in the same way. Thus, he phoned her and *she* phoned *her* (i.e., her home phone).

So Heim's construal of Rule I (4) is vindicated, with one important modification: covaluation is possible only if one of the covalued DPs is type $\langle s, e \rangle$ (rather than type e). With this conclusion in pocket, let me examine whether this view of the rule can help to elucidate the old acquisition puzzle.

4 Rule I and the acquisition puzzle

4.1 The experimental record

Four-year-old children have repeatedly evinced non-adult like performance in a Truth-Value Judgment Task (TVJT) where the assignment of a referential value to a pronoun is at issue (most notably Chien & Wexler 1990; see Hartman et al. 2013 for a recent review of the experimental record). The most stable performance pattern is summarized in (10). Each test sentence is typically preceded by a fairly plain context, in which the characters involved are introduced, and accompanied by an image (A↻B stands for an image with a reflexive action; A→B stand for an image with a transitive action). Children are asked to answer a question, or determine the truth-value of a declarative sentence:

(10)

Context and sentence	Image	
	Match	*Mismatch*
This is A. This is B…	*% correct*	*% correct*
a. Is A touching herself?	~90 A↻B	~90 A→B
b. Is A touching her?	~90 A→B	**~50 A↻B**
c. Is every A touching herself?	~80 A↻B	~80 A→B
d. Is every A touching her?	~80 A→B	~80 A↻B

At the relevant age, children master conditions A and B, as demonstrated by their high performance levels in (10a,c,d), and replicated multiple times. In addition, they correctly confirm the truth of the Match (M) in (10b) at high levels. But why do they fail to identify the falsehood of the MisMatch (MM) in (10b), and moreover, perform at chance-level in this condition? Whatever their deficiency is, it cannot stem from an absence of a constraint on Local Coreference, because such deficiency would imply that they lack the means to block Local Coreference, and therefore erroneously answer in the affirmative. But this answer mode would lead to below-chance level performance, rather than chance — the level observed in the failed condition.

4.2 A Rule I-based account

In GR, we proposed a processing account for this sticking data point. We observed that Rule I divides the experimental pie correctly: cells (10a,c,d) are only governed by the binding theory, as in all of them, the pronoun must be a bound variable (either by it being a reflexive, or by a quantificational antecedent), The M part of (10b) requires neither the binding theory no Rule I. Indeed, children are well above

chance in all of these conditions. The only condition leading to failure is the MM part of (10b) — the one in which both local binding and Local Coreference need to be rejected.

We thus noted that the distinctions within the children's behavior, then, are correctly made by Rule I. But why are they *at chance level* on the failed condition? If they don't master Rule I, they should accept (10b), and err systematically, namely be at 0% correct. To explain their chance behavior, we took Rule I to be an algorithm, and relegated the deficit to a lack of processing resources that its implementation requires: to rule out identity in referential value of the pronoun and the local antecedent A in (10b), this algorithm must construct an alternative representation of the sentence by replacing the pronoun with a bound one, and then compare this alternative to the original representation. Local Coreference would be deemed as licit depending on the results of the comparison. Yet for the Replace-and-Compare algorithm to be implemented, a processing resource is required, which we argued was lacking in children at the relevant age. Therefore, when asked to implement Rule I, their system collapses, and the result is guessing. The same reasoning holds for Heim's perspective.

4.3 Additional results

A recent study by Hartman et al. (2013) contrasted the failed condition (11a) with one in which the pronoun is phonologically reduced — an option available in English (11b):

(11) a. I think Elmo painted him.   (Full Pronoun)
      b. I think Elmo painted 'm.   (Reduced Pronoun)

Hartman et al., whose stimuli were preceded by rather elaborate contexts (thanks to methodological suggestions by Conroy et al. 2009), successfully replicated Chien & Wexler's (1990) result — chance performance (52.8% correct) in the MM part of (11a). For (11b), in which the pronoun was phonologically reduced, they found elevated performance level — the children rejected Local Coreference 80% of the time. They concluded that children treat reduced pronouns in English as clitics, similar to the way pronominal clitics are treated by young speakers of many languages (e.g., McKee 1992, Escobar & Gavarró 1999). For example, the Italian *Gianni lo asciuga* 'Gianni dries him' was used by McKee in an analogous experiment with a comparable age group in Italy, where children performed correctly in the MM condition, that is, gave high (correct) rejection rates. Thus pronoun-containing sentences with reduced English pronouns, as well as clitics in many languages, do not lead to failure. We can safely conclude that these sentences do not require the Replace-and-Compare algorithm, or else the processor would collapse, and lead to

chance performance, on a par with the documented failure on (11a). Thus Hartman et al. show that the deficit is more restricted than previously supposed.

5 A composition failure account

Looking now at the experimental record, we find two classes of pronoun-containing constructions that indicate that children successfully eschew Rule I when asked to evaluate Local Coreference: (a) They correctly reject it in sentences where the potential local antecedent (subject) is quantificational (10d); (b) They also correctly reject sentences in which the pronoun to be covalued with a local antecedent (object) is a clitic (11b). In both instances, a bound variable analysis is forced, and the pronoun cannot be a candidate for covaluation. Children's successful rejection of Local Coreference leads to a safe conclusion: in these instances, their system does not even attempt to implement Rule I's Replace-and-Compare algorithm. They only fail when a full pronoun (that may be covalued if analyzed as an individual concept) composes with an actional predicate (that does not combine with an individual concept), and the resulting meaning combines with a referential subject.

Whence this pattern? In the successful conditions, either the pronoun is a clitic, or the local antecedent is quantificational. If children use these facts to stop the Replace-and-Compare algorithm from applying, why does their system collapse when an actional predicate must compose with a full pronoun (and the resulting meaning combines with a referential subject)? Why can't they use the actional predicate as a clue that covaluation should not even be considered (especially in the vanilla context that Chien & Wexler used)? Here is my tentative answer, presented in four steps:

  i. children know Rule I and suffer no processing limitation with respect to it;

 ii. the Replace-and-Compare algorithm ignores the predicate. It only looks at categories that may be referential. If one of them must be a binder or a bindee, the algorithm is blocked from applying;

iii. in the problematic (10b) and (11a) that lead to chance performance, the referential subject and the full pronoun object are good candidates for covaluation. The pronoun can be analyzed as an individual concept, type $\langle s, e \rangle$; this brings about a composition problem, as the actional predicate, being transitive (type $\langle e, \langle e, t \rangle \rangle$) fails to compose with this type;

 iv. failing to construct a coherent meaning, the children are reduced to guessing.

My conclusion: at age 4, Children are in full command of Rule I and its implementation, and are hampered by no processing deficiency in this respect. When a pronoun has a phonological shape that makes it suitable to covaluation, it gets the appropriate type, and that leads to a composition failure. Yet, while adults successfully recover from composition failures, children do not, at least in cases of the sort described above. Their failure to recover, for all I know, may not be linguistic, but may be due to their general lack of experience with test situations (cf. Crain et al. 1996).

This analysis carries several predictions. Some of these are too subtle to be elaborated on in this brief chapter, but the main point is this: once intensional predicates replace the actional ones, children's performance should soar. To test this prediction is not an easy task. We are now getting ready to do that, and with any luck, we'll be able to report our results by the time we are called to contribute to Kyle's next festschrift.

Happy birthday, Kyle!

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Ellipsis meets *wh*-movement: sluicing in early grammar[*]

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1 Introduction

Ellipsis (meaning without sound) poses an extreme 'poverty of the stimulus' problem for language acquisition. Children must recognize that part of a sentence is missing, and they must assign a meaning to the elided material by associating the ellipsis site to its antecedent. It is not immediately obvious how they do this. Although ellipsis has not been very widely studied in acquisition overall, some forms of ellipsis have received more attention than others. The development of VP ellipsis (VPE) has been looked at in a number of languages, most prominently English (Thornton & Wexler 1999, Matsuo & Duffield 2001, Foley et al. 2003, Thornton 2010), but also in Japanese (Matsuo 2007), European Portuguese (Santos 2009), and Mandarin (Fangfang et al. 1996). Argument ellipsis (AE) has also been studied in several "object drop" languages, including Mandarin (Su 2013, Zhou 2014), Cantonese (Cheung 2008), Japanese (Matsuo 2007), and European Portuguese (Santos 2009).

There has been far less investigation of the acquisition of sluicing, which involves the ellipsis of TP in a *wh*-question that leaves a "remnant" *wh*-phrase overt, as in (1).

(1)   Someone is drawing a flower, but I can't see who __.

Sluicing appears to be more widely distributed across languages than some other kinds of ellipsis such as VPE (Merchant 2001). Also, broadly speaking, *wh*-questions are acquired quite early as compared to the auxiliaries (e.g., *do* support) which act as the licensers to VPE. For these reasons sluicing seems like a good vehicle for exploring the acquisition of ellipsis.

1.1 Theoretical background

There are various theoretical proposals concerning the status of the elided material in sluicing, and ellipsis more generally. Analyses differ primarily with respect to the issue of how much structure is posited in the ellipsis site. One prominent analysis is that of Merchant 2001, who proposes that the *wh*-phrase is in SpecCP of a fully generated embedded clause. This would make the structure of clauses containing sluices analogous to those of standard *wh*-questions, except that a sluicing rule deletes the remainder of the embedded clause, i.e., the embedded TP, and any structure below it, as in (2a). The second group of analyses does not implicate movement. Under such approaches, the full *wh*-question is not present in the syntactic derivation. Instead, operations are postulated at the level of interpretation, LF. Within this group, some analyses posit some minimal structure in the ellipsis site, such as a null pronoun, as in (2b) (e.g., Hardt 1993, Chung et al. 1995), and some none at all, as in (2c) (e.g., Culicover & Jackendoff 2005).

(2)   a.   Someone is drawing a flower, but I can't see who $<t_i$ is drawing a flower$>$.
          b.   Someone is drawing a flower, but I can't see who *pro*.
          c.   Someone is drawing a flower, but I can't see who.

The competing analyses of sluicing make different predictions about children's acquisition of these structures, as we will discuss. Additionally children must also identify the antecedent of the ellipsis site. Although the precise formulation of the identity condition is still under debate (Barker 2013, Chung 2013, Merchant 2013), *who* in (2) must be interpreted as 'someone', the individual drawing the flower.

1.2 Previous studies of acquisition of sluicing

Previous studies include Wood (2009) and Lindenbergh et al. (2015).[1] Wood tested English-speaking children ages 4;5-5;5 and 6;8-7;8 in a grammaticality judgment task and found very poor performance (under 60% correct) in his younger age group. However, children also performed poorly on the controls (65% correct), which consisted of full structures, and relatively well in the ungrammatical sluices, which had no antecedent (70% correct), casting some doubt on the methodology he used. Lindenbergh et al. (2015) tested Dutch-speaking children ages 4;9 to 6;1 in a picture-matching task. Each picture array contained 4 pictures and was coupled with a sentence as in (1); one picture matched the sentence, one controlled for the reading

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1 Sugisaki (2016) also looked at Japanese children's comprehension of a construction which is similar, though not identical to English sluicing, in which the sluice is derived from a cleft construction in which the CP subject of the cleft has been elided (e.g., Saito 2004).

in which the child only paid attention to the first part of the sentence (someone is drawing a flower). In the other two "distractor" pictures either a different object (e.g., a woman drawing a guitar) or a different action (e.g., a woman holding a flower) was depicted. Lindenbergh et al. obtained much better results than Wood with a mean percentage correct of 94%.

2   The current study

The main aim of this study was to enrich the sparse literature in this area and help resolve the conflicting findings of the two previous studies. We addressed two questions: i) Are children able to recover the elided material and respect the identity condition? ii) Do children show an asymmetry between subject- and object-*wh*-sluices? The answer to the latter question could provide insight into the underlying structure of the ellipsis site. A number of studies have found that children perform more poorly on object as opposed to subject *wh*-questions, possibly an 'intervention effect', i.e., the subject intervening in the A-bar-dependency (see Friedmann et al. 2009 for an overview). If we posit a structured ellipsis site involving *wh*-extraction, as in (2a) (Merchant 2001), children should show this same asymmetry, performing worse on object-extracted sluices, (3a) than on subject-extracted sluices, (3b). On the contrary, if no movement (or structure) is involved (e.g., Culicover & Jackendoff 2005, Chung et al. 1995), children should perform similarly on both.

(3)   a.   Ben is brushing someone, can you see [$_{CP}$ who$_i$ [$_{TP}$ <Ben is brushing t_i>]]?
        b.   Someone is brushing Ben, can you see [$_{CP}$ who$_i$ [$_{TP}$ <t_i is brushing Ben>]]?

To date we have tested 30 English-speaking children aged four- to six-years old (M = 5.7), 10 in each age group. In a '*wh*-question task', modeled after a Truth-Value Judgment task (Crain & McKee 1985), children were shown an image on a screen. A computer-simulated puppet commented on what she could see and asked a question about what the child could see. An example trial from the experiment is given in (4). Figure 1(a) was used to elicit a 'yes' answer; figure 1(b), was used to elicit a 'no' answer.[2] Our study included 29 trials consisting of 15 sluiced sentences, as in (4), and 14 unsluiced control sentences, as in (5).

(4)   I can see that someone is brushing Ben, can you see who?

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2 Children often chose to resolve the sluice by pointing to the relevant hidden or visible person, rather than responding with 'yes' or 'no'. We counted their responses as correct if they pointed to the appropriate character in the picture.

(5)   I can see that someone is brushing Ben, can you see who is brushing/washing Ben?
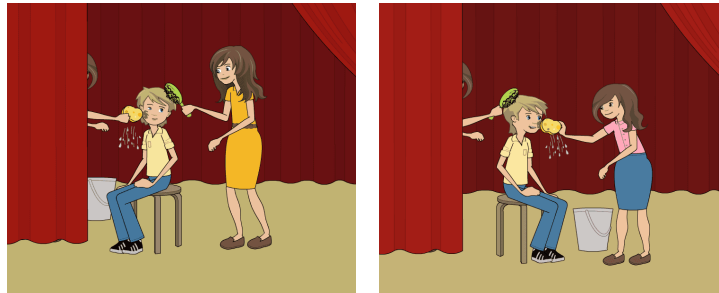
(a) 'Yes' scenario for (4)   (b) 'No' scenario for (4)

Figure 1   Sample images from Condition 2

There were three different conditions. Condition 1 corrected for a potential confound in Lindenbergh et al.'s study, which may have allowed children to arrive at the correct meaning of the sluice by interpreting the two clauses independently ("two-clause strategy" as in (6))[3]. In this condition, we used intransitive verbs, and images contained two characters, one performing the action described in the sentence, and one standing or sitting. In 'yes' trials, the agent of the action of the sentence was in plain sight, while the second character was hidden behind an object. In 'no' trials the situation was reversed.

(6)   I can see that someone is jumping. Can you see someone?

Condition 2 tested verb identity. Figures 1 and 2 provide example scenarios: one character was performing the action described by the transitive verb, and the other one was performing a different transitive action. Items were split between subject and object *wh*-questions. An example of an object *wh*-question is given in (7).

(7)   I can see that Ben is brushing someone, can you see who?

Condition 3 tested argument identity. In this case children were shown a picture with multiple characters all performing the same action on one another, for example, brushing hair. This tested whether children allowed a sentence like (7) to have the non-adult-like interpretation in (8).

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3 In Lindenbergh et al.'s experiment the target image was the only one out of the four options in which someone was drawing a flower *and* someone was hidden.

(8)   I can see that Ben is brushing someone, can you see who$_i$ <the girl in pink is brushing t_i>?

3   Results and discussion

Our results thus far are given in Table 1. We see first that even the youngest children in our study easily understand sluiced sentences, obtaining over 90% correct answers in all the sluice conditions. Given their near perfect score on the Condition 1 sentences we know that children are not relying on a "two-clause strategy", a confound in the Lindenbergh et al. results. If children interpreted 'I can see that someone is jumping, can you see who?' as 'I can see that someone is jumping. Can you see someone (else)?' then children would have said 'yes', even in the 'no' scenario, where the character who is jumping is mostly hidden behind a curtain. Moreover, children's high scores in Conditions 2 and 3 indicate that four- to six-year-old children respect the identity condition and do not allow for verb or argument mismatches.[4]

	Control conditions			Sluiced conditions		
	1	**2**	**3**	**1**	**2**	**3**
4yo	100%	95%	87.5%	96.67%	91.67%	91.67%
5yo	100%	85%	83.75%	100%	93.33%	95%
6yo	100%	97.5%	98.75%	100%	98.33%	100%
Avg.	**100%**	**92.5%**	**90%**	**98.89%**	**94.44%**	**95.56%**
Grand avg.		**94.17%**			**96.30%**	

Table 1   Results of the *wh*-question task by Condition.

Additionally, we found a small but significant difference in performance between subject and object sluices (Z = -2.293, p = 0.022). As shown in Figure 2, young children do better with subject sluices, suggesting that they have the same (possibly intervention-induced) difficulty here as they show with other instances of *wh*-movement such as relative clauses. This difference all but disappears in the 6-year olds, again parallel to what we see in other cases of *wh*-movemnt (Friedmann et al. 2009). This subject-object asymmetry supports the hypothesis that children

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4 Note that overall children did slightly worse on the controls than the sluices. The difference is found only in control conditions that involve a mismatch (e.g., *I can see that Ben is washing someone, can you see who the girl in green is washing?*). We hypothesize this difference might be caused by either processing difficulties with resolving two referents (one for *someone* and one for *who*), or the pragmatic oddity of the abrupt shift in the question under discussion from one clause to another.

(like adults) derive sluices via *wh*-extraction, as proposed in various syntactic analyses (Merchant 2001). It also provides an all too rare instance in which we find acquisition evidence for a theoretical analysis, evidence not otherwise available because adults do not show such an asymmetry.
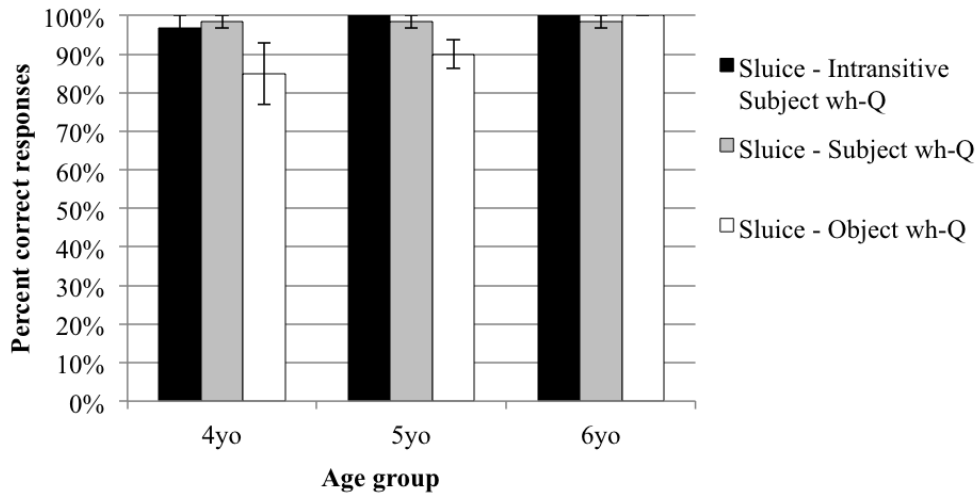
Figure 2   Children's performance on sluiced subject *wh*-questions and sluiced object *wh*-questions.

Interestingly, we did not find a significant difference in the control *wh*-questions. Children obtained an average of 92.78% in the subject *wh*-questions (with transitive verbs) and 89.44% in the object *wh*-questions ($Z = -0.768$, $p = 0.441$). While children do not have much difficulty with simple object *wh*-questions by age four, it seems reasonable to conclude that A-bar movement across an intervener coupled with a sluicing operation (deleting the TP at PF) exceeds their computational resources. We are currently testing three-year-olds. We expect that younger children, with presumably even fewer resources, will show a much stronger subject-object asymmetry in both the sluiced and the control sentences.

4   Conclusions

This study investigated children's acquisition of sluicing in English. We found that by age four, children have no difficulties comprehending sluiced *wh*-questions and generally respect the identity condition, disallowing both verb and argument mismatches. Interestingly, and despite their high scores, we did find children performed significantly better in sluiced subject *wh*-questions than sluiced object *wh*-questions.

We hypothesize this is an intervention effect similar to that found in other A-bar constructions, providing evidence for a structured TP at the ellipsis site. This study thus contributes to theories on the acquisition of ellipsis and also to the theoretical debate about the syntactic status of sluicing.

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Transfer and Self Pair-Merge[*]

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1 Introduction

It has been claimed that Transfer not only sends information to PF/LF but also makes transferred domains inaccessible to the syntactic computation. Chomsky (2000, 2008), among others, claims that the latter is accomplished by removing transferred domains, i.e., the complements of a phase head C/v, from a workspace (called the "cashing-out" approach to Transfer) as in (1):

(1)   [$_{XP}$ YP [$_{X'}$ X ZP]] —Transfer→ [$_{XP}$ YP [$_{X'}$ X]]

(where X is a phase head)

In (1), the transferred domain ZP is removed ("cashed-out") from the workspace, and thus no longer accessible to the syntactic computation. This paper instead proposes the Self Pair-Merge approach to Transfer, which claims that transferred domains, though remaining in a workspace, are made invisible/inaccessible to the syntactic computation through Self Pair-Merge by sending transferred domains from a "primary plane" to an opaque "separate plane" (adjunct plane). We argue that evidence for our Self Pair-Merge approach comes from a hitherto unexplained parallelism with opaqueness between adjuncts and transferred domains. The theoretical advantage of our approach is that Transfer is subsumed under Merge, thereby conforming to the strong minimalist thesis (SMT) which requires us to posit as little as possible beyond Merge. Our approach is thus theoretically more desirable than the "cashing-out" approach, which assumes the operation "remove a transferred domain from a workspace," an extra operation beyond Merge, and is thus against the SMT. Our Self-Pair Merge approach to Transfer reduces computational burden by sending a transferred domain to an opaque "separate plane" through Pair-Merge, rather than removing it from a workspace. The existence of Self Pair-Merge to transferred SOs gives further support for Chomsky's (2013, 2014) Free Merge system.

The organization of this paper is as follows. Section 2 claims that there is a parallelism between adjuncts and transferred domains regarding opaqueness. It is shown that while adjuncts and transferred domains are opaque to Move/Agree, they

are transparent to binding dependencies. Section 3 proposes a Self Pair-Merge approach to Transfer, arguing that Self Pair-Merge applies to the complement of a phase head at Transfer. It is shown that our Self Pair-merge approach can explain the parallelism between adjuncts and transferred domains regarding opaqueness. Section 4 makes a concluding remark.

2 A Parallelism between adjuncts and transferred domains

2.1 Adjuncts

It is well known that adjuncts are opaque to Move, i.e., Internal Merge (IM) and Agree, as exemplified by (2) and (3):

(2)   ***Who** did John get jealous [$_{Adjunct}$ before I talked to *t*]

(3)   *[$_{Adjunct}$ kid   y-āy-załl]   eni-r   xabar
                girl.**II**.ABS II-arrive-WHEN mother-DAT news.III.ABS

        y-iy-s
        II-know-PST.EVID
        'When the girl arrived, the mother found the news.'

<div align="right">(Polinsky & Potsdam 2001: 607)</div>

In (2), *who* undergoes Move out of the adjunct. In (3), *kid* 'girl' within the adjunct undergoes Agree with the matrix verb *y-iy-s* 'know'. Both (2) and (3) are deviant.

It has also been pointed out, however, that adjuncts are not opaque to all syntactic dependencies. Unlike Move and Agree, binding dependencies like (4)–(7) are accessible into adjuncts:

(4)   *Principle C of the Binding Theory*
        ***She**$_i$ will call [$_{Adjunct}$ before **Mary**$_i$ goes out].

(5)   *Variable Binding*
        Someone$_i$ serenaded the woman [$_{Adjunct}$ before **he**$_i$ left the party].

(6)   *Long-distance Anaphor Binding (an example from Japanese)*
        John$_i$-wa [$_{Adjunct}$ Mary$_j$-ga **zibun**$_{i/j}$-no heya-o   soozisite kara]
        John-TOP   Mary-NOM SELF-GEN room-ACC clean   after

        ie-ni   kaettekita
        home-DAT came
        Lit. '**John**$_i$ came home [$_{Adjunct}$ after Mary$_j$ cleaned **self**$_{i/j}$'s room].'

(7)   *Unselective Binding = Wh-arguments In-situ Licensing*
       John-wa [$_{Adjunct}$ Mary-ga **nani**-o   yomioete   kara] issyoni
       John-TOP   Mary-NOM what-ACC finished.reading after together
       dekaketa no
       went.out Q
       Lit. 'John went out together [$_{Adjunct}$ after Mary finished reading **what**]?'

In (4), the R expression *Mary* within the adjunct cannot take *she* as its antecedent due to Principle C of the binding theory. In (5), the quantificational expression *someone* licenses the pronoun *he* within the adjunct as its bound variable. (6) indicates that the reflexive pronoun *zibun* 'self' within the adjunct can take the matrix subject *John* as its antecedent. In (7), the indeterminate pronoun *nani* 'what' within the adjunct is licensed by the matrix Q-morpheme *no*.

2.2   Transferred Domains

I argue that the above contrast regarding opaqueness between Move/Agree and binding dependencies are not only observed with adjuncts but also with transferred domains.

2.2.1   Opaqueness of transferred domains with Move/Agree

Just like adjuncts are opaque to Move/Agree, transferred domains are also opaque to Move/Agree. Due to the opaqueness of transferred domains with Move, a movement operation proceeds successive-cyclically, i.e., locally, using phase edges as "escape hatches" as shown in (8):

(8)   What do you [$_{vP}$ t''' [think [$_{CP}$ t'' [that John [$_{vP}$ t' [read t]]]]]]?

Evidence for successive cyclic movement comes from anaphoric reconstruction facts (Barss 1986), morphological reflexes of successive cyclic *wh*-movement in languages like Chamorro and Irish (Chung 1998, McCloskey 1990, 2002), *wh*-quantifier float facts in West Ulster English (McCloskey 2000), inversion triggered by *wh*-fronting in Belfast English (Henry 1995), and *wh*-copying and partial *wh*-movement facts in German (McDaniel 1989).

Transferred domains are also opaque to Agree. As argued by Polinsky & Potsdam (2001), Boeckx (2004), Bhatt (2005), and Richards (2012), among others, although long-distance Agree facts are widely attested in languages like Blackfoot, Chukchee, Hindi, Itelmen, and Tsez, those facts are only apparent and should be explained by different local analyses depending on the properties of long-distance Agree. First, Polinsky & Potsdam (2001) propose an LF-topicalization analysis of

Tsez long-distance Agree facts. Let us consider (9) as an example. Given that clause peripheral functional structures like CP and TopP are only present when required, their analysis assigns LF-representation (10) to (9):

(9)   Eni-r   [už-ā   **magalu**   bāc'rułi] **b**-ixyo.
          mother-DAT boy-ERG bread.III.ABS III.ate   III-know
          'The mother knows the boy ate the bread.'

<div align="right">(Polinsky & Potsdam 2001: 584)</div>

(10)   Eni-r   [$_{TOP}$ **magalu** [$_{TP}$ už-ā   *t* bāc'rułi]] b-ixyo.
          mother-DAT bread.III. ABS   boy-ERG   III.ate   III-know

In (10), the embedded object *magalu* 'bread.III.abs ' undergoes covert topicalization to Spec,Top, where local agreement with the matrix verb is possible.

     Long-distance Agree facts in Hindi and Itelmen can be accommodated under a local analysis in terms of restructuring (Boeckx 2004, Bhatt 2005, Bobaljik & Wurmbrand 2005). In these languages, long-distance agreement is possible only into a non-finite complement of so called "restructuring verbs" like want and forget, as shown below:

(11)   *Hindi*
          Vivek-ne   [**kitaab** paṛh-nii   ] chaah-**ii**.
          Vivek-ERG   book.F read-INF.F   want-PFV.FSG
          'Vivek wants to read the book.'

(12)   *Itelmen*
          Na əntxa-βum+nın   [**kma** jeβna-s].
          he forget-1SG.OBJ=3CL me   meet-INF
          'He forgot to meet me.'

If we assume with Wurmbrand (2001) that restructuring infinitives are reduced structures which do not involve projection of an embedded subject, restructuring infinitives are bare VPs. Agreement into restructuring infinitives is local in that it does not cross any phase boundary.

     As for long-distance agreement in Chukchee like (13), Bobaljik (2008) proposes a proxy agreement analysis:

(13)   ənan qəlɣiḷu ləŋərkə-nin-**et** [iŋqun ø-rətəmŋəv-nen-at **qora-t**]
          he   -INST regret-3-**PL**   that   3SG-lost-3-PL   reindeer-PL
          'He regrets that he lost the reindeers.'

Although it appears that the matrix light verb *ləŋərkə-nin-et* 'regret-3-PL' agrees directly with the embedded plural object quora-t 'reindeer-pl', Bobaljik argues that

the matrix verb agrees with a null proleptic object in the matrix clause, which is coreferent with the embedded object.

2.2.2 Transparency of transferred domains with binding dependencies

Unlike Move/Agree, binding dependencies, which are accessible into adjuncts (4)–(7), are also accessible into transferred domains (14)–(17):

(14)   He$_i$ [$_{vP}$ says [$_{CP}$ that Mary [$_{vP}$ thinks [$_{CP}$ that Suzy [$_{vP}$ claimed [$_{CP}$ that John$_i$ is leaving]]]]]].

(15)   Everyone$_i$ [$_{vP}$ told John [$_{CP}$ that people [$_{vP}$ knew [$_{CP}$ that he$_i$ should leave]]].

(16)   John$_i$-wa [$_{vP}$ [$_{CP}$ Mary$_j$-ga   [$_{vP}$ zibun$_{i/j}$-no heya-de benkyoo siteiru]
        John-TOP   Mary-NOM   SELF-GEN room-in studying
        to] omotteiru]
        C   think
        Lit. 'John$_i$ thinks that Mary$_j$ is studying in self$_{i/j}$'s room.'

(17)   John-wa   [$_{vP}$ [$_{CP}$ Mary-ga   [$_{vP}$ [$_{CP}$ Suzy-ga   [$_{vP}$ nani-o   katta]
        John-TOP   Mary-NOM   Suzy-NOM   what-ACC bought
        to] itta] to] omotteiru no
        C   said C   think   Q
        Lit. 'John thinks that Mary said that Suzy bought what?'

In (14), the R expression *John* within the transferred domain cannot take *he* as its antecedent due to Principle C of the binding theory. In (15), the quantificational expression *everyone* licenses the pronoun he within the transferred domain as its bound variable. (16) indicates that the reflexive pronoun *zibun* 'self' within the transferred domain can take the matrix subject *John* as its antecedent. In (17), the indeterminate pronoun *nani* 'what' within the transferred domain is licensed by the Q-morpheme *no*.

The above-mentioned parallelism regarding opaqueness between adjuncts and transferred domains needs an explanation. The "cashing-out" approach, however, cannot explain the parallelism between adjuncts and transferred domains. Especially, it cannot explain (14)–(17), where binding accesses an element inside a transferred domain. This is because once the transferred domain is removed from the workspace, there is no way of accessing an element inside the transferred domain, unless we assume an ad hoc procedure by which a "cashed-out" structure somehow finds its way back to its interpretation site.

3   A proposal

I adopt Chomsky's (2004) theory of adjunction, where apart from Set-Merge $\{\alpha, \beta\}$, Pair-Merge $<\alpha, \beta>$ is introduced to explain a property of adjunction. Adjuncts, being Pair-Merged, are on a "separate plane" and thus opaque to the syntactic computation. Chomsky also argues (based on Binding Condition C reconstruction facts) that after structure-building is complete, ordered pairs $<\alpha, \beta>$, which are generated by Pair-Merge, may undergo the operation Simplification (SIMPL), being converted to simple sets $\{\alpha, \beta\}$ at LF; SIMPL makes adjuncts put back on "a primary plane" and thus visible at LF.

Given that Move/Agree, having PF reflexes, apply in the overt component (during structure-building) whereas binding applies at LF (Chomsky 1995, among others), the Pair-Merge theory of adjunction explains the opaqueness of adjuncts to Move/Agree (2), (3) and their transparency to binding relations (4)–(7). This is because a Pair-Merged adjunct $<\alpha, \beta>$, being on a "separate plane," is opaque to the overt syntactic computation like Move/Agree. The Pair-Merged adjunct $<\alpha, \beta>$ however, is converted to $\{\alpha, \beta\}$ through SIMPL at LF, thereby adjuncts are transparent to binding dependencies at LF.

I extend this Pair-Merge analysis of adjuncts to Transfer. It has been claimed by Guimarães (2000), Kayne (2009) and Adger (2013) that in Set Merge (α, β), nothing in Chomsky's (2013, 2014) Free Merge system prevents α from being identical with β; α may Set-Merge with itself (called Self Set-Merge), resulting in $\{\alpha, \alpha\}$. I argue that Self Pair-Merge is also available, resulting in the ordered pair $<\alpha, \alpha>$. I propose the Self Pair-Merge approach to Transfer, arguing that Self Pair-Merge applies to the complement of a phase head at Transfer as shown in (18):

(18) $[_{XP}$ YP $[_{X'}$ X **ZP**$]]$ —Transfer→ $[_{XP}$ YP $[_{X'}$ X $<$**ZP,ZP**$>$ $]]$

In (18), the transferred domain ZP, being Self Pair-Merged, is made inaccessible to the syntactic computation by being sent to an opaque "separate (adjunct) plane." The Self Pair-Merge approach can explain the parallelism between adjuncts and transferred domains. Since adjuncts, being Pair-Merged, are opaque to the overt syntactic computation like Move/Agree (2), (3), it follows from the Self Pair-Merge approach to Transfer that transferred (Self Pair-Merged) domains are also opaque to Move/Agree as shown in Section 2.2.1. Moreover, since adjuncts are transparent to the syntactic computation at LF like binding dependencies through SIMPL (4)–(7), it follows that transferred domains are also transparent to binding dependencies (14)–(17) at LF after SIMPL as shown in (19):

(19) $[_{XP}$ YP $[_{X'}$ X $<$**ZP,ZP**$>$ $]]$ —SIMPL→ $[_{XP}$ YP $[_{X'}$ X $\{$**ZP,ZP**$\}$ $]]$

The set $\{\alpha, \alpha\}$ is identical to the set $\{\alpha\}$ according to the Extensionality Axiom of Set Theory, since both of them have exactly the same membership. In other words, if the operands of Set-Merge are identical, the output is a singleton set. Then, {ZP, ZP} in (19) is identical with ZP as shown in (20):

(20) $[_{XP}$ YP $[_{X'}$ X $\{\textbf{ZP},\textbf{ZP}\}$]] = $[_{XP}$ YP $[_{X'}$ X $\textbf{ZP}$]]

Hence, the transferred domain is properly interpreted as the complement of a phase head at LF, being accessible to binding dependencies.

It should be noted that in contrast with the "cashing-out" approach to Transfer, which removes the transferred domains from a workspace, the Self Pair-Merge approach claims that transferred domains are still in the workspace but become invisible to the syntactic computation by being sent to a "separate (adjunct) plane" through Self Pair-Merge. In this respect, our approach is similar to Uriagereka's (1999) conservative approach to Spell-Out, which collapses the syntactic object (SO) $\{\alpha, \{L, K\}\}$ into the non-SO (a "frozen" compound) $\{\alpha, <L, K>\}$ through Spell-Out, and Collins & Stabler's (2011) non-tampering condition respecting version of Cyclic Transfer, which replaces the transferred domain by $<\text{Transfer}_{PF}(\text{SO})$, $\text{Transfer}_{LF}(\text{SO})>$ (the forms interpretable by the S-M and C-I interfaces). Our approach to Transfer, however, differs from theirs in that the former, but not the latter, can account for the transparency of transferred domains with binding dependencies. This is because Uriagereka's and Collins and Stabler's approaches would incorrectly predict that transferred domains are no longer visible to any syntactic operations. Furthermore, the Self Pair-Merge approach to Transfer is conceptually more attractive than the "cashing-out" approach, Uriagereka's conservative approach, and Collins and Stabler's Cylcic Transfer approach in that our approach only makes use of Merge, an indispensable and independently motivated operation, thereby conforming to the strong minimalist thesis (SMT) which requires us to posit as little as possible beyond Merge.

4   Conclusion

This paper has proposed Transfer as Self Pair-Merge, where the transferred domains are in the workspace but made invisible by application of Self Pair-Merge. The proposed analysis is supported by the parallelism between adjuncts and transferred domains regarding opaqueness. Under our approach, Transfer is subsumed under Merge, thereby conforming to the strong minimalist thesis (SMT).

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Why *sem* is (still) a complementizer and not a relative pronoun

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1 Introduction

This squib is about one grammatical word in Icelandic, the relative marker *sem*, as in (1a). As shown in (1b), relative clauses without a relative marker are ungrammatical in Icelandic:[1]

(1)   a.   Þetta er maður sem ég hef   aldrei hitt.
             this   is man   that I   have never met
             'This is a man that I have never met.'
       b.   *Þetta er maður ég hef   aldrei hitt.
             this   is man   I   have never met.

Traditional grammars of Icelandic claim that *sem* is a relative pronoun, even though it does not inflect at all. Thráinsson (1980) disagrees and argues at length that *sem* is a relative complementizer, contrasting its behavior with relative pronouns that existed in older stages of Icelandic. Some of his arguments are familiar from the literature on relative markers in other languages, but some are more language-specific. Since the publication of the article, Thráinsson's view has become the received wisdom on relative *sem* in Icelandic as no scholar has attempted to rebut his arguments.

Since pronouns are quite different from complementizers, it would seem to be relatively easy to tease apart relative pronouns and relative complementizers. However, Kayne (2010) argues that the usual criteria for determining the lexical category of relative markers are questionable as they fail to divide them into two well-defined classes. He concludes that there is no principled distinction between relative pronouns and relative complementizers. This means, for example, that relative *that* in English, which is usually assumed to be a complementizer, can be argued to be a pronoun in basically the same sense as *who* and *which*.

Although Kayne (2010) is mainly concerned with English, he cites data from various other languages in support of his analysis. His arguments raise questions about the status of relative markers across languages, including Icelandic *sem*. This is an issue that I will address below where I will show that Thráinsson's (1980)

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[1] The relative marker *er* is also used but only in highly formal language. As discussed by Thráinsson (1980), it has very similar properties to *sem*.

analysis of *sem* can be maintained and even reinforced to some extent. It turns out that *sem* can be argued to be different from the relative markers that Kayne (2010) builds his case on (see Sections 2 and 3) and it also displays some language-specific properties that lie outside the scope of Kayne's analysis (see Sections 4 and 5). The overall picture that emerges from my discussion is that Icelandic makes a sharp distinction between relative pronouns and relative complementizers even though this may be blurred in many other languages.

2 Inflection

The examples in (2) show the contrast between *sem* and the relative pronoun *hver*, 'who', in Icelandic. The latter item inflects for case, gender and number whereas *sem* is invariant, irrespective of the gender and number of the head noun and the case associated with the relativized position:

(2)   a.   Þetta er kona   sem / hverja   ég hef   aldrei hitt.
            this   is woman that / who.ACC.FEM.SG I   have never met

        b.   Hlauparinn sem / hver   vann er frá   Kenýa.
            runner.the   that / who.NOM.MASC.SG won is from Kenya

        c.   Börnin   sem / hverjum   hún hjálpaði voru þakklát.
            children.the that / who.DAT.NEUT.PL she helped   were grateful

Although *hver* is hardly ever used as a relative pronoun in contemporary Icelandic, native speakers have very clear intuitions about its basic properties. For convenience, I will thus continue to construct Icelandic sentences with relative pronouns instead of referring to historical examples.

As a pronoun, *sem* would be highly unusual by the morphological standards of Icelandic. Thráinsson (1980) notes, however, that the simple third person reflexive only inflects for case (*sig*, *sér*, *sín*) and the *wh*-word *hvaða*, 'which', shows no morphological distinctions at all. He concludes from this that the lack of inflection is not a decisive argument against the pronominal status of *sem*.

I think the morphological argument against *sem* as a relative pronoun can be strenghtened beyond these remarks. First, since the simple reflexive inflects for case, it can be maintained that *sem* cannot be a pronoun because all pronouns in Icelandic have morphological case. For Harbert (2007: 424), it is indeed case that is the crucial morphological property that characterizes relative pronouns in Germanic, as shown, for example, by English *who*. Second, the simple reflexive has the grammatical feature third person as it can only be referentially dependent on third person antecedents. By contrast, *sem* does not seem to have any person features as it can be used with third person antecedents, as in (2) above, as well as first and second person pronouns (in non-restrictive relatives). In this respect, *sem* also differs

from relative pronouns in Icelandic, which cannot occur in relative clauses headed by first and second person pronouns. This contrast is used by Thráinsson (1980) as an argument that *sem* is a complementizer.

The *wh*-word *hvaða* is not directly relevant to the issue at hand since it is a determiner and not a pronoun in that it always modifies a noun. Still, it is interesting in the present context as the only determiner in Icelandic that does not show any morphological distinctions for gender, number and case. It may nevetheless express some inflectional features through the suffix –*a*, which may be linked to the inflectional ending –*a* in the weak neuter singular which appears in all the four cases (cf. nouns like *hjart-a* 'heart'). (The root of *hvaða* is *hvað* 'what', so there is no doubt that –*a* is an independent morpheme.) This suffix may also be linked to the final –*a* that is found in various uninflected adjectives in Icelandic (cf. words like *gjaldþrota* 'bankrupt' and *örmagna* 'dead tired').

My point here is not to deny that uninflected relative pronouns may exist in some languages, as discussed by Kayne (2010), especially if they show some syntactic properties of pronouns. What I want to argue is that uninflected *sem* is not in that class since Icelandic is a morphologically rich language where every pronoun is at least marked for case. Note also that the lack of morphological case is only one of many arguments for the claim that *sem* is a complementizer. As we will see in the following sections, *sem* exhibits various properties of complementizers but no properties of pronouns.

3 Pied Piping

Possibly the strongest argument for Thráinsson's analysis comes from the fact that *sem* can never pied-pipe a larger piece of structure, in clear contrast to relative pronouns. This is shown by the fact that *sem* cannot be the object of a preposition, as exemplified in (3b). Instead, the preposition must be stranded, as in (3a):

(3) a. maður sem allir   vilja tala við
         man   that everybody want talk to
         'a man that everybody wants to talk to'
     b. *maður við sem allir   vilja tala
         man   with that everybody want talk

Both preposition stranding and Pied Piping are possible with a relative pronoun. This is shown in (4).

(4) a. maður hvern   allir   vilja tala við
         man   who.ACC.MASC.SG everybody want talk to

    b.   maður við hvern   allir   vilja tala
          man   with who.ACC.MASC.SG everybody want talk

The same argument can be made with possessives. As illustrated in (5), *sem* cannot pied-pipe a noun denoting a possessum, whether it precedes or follows the noun.

(5)   a. *kona   sem börn   ég þekki
           woman that children I   know

        b. *kona   börn   sem ég þekki
           woman children that I   know

By contrast, a possessive relative pronoun in Icelandic can pied-pipe the head noun, at least if the pronoun precedes the noun:

(6)   kona   hverrar   börn   ég þekki
        woman who.GEN.FEM.SG children I   know
        'a woman whose children I know'

Kayne (2010) contends that Pied Piping is not a valid diagnostic for the grammatical status of relative markers. In support of this view, he points out that d-related relative pronouns cannot be objects of prepositions in Dutch, as shown in (7), even if they behave like pronouns in displaying number agreement in the neuter with the head of the relative, as in (8).

(7)   *de persoon aan die ik de brief heb gegeven
        the person   to   *die* I the letter have given

(8)   a.   het boek dat ik nu   lees
          the book *dat* I   now read

        b.   de boeken die ik nu   lees
          the books   *die* I now read

Kayne (2010) also observes that the relative pronoun *which* cannot pied-pipe a larger DP, as exemplified in (9):

(9)   *the book which's first chapter is so well known

In my view, these data only show that the Pied Piping test must be applied with care, leaving room for the possibility that demonstrative-like pronouns may not pass it. In fact, since such pronouns in English lack a possessive form (cf. *that's*, *this's*, *these's*, *those's*), the ungrammaticality of examples like (9) is unsurprising. As for Icelandic *sem*, the important point is that it has no synchronic or diachronic relation to demonstratives or determiners that I am aware of. Thus, *sem* as a relative

pronoun would be expected to allow Pied Piping quite freely, contrary to fact and unlike Dutch *dat/die* and English *which*.

4 Other clauses with *sem*

Relative *sem* is believed to derive from the comparative complementizer *sem*, 'as', (Matthíasson 1959), a diachronic development that is also attested in German dialects (Brandner & Bräuning 2013). Thráinsson (1980) takes the origin of *sem* as yet another argument for its status as a complementizer because a change in the function of a complementizer is very natural whereas a change from a complementizer to a pronoun would be highly unlikely. In fact, relative pronouns are known to develop from *wh*-pronouns or demonstratives but not from complementizers (see, for example, Harbert 2007: 420–473 on Germanic).

Thráinsson 1980's discussion of *sem* is mostly confined to relative clauses but it is also very instructive to examine other clauses where *sem* has a very similar function. These include concessive clauses, as in (10), which feature an initial *wh*-phrase as well as *sem*.[2]

(10) Hvern   sem þú velur mun ég styðja þig.
      who.ACC.MASC.SG that you choose will I   support you
      'Whoever you choose, I will support you.'

The most natural analysis of examples like these is to assume that the *wh*-phrase moves to a specifier position in the left periphery whereas *sem* is merged as a complementizer in the corresponding head position. An even stronger case for *sem* as a complementizer comes from exclamatives like (11a) and (11b) where *sem* interacts with verb second (Jónsson 2010).

(11) a. Hvílíkur   hálfviti   sem hann getur verið!
          what.NOM.MASC.SG idiot.NOM.MASC.SG that he   can   be
          'What an idiot he can be!'
      b. Hvílíkur   hálfviti   getur hann verið!
          what.NOM.MASC.SG idiot.NOM.MASC.SG can   he   be

The initial wh-phrase in (11a) is followed by *sem* but when *sem* is absent, as in (11b), the finite verb moves to second position. This verb raising is obligatory in the absence of *sem* and impossible when *sem* is present:

(12) a. *Hvílíkur hálfviti hann getur verið!
          what   idiot   he   can   be

---

2 According to Van Riemsdijk 2006, clauses like these are not free relatives, despite appearances.

b. *Hvílíkur hálfviti sem getur hann verið!
　　what　　idiot　　that can　he　　be

These data show that *sem* is in complementary distribution with V2 in exclamative clauses. This follows straightforwardly if *sem* is a complementizer, residing in a head position that the finite verb moves to when *sem* is missing. A pronoun occupying a specifier position in the left periphery would not be expected to interact with verb raising in this way.

5 Double complementizers

The final argument from Thráinsson 1980 to be discussed here concerns double complementizers. As illustrated in (13), the default complementizer *að*, 'that', can accompany various complementizers in colloquial Icelandic, including *sem*.[3]

(13)　　a.　Það　eru margir sem (að) borða ekki skötu.
　　　　　　there are many　that that eat　　not　skate
　　　　　　'There are many that do not eat skate.'
　　　　b.　Ég fer ef (að) enginn　annar vill　　fara.
　　　　　　I　go if that nobody else　wants go
　　　　　　'I will go if nobody else wants to go.'
　　　　c.　Þegar (að) hitt　liðið　　skoraði breyttist allt.
　　　　　　when that other team.the scored　changed everything
　　　　　　'When the other team scored, everything changed.'
　　　　d.　Hún spurði hvort (að) þetta væri löglegt.
　　　　　　she　asked if　　that this　was legal
　　　　　　'She asked if this was legal.'

By contrast, the complementizer *að* cannot occur with *wh*-phrases in embedded questions or relative clauses:

(14)　　a.　Hann veit　　hvenær (*að) María kemur.
　　　　　　he　　knows when　that　Mary　comes
　　　　b.　Þú　ræður hvert　(*að) við förum á morgun
　　　　　　you decide where that　we go　　tomorrow
　　　　c.　Það　eru fáir hverjum　　　　　(*að) hann treystir fullkomlega
　　　　　　there are few who.DAT.MASC.PL that　he　　trusts　completely

---

3 I am not aware of any particular restrictions on *sem að* but this requires further investigation. Thus, it is possible in (10) and (11), supporting the claim that *sem* is a complementizer in these examples.

Since *sem* patterns with complementizers in this respect rather than *wh*-phrases or relative pronouns, Thráinsson (1980) takes this to show that *sem* is a complementizer and I agree with that conclusion. Presumably, the presence or absence of *að* with other complementizers boils down to the expression of the feature Fin, assuming a cartographic approach to the left periphery (Rizzi 1997). A single complementizer encodes both Force and Fin, thus simultaneously marking the type of the clause and its finiteness. In the presence of *að*, however, the higher complementizer expresses only Force but *að* expresses Fin.

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Agreement and *v*P phases[*]

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1 Introduction: *v*P phases and the timing of Spell-Out

Since Chomsky 2000, 2001, it is widely assumed that syntactic structure building proceeds in phases, whereby the complement of a phase head is sent to the interfaces upon completion of the phase and thereby rendered inaccessible to subsequent syntactic operations. One consequence of this model is that all dependencies across a phase boundary must be mediated via the phase edge and hence be indirect. It is furthermore standardly assumed within this framework that the verbal domain comprises two phase-defining heads (C and *v*) and that consequently all operations across CP and *v*P phases must be established via their edges. In this squib, I will present evidence from Hindi-Urdu (henceforth Hindi) that suggests that it is possible to establish an Agree relationship across *v*Ps that does not invoke their edge. In this, *v*Ps strikingly differ from CPs. I argue that these dependencies pose a challenge to the view that *v*P is a phase alongside CP.
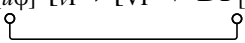
Let us start by considering the version of the Phase Impenetrability Condition (PIC) in Chomsky 2000: 108, according to which a phase complement is spelled out and rendered inaccessible as soon as the next head is merged.

(1)   *Phase Impenetrability Condition* (Chomsky 2000 version)
      In phase α with head H, the domain of H is not accessible to operations outside of α, only H and its edge are accessible to such operations.

As has sometimes been noted, the locality emerging from (1) is arguably too strict when it comes to *v*P phases, as the complement VP would be rendered inaccessible as soon as T is merged. This would rule out agreement between T and VP-internal material as in (2). Yet such configurations are attested, e.g., agreement with nominative objects in Icelandic and other languages (e.g., Richards 2011: 78).

(2)   [TP DP T$_{[u\phi]}$ [$_{v}$P *v* [VP V DP$_{[\phi]}$]]]

There are at least two solutions to this problem. One is to weaken the PIC in (1); the other is to retain (1) but to question the assumption that *v*P is a phase. Chomsky (2001) pursues the first option. He proposes the redefinition of the PIC in (3), which delays the timing of Spell-Out until the next-higher *phase* head is merged (Chomsky 2001: 14). On this revised PIC, the VP in (2) is not spelled out until C is merged. Agreement between T and a VP-internal object is then correctly allowed.

(3) *Phase Impenetrability Condition* (Chomsky 2001 version)
     The domain of phase head H is not accessible to operations at the next-higher phase ZP; only H and its edge are accessible to such operations.

(3) makes an immediate prediction: If there is more than one *v*P intervening between T and the VP in (2), agreement between T and VP-internal material should be impossible because VP is spelled out as soon as the higher *v*P is merged, hence before T can agree. This paper claims based on converging evidence from ϕ-agreement and *wh*-licensing in Hindi that this prediction is not borne out. Rather, this evidence suggests that agreement relations can be established across an unbounded number of *v*Ps. This finding is unexpected on both (1) and (3). I conclude from these considerations that delaying the timing of Spell-Out does not seem to provide a comprehensive solution to the underlying problem. I then suggest that if *v*P is not a phase, the problem does not arise to begin with.

2   The (non-)locality of ϕ-agreement in Hindi

In Hindi, a verb agrees with the structurally highest argument that does not bear an overt case marker. This allows for object agreement if the subject is overtly case-marked (e.g., with ergative case). Crucially for our purposes, there is good reason to believe that object agreement in Hindi is not dependent on movement of the object. First, there is no indication that agreeing objects occupy a structural position different from that of non-agreeing ones (Bhatt 2005). Second, objects that resist movement can nonetheless control verbal agreement (Bhatt & Keine to appear). This is illustrated with the idiom *bhains ke aage biin bajaa*, 'do something futile', (*lit.* 'play the flute in front of buffalo').[1] On the idiomatic reading, the object *biin*, 'flute', can control object agreement (4a), but it resists being moved (4b).

(4) a. raam-ne   bhains ke aage   *biin*   bajaa-*yii*
         Ram-ERG   buffalo in.front.of flute.F.SG   play-PERF.F.SG

         'Ram did something futile.' (*lit.* 'Ram played the flute in front of buffalo.')

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[1] I thank Bhamati Dash for suggesting this idiom to me.

b. #*biin$_i$*   raam-ne   bhains   ke aage t_i bajaa-*yii*
   flute.F.SG   Ram-ERG   buffalo   in.front.of   play-PERF.F.SG

'The flute, Ram played in front of buffalo.'   (*idiomatic reading deviant*)

For concreteness, I assume, following Bhatt (2005), that the verbal φ-probe is located on T and that it enters into an Agree relationship with the highest visible (i.e., not overtly case-marked) argument in its c-command domain, without requiring movement of this argument. Object agreement in (4a) is then established as in (2).

As noted, object agreement as in (2) is compatible with the revised version of the PIC in (3). We will now turn to configurations in which more than one *v*P intervenes between T and the VP-internal object. To achieve this configuration, I will consider structures in which a verb agrees with an object embedded inside a nonfinite complement clause to this verb, i.e., *long-distance agreement* (LDA) configurations (see Mahajan 1990, Butt 1995, Bhatt 2005, Chandra 2007, Keine 2016, 2017). A relevant example is provided in (5), where the idiom from (4) is located inside a nonfinite complement clause. The embedded object *biin*, 'flute', can then control feminine singular agreement on the matrix verb *caahii*, 'want'.[2]

(5)   raam-ne   [bhains   ke aage   *biin*   bajaa-nii   ] caah-*ii*
       Ram-ERG   buffalo   in.front.of   flute.F.SG   play-INF.F.SG   want-PERF.F.SG

'Ram wanted to do something futile.'   (*idiomatic reading possible*)

There is evidence that the nonfinite clause in LDA configurations obligatorily contains a *v*P projection. Bhatt (2005) shows that they license accusative case and Davison (2010) argues they project a PRO subject. Both are properties of *v*. These nonfinite clauses moreover lack a CP layer (Dayal 1996, Bhatt 2005, Chandra 2007).

Furthermore, Bhatt (2005) and Keine (2016, 2017) claim that, just like local agreement, LDA in Hindi does not require movement of the agreement controller. First, elements that resist movement — such as *biin*, 'flute', in (5) on the idiomatic reading (recall (4b)) — can control LDA. Second, there is no evidence that objects

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2 LDA is generally optional, i.e., masculine singular default agreement is also possible in most cases. For cases in which LDA is either prohibited or obligatory, see Butt 1995, Bhatt 2005, and Keine 2016, 2017.

One intriguing property of LDA in Hindi that I cannot do justice here for reasons of space is that the infinitival verb also agrees. It is therefore a priori possible that LDA is established through cyclic agreement à la Legate 2005, in which case the conclusions in this section could be circumvented. However, Bhatt (2005) and Keine (2016) argue that a cyclic-agreement derivation is problematic for LDA in Hindi and that infinitival agreement is merely a byproduct of Agree between matrix T and the embedded object. I will adopt this view in what follows. See these references for discussion.

that control LDA systematically occupy a position different from objects that do not.

Putting these pieces together, we arrive at the conclusion that the agreement relationship between the matrix T and *biin*, 'flute', in (5) is established across *two* *v*P projections (one in each clause) and without the mediation of movement, as schematized in (6), using a right-branching structure for readability.[3]

(6)   [$_{\text{TP}}$ T$_{[u\phi]}$ [$_{v\text{P}}$ *v* [$_{\text{VP}}$ V [$_{\text{nonfinite}}$ [$_{v\text{P}}$ *v* [$_{\text{VP}}$ V DP$_{[\phi]}$]]]]]]]
                                                       clause

If these considerations are on the right track and (5) has the structure in (6), then the PIC in (3) is too restrictive, as it rules out agreement in this structure. This is because the embedded VP containing the object is spelled out and rendered inaccessible as soon as the matrix *v* head is merged.[4] Agree between the matrix T and the embedded object should thus be impossible. The same problem of course arises for the original version of the PIC in (1). Simply delaying the point of Spell-Out to the next-higher phase head is thus sufficient for simple object agreement such as (2), but it still conflicts with more complex object agreement like (6). Delaying the timing of Spell-Out does not seem to offer a real solution to the underlying problem.

It would be possible, of course, to delay the Spell-Out of a phase even further (i.e., when the phase head after the next-higher phase head is merged). This would again merely postpone the problem, but not solve it. It is possible in Hindi to embed a nonfinite clause inside another, as in (7). While the resulting structure is difficult due to the center embedding, LDA between the matrix verb *caahii* and the embedded object *biin* across the two nonfinite clause boundaries is nonetheless possible:

(7) ?raam-ne   [[bhains ke aage   *biin*   bajaa-nii   ] shuruu
     Ram-ERG   buffalo in.front.of flute.F.SG play-INF.F.SG   start

        kar-nii   ] caah-*ii*
        do-INF.F.SG   want-PERF.F.SG

     'Ram wanted to start doing something futile.'   (*idiomatic reading possible*)

In (7), ϕ-agreement crosses three *v* projections, one in each clause:

(8)   [$_{\text{TP}}$ T$_{[u\phi]}$ [$_{v\text{P}}$ *v* [$_{\text{VP}}$ V [$_{\text{nonfinite}}$ [$_{v\text{P}}$ *v* [$_{\text{VP}}$ V [$_{\text{nonfinite}}$ [$_{v\text{P}}$ *v* [$_{\text{VP}}$ V DP$_{[\phi]}$]]]]]]]]]]
                                                       clause   clause

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3 I will remain agnostic with respect to the category label of the nonfinite clause as it is not relevant to the argument.

4 Following Chomsky (2000, 2001), one might entertain the possibility that one or both of the *v*'s in (6) are 'defective' and hence weak phases that do not trigger Spell-Out. While this is a possibility, it should be noted that both introduce an external argument and arguably assign case. In Chomsky's system, there is hence little independent justification for treating them as defective.

In sum, I have presented evidence that indicates that φ-agreement in Hindi is able to cross an arbitrary number of *v*Ps. This is unexpected if *v*P is a phase and its complement hence a domain of Spell-Out, irrespective of the timing of Spell-Out.

Interestingly, CPs behave very differently from *v*Ps for agreement. Finite clauses, which are uncontroversially CPs in Hindi, do not allow LDA into them. Consequently, an element inside an embedded finite clause cannot be targeted by Agree from the matrix T. This is illustrated in (9), where agreement between *soc*, 'think', and *ghazal*, 'ghazal', is impossible. Only default agreement on the matrix verb is possible.

(9) laṛkõ-ne   soc-aa/*-*ii*   [CP ki   monaa-ne   *ghazal*
     boys-ERG   think-PERF.M.SG/*-PERF.F.SG   that Mona-ERG ghazal.F

     gaa-yii   thii   ]
     sing-PERF.F.SG be.PAST.F.SG

     'The boys thought that Mona had sung ghazal.'   (Bhatt 2005: 776)

These examples highlight a qualitative empirical difference between CPs and *v*Ps with respect to their effects on the locality of φ-agreement. Agreement may proceed over a potentially unbounded number of *v*Ps, but not over CPs. The next section will present converging evidence from *wh*-licensing in Hindi.

3   The (non-)locality of *wh*-licensing

Hindi does not have obligatory overt *wh*-movement to SpecCP, though *wh*-phrases may optionally scramble in the same way as non-*wh* elements (see Dayal 2017 and references cited there).

(10) raam-ne   kyaa khaa-yaa   thaa
      Ram-ERG   what eat-PERF.M.SG be.PAST.M.SG

      'What did Ram eat?'   (Mahajan 1990: 125)

There is evidence from focus intervention effects (Beck 2006) which indicates that Hindi does not employ covert *wh*-movement either (*pace* Mahajan 1990 and Dayal 1996). (11) demonstrates that Hindi exhibits focus intervention effects, a fact already noted by Beck (2006). In (11a), the NPI *kisii-ne-bhii*, 'anyone', intervenes for the *wh*-licensing relationship between the in-situ *wh*-element *kis-ko*, 'who-DAT', and its licensing C head. If the *wh*-element is scrambled over the NPI, as in (11b), the intervention effect vanishes, a hallmark property of focus intervention effects.

(11) a. ??kisii-ne-bhii   kis-ko   vote nahı̃ı̃ di-yaa?
          someone-ERG-NPI who-DAT vote not   give-PERF.M.SG

      b. kis-ko$_1$ kisii-ne-bhii t_1 vote nahı̃ı̃ di-yaa?
          who-DAT someone-ERG-NPI   vote not   give-PERF.M.SG

      'Who didn't anyone vote for?

Kotek (2014), extending work by Pesetsky (2000), argues that focus intervention effects can be used to distinguish covert *wh*-movement from the absence of movement because focus intervention effects between a *wh*-element and its licensing C head arise only if that *wh*-element does not undergo covert movement over the focus intervener. That is, she argues that covert movement has the same rescuing effect as overt movement. Against this background, (11) provides an argument that *wh*-elements in Hindi do not undergo covert *wh*-movement. This in turn suggests that *wh*-licensing in Hindi shares with ϕ-agreement the property that it does not require movement of the *wh*-phrase, but instead involves a long-distance Agree relationship between the interrogative C and the *wh*-element. The existence of an Agree dependency is supported by the fact that the relationship between the *wh*-element and its licensing C is subject to syntactic locality constraints, because, e.g., intervening CPs interrupt *wh*-licensing. If the embedded clause is finite, as in (12), a *wh*-element inside this clause may not take matrix scope (Mahajan 1990, Dayal 1996), indicating that it may not enter into an Agree relation with a matrix C (for the so-called scope-marking construction, see Dayal 1996):

(12) *siitaa-ne soc-aa   [$_{CP}$ ki ravii-ne *kis-ko*
       Sita-ERG think-PERF.M.SG   that Ram-ERG who-ACC
         dekh-aa   ]
         see-PERF.M.SG

      'Who did Sita think that Ravi saw?'   (Mahajan 2000: 319)

Against this background, let us now consider the effect of *v*Ps on this Agree dependency. I will show that, just like ϕ-agreement, the *wh*-licensing dependency is not blocked by intervening *v*Ps.

   Nonfinite clauses in Hindi are transparent to *wh*-licensing. In (13), the embedded object *kyaa*, 'what', is *wh*-licensed by the matrix C head, yielding a matrix question (which, incidentally, is the only interpretation of (13)).

(13) tum [*kyaa* kar-naa   ] jaan-te   ho
      you   what do-INF.M.SG   know-IMPERF.M.PL be.PRES.2PL

‘What do you know to do?’   (Dayal 1996: 23)

One property of *kyaa*, ‘what’, that I will make use of is that it resists movement (Rajesh Bhatt, p. c.). This is shown in (14), which would be well-formed only if *kyaa* did not move.

(14) ???kyaa$_1$ sangiitaa-ne t_1 khaa-yaa
         what   Sangita-ERG   eat-PERF.M.SG

The fact that *kyaa* resists being moved indicates that it is *wh*-licensed in its base position in (13). Because there are two *v*P projections intervening between *kyaa* and the matrix C in (13) (one inside the infinitival clause, one inside the matrix clause), its schematized structure is (15).

(15)   [$_{CP}$ C$_{[u\mathrm{wh}]}$ [$_{TP}$ T [$_{vP}$ *v* [$_{VP}$ V [$_{nonfinite}$ [$_{vP}$ *v* [$_{VP}$ V DP$_{[\mathrm{wh}]}$]]]]]
                                                      clause

On the view that *v*P is a phase, the wellformedness of the Agree dependency in (15) is surprising on both versions of the PIC in (1) and (3), for the same reason that the φ-agreement configuration in (6) is: By the time the *wh*-probe on C is merged, the embedded object should have been spelled out and rendered inaccessible.

    Just as in the case of φ-agreement, further delaying the timing of Spell-Out will likewise not resolve the problem because *wh*-words may be separated from their licensing C heads by a potentially unbounded number of *v*Ps. In (16), the dependency crosses two nonfinite clauses, hence three *v*Ps, as schematized in (17).

(16) ?raam [[*kyaa* khaa-naa   ] phir-se shuruu kar-naa   ]
       Ram   what eat-INF.M.SG   again   start   do-INF.M.SG

         caah-taa   hai?
         want-IPFV.M.SG be.PRES.3SG

‘What does Ram want to start to eat again?’

(17)   [$_{CP}$ C$_{[u\mathrm{wh}]}$ [$_{vP}$ *v* [$_{VP}$ V [$_{nonfinite}$ [$_{vP}$ *v* [$_{VP}$ V [$_{nonfinite}$ [$_{vP}$ *v* [$_{VP}$ V DP$_{[wh]}$]]]]]]]]]
                                      clause   clause

In sum, *v*Ps do not interfere with the *wh*-licensing Agree step. They hence differ qualitatively from CPs, which block such Agree (recall (12)).

4   Conclusion

This paper started out with the observation that *v*P phases combined with immediate Spell-Out (i.e., the PIC in (1)) is arguably too restrictive empirically in that it rules out attested Agree dependencies. Based on ϕ-agreement and *wh*-licensing in Hindi, I have argued that delaying the timing of Spell-Out does not provide a comprehensive solution to this problem because the number of *v*P projections that can intervene is unbounded. Furthermore, a general delay in phasal Spell-Out (as in ((3))) would likewise weaken the locality of CP phases and put them on par with *v*Ps — an unwarranted consequence, as we have seen. The transparency of *v*Ps for ϕ-agreement and *wh*-licensing in Hindi thus poses an interesting challenge to the claim that *v*Ps are phases alongside CPs.[5]

I would like to suggest a simple but slightly more radical way of addressing this puzzle: If *v*Ps are *not* phases, then the fact that they can be effortlessly crossed by agreement dependencies is in fact predicted, and so is their contrast to CPs. The kind of timing problem that I have laid out here then does not arise in the first place and the more restrictive version of the PIC in (1) can be maintained.

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[5] I argue in Keine 2016, 2017 that CP phases by themselves are not strong enough to capture the locality properties of ϕ-agreement and *wh*-licensing and Hindi, but this complication does not affect the problem I have presented here for *v*P phases, as here *v*P phases are too restrictive.

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Kyle owns more suits than the one he's wearing, or an argument for a degree-theoretic analysis of gradability and comparison*

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1 Two theories about gradability and comparison

Broadly speaking, there are two types of analyses of gradability and comparison. The first type of analysis characterizes gradable predicates as type-theoretically distinct from non-gradable predicates, such that they relate objects to values in an ordered domain of *degrees*. The denotation of an arbitrary gradable predicate over individuals on this view looks something like (1) (e.g. Seuren 1973, Cresswell 1976, Bierwisch 1989, and many more).

(1) $[\![\gamma]\!] = \lambda d \lambda x.$the degree to which x is γ is at least as great as d

The comparative, on this view, saturates the degree argument of the predicate and builds a property that is true of an object just in case the degree to which it is mapped exceeds the degree to which some other object — the *standard* — is mapped. The syntax and compositional semantics of standards is complex, but there is reason to believe that in many languages (English included), the standard can sometimes be individual-denoting. In such cases, the denotation of *more* can be stated as in (2) (see e.g. Hankamer 1973, Heim 1985, Kennedy 2007, Bhatt & Takahashi 2011; but see also Lechner 2001 for a different view).

(2) $[\![more\ \gamma]\!] = \lambda s \lambda t.max\{d \mid [\![\gamma]\!](d)(t)\} \succ max\{d \mid [\![\gamma]\!](d)(s)\}$

Similar kinds of denotations can be stated for other kinds of degree constructions, with the result that this basic approach to gradable predicate meaning provides a fairly straightforward and extendable account of the semantics of the many complex constructions in which gradable adjectives appear. One analytical wrinkle for the account, however, is that it must stipulate some mechanism for saturating the degree argument in the case of the unmarked, positive form of a gradable predicate. The usual approach is to say that the degree argument is saturated by a variable or some other context-dependent expression whose job is to specify an appropriate *threshold* that an object must reach in order to count as satisfying the property in the context of utterance. This correctly captures the meaning of the positive form,

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though some authors have criticized this approach — and the degree-theoretic analysis of gradable adjectives more generally — on the grounds that no language (that we know of) requires overt degree morphology in the positive form (see Klein 1980, Francez & Koontz-Garboden 2015, Grano & Davis to appear). This is indeed somewhat surprising given the denotation in (1).

The second type of analysis starts from the observation that the positive form is unmarked, and assumes that the vague, context-dependent meaning that this form expresses reflects its basic lexical semantics (i.e., is not the result of saturation of a degree argument), and builds a semantics for comparison on top of that meaning. Generalizing quite a bit, in this kind of analysis, an arbitrary gradable predicate is assigned an extension relative to a parameter θ, which serves to determine the threshold that distinguishes the things that satisfy the predicate from the things that don't, as in (3).

(3) $[\![\gamma]\!]^\theta = \lambda x.$the degree to which x is γ is at least as great as θ

Variants of this analysis differ mainly in what θ is taken to be: a designated coordinate of the index of evaluation (Lewis 1970, McConnell-Ginet 1973), a parameter that generalizes over alternate precisifications in a supervaluationist framework (Kamp 1975), a comparison class (Wheeler 1972, Klein 1980, van Rooij 2011, Burnett 2016), etc. But the general idea is that this parameter provides a basis for fixing the extension of the predicate in a way that ensures that those objects the predicate is true of have the relevant property to a degree that is greater than the objects that it is false of, which is what the metalanguage characterization of truth conditions in (3) is meant to reflect, and that this parameter can differ from context to context. And with this kind of meaning for the positive form in hand, the semantics of the comparative is straightforward: It denotes a relation between objects such that there is a way of fixing θ to make the positive form true of the first object and false of the second:

(4) $[\![more\ \gamma]\!]^\theta = \{\langle t,s \rangle \mid \exists \theta'[t \in [\![\gamma]\!]^{\theta'} \land s \notin [\![\gamma]\!]^{\theta'}\}$

Note that I have purposely written the denotation in (3) to make it look as similar as possible to (1), because at the end of the day the truth conditions that the second, *threshold parameter* analysis derives for the positive form are identical to those derived on the first, *degree relation* analysis. But the two analyses are distinct in two crucial ways. First, there is a model-theoretic difference: Degrees provide the semantic values of expressions of the object language in the degree relation approach, but not in the threshold parameter analysis. In that sense, the latter is arguably simpler than the former. Second, there is a syntactic difference: Gradable predicates denote properties (type $\langle e,t \rangle$) in the threshold parameter analysis and relations (type $\langle d,et \rangle$) in the degree relation analysis. Here too, the threshold parame-

ter analysis is simpler, and moreover more transparently reflects the cross-linguistic morphosyntactic properties of gradable predicates.

Given these considerations, a case can certainly be made on both theoretical and simplicity grounds that the threshold parameter analysis should be preferred over the degree relation analysis. Proponents of the degree relation analysis have, at various times, attempted to present empirical arguments in favor of degrees, but it is in fact exceedingly difficult to find points where the analyses make different empirical predictions, given that the core semantics provided by the threshold analysis provides a basis for imposing orderings that mirror the structure of degree scales. The goal of this squib is to provide a new empirical argument in favor of the degree relation analysis, though I will acknowledge at the outset that it may very well be an "argument of limited cleverness": I will discuss a particular class of comparative constructions that have a straightforward analysis on the degree relation approach, but no obvious, non-*ad hoc* analysis on the threshold approach that I can see.

2   Subset comparatives

Grant (2013) and Aparicio (2013) observe that comparatives like (5a), to which Grant gives the name *subset comparatives*, differ from from regular amount comparatives like (5b) in their presuppositions.

(5)   a.   Kyle owns more suits than the one he's wearing.
        b.   Kyle owns more suits than me.

Both (5a) and (5b) entail that the cardinality of the set of suits that Kyle owns is greater than the cardinality of a second set, which is introduced by the standard phrase, and spelled out in (6a) and (6b) respectively.

(6)   a. $\{x \mid x$ is the suit that Kyle is wearing $\}$
        b. $\{x \mid x$ is a suit that I own $\}$

But these two comparatives differ in their presuppositions: (5a) presupposes that the set introduced by the standard is a subset of the corresponding *target* set of objects picked out by the rest of the clause — that the suit that Kyle is wearing is a subset of the suits Kyle owns — which gives rise to the inference that Kyle owns the suit he is wearing, an inference that is preserved under negation and question formation:

(7)   a.   Kyle doesn't own more suits than the one he's wearing.
        b.   Does Kyle own more suits than the one he's wearing?

Thus (5a) presupposes that the set in (6a) is a subset of the set of suits Kyle owns, and asserts that it is a *proper* subset; hence the name "subset comparative."

(5b) carries no such presupposition, neither in terms of objects, which would imply that Kyle and I share ownership of suits (if only!), nor in terms of quantities, which would imply that the set of numbers that represent pluralities of suits that I own is a subset of the set of numbers that represent pluralities of suits that Kyle owns. If this were the case, then (5b) would presuppose that Kyle and I have at least the same number of suits, and would assert that he has more. But this is not the case: Both (7a) and (7b) are compatible with me owning more suits than Kyle (contrary to actual fact, of course).

(8)   a. Kyle doesn't own more suits than me.

        b. Does Kyle own more suits than me?

Grant (2013) writes the presupposition of subset comparatives into the denotation of a special comparative morpheme, but Aparicio (2013) shows that the presupposition follows automatically from the interaction of the "phrasal" semantics for the comparative morpheme illustrated above in (2) and the particular syntactic properties of subset comparatives, which involve configurations in which the target of comparison is the comparative-marked argument. To see how this works, let me first illustrate the analysis of (5b). Assume that the gradable predicate in this example is a cardinality predicate MANY that relates plural individuals to their cardinalities, which composes with the plural noun *suits* to derive the degree relation in (9).

(9) $[[\text{MANY suits}]] = \lambda d \lambda x. \#(x) \succeq d \wedge \textbf{suits}(x)$

This is not the meaning that we need to derive the correct truth conditions for (5b), however, given the semantics for comparatives in (2); instead we need a relation between degrees d and individuals y such that d is the number of suits that y owns. Such a relation can be derived by scoping the comparative morpheme to a position above existential closure of the internal argument of *owns* (which composes with the verb via something like Chung and Ladusaw's (2004) Restrict operation), as shown in (10) (where i marks the scope of the comparative, as in Heim & Kratzer 1998).

(10) $[[[i [\exists\text{-}clo \text{ [owns } [t_i \text{ MANY suits]]]]}] = \lambda d \lambda y. \exists x[\textbf{owns}(x)(y) \wedge \#(x) \succeq d \wedge \textbf{suits}(x)]$

This expression corresponds to γ in (2); composing it with the comparative morpheme, then the standard (*than me*), and finally the target (*Kyle*) derive the truth conditions in (11), which are just what we want: the maximal d such that d is a number of suits that Kyle owns exceeds the maximal d such that d is a number of suits that I own.

(11) $max\{d \mid \exists x[\textbf{owns}(x)(\textbf{kbj}) \wedge \#(x) \succeq d \wedge \textbf{suits}(x)]\} \succ max\{d \mid \exists x[\textbf{owns}(\textbf{ck})(s) \wedge \#(x) \succeq d \wedge \textbf{suits}(x)]\}$

In regular comparatives like (5b), the target and standard expressions saturate distinct argument positions from the comparative expression. What makes subset comparatives special, Aparicio points out, is that the standard and target expressions correspond to the same argument position as the comparative expression: in (5a), the direct object of *owns*. Aparicio shows that the correct truth conditions and presuppositions for this example can be derived by scoping the comparative morpheme above the subject and holding off on existential closure of the internal argument position (the target) until after the standard has been saturated. This derives the following structure and interpretation for the argument of *more*:

(12) $[\![[i \text{ Kyle owns } [t_i \text{ MANY suits}]]\!] = \lambda d \lambda x.\textbf{owns}(x)(\textbf{kbj}) \wedge \#(x) \succeq d \wedge \textbf{suits}(x)$

This expression corresponds to γ in (2); composition with the comparative morpheme, followed by composition with the standard expression (*than the one he's wearing* = $\textbf{skw}$) and finally existential closure of the target argument (the individual argument introduced by MANY *suits*) derives (13) as the denotation of the subset comparative.

(13) $\exists x[max\{d \mid \textbf{owns}(x)(\textbf{kbj}) \wedge \#(x) \succeq d \wedge \textbf{suits}(x)\} \succ max\{d \mid \textbf{owns}(\textbf{skw})(\textbf{kbj}) \wedge \#(\textbf{skw}) \succeq d \wedge \textbf{suits}(\textbf{skw})\}]$

In prose: There is an *x* such that the maximal *d* such that *d* is a number of *x*s that Kyle owns and *x* is a suit is greater than the maximal *d* such that Kyle owns the suit he is wearing and the number of the suit he is wearing is *d*. This will be true as long as Kyle owns more than one suit (since one is the number of the suit he is wearing), and crucially it will be *undefined* if Kyle does not own the suit he is wearing, since in that case the standard set would be empty, and there would be nothing to maximize over. In this way, the presuppositions of subset comparatives are derived.

3 An argument for degrees

In my illustration of "regular" (non-subset) phrasal comparatives above, I used a degree relation semantics for gradable predicates and comparatives. However, I could have just as well used a threshold parameter analysis. First, assume a threshold-sensitive variant of MANY which returns the following denotation for MANY *suits*:

(14) $[\![[\text{MANY suits}]\!]^\theta = \lambda x.\#(x) \succeq \theta \wedge \textbf{suits}(x)$

Then assume that the grammar provides some mechanism for scoping a threshold-manipulating comparative morpheme (see Larson 1988). Scoping the comparative above existential closure of the internal argument, exactly as in the analysis described above, derives threshold-sensitive expression in (15).

(15) $[\![[\exists\text{-}clo \text{ [owns [\textsc{many} suits]]]}]\!]^{\theta} = \lambda y.\exists x[\mathbf{owns}(x)(y) \wedge \#(x) \succeq \theta \wedge \mathbf{suits}(x)]$

Taking this expression as γ in (4) and composing first with the comparative morpheme and then with the standard and target derives the truth conditions in (16), which also accurately capture the meaning of (5b): there's a threshold θ' such that there's a group of suits that Kyle owns whose count is at least as great as θ' and there's no group of suits that I own whose count is at least as great as θ'.

(16) $\exists\theta'[\exists x[\mathbf{owns}(x)(\mathbf{kbj}) \wedge \#(x) \succeq \theta' \wedge \mathbf{suits}(x)] \wedge \neg\exists x[\mathbf{owns}(x)(\mathbf{ck}) \wedge \#(x) \succeq \theta' \wedge \mathbf{suits}(x)]]$

When we try to generalize this approach to subset comparatives, however, we fail to derive the same results as the degree theoretic analysis. Assuming as above that the comparative morpheme can take scope above the subject, and holding off on existential closure over the internal argument of *owns*, we derive (17) as our threshold-sensitive γ-term:

(17) $[\![[\text{Kyle owns [\textsc{many} suits]}]\!]^{\theta} = \lambda x.\mathbf{owns}(x)(\mathbf{kbj}) \wedge \#(x) \succeq \theta \wedge \mathbf{suits}(x)$

Composing this with *more*, then the standard (*the one he's wearing* = **skw**), and then existentially closing the target argument, just as in Aparicio's analysis, derives (18).

(18) $\exists\theta'[\exists x[\mathbf{owns}(x)(\mathbf{kbj}) \wedge \#(x) \succeq \theta' \wedge \mathbf{suits}(x)] \wedge \neg[\mathbf{owns}(\mathbf{skw})(\mathbf{kbj}) \wedge \#(\mathbf{skw}) \succeq \theta' \wedge \mathbf{suits}(\mathbf{skw})]]$

These truth conditions are satisfied whenever the number of suits Kyle owns is greater than the number one, which is the number of the suit he is wearing. However, they are also satisfied if he doesn't own the suit he is wearing, so the meaning does not derive the presupposition of (5a). Such a presupposition can of course be stipulated, but it does not follow in any way from the architecture of the threshold parameter analysis, in the way that it does follow automatically from the degree relation analysis, given otherwise fully parallel assumptions about the compositional analysis of phrasal comparatives. To the extent that we want our analyses to derive facts like these with a minimum of *ad hoc* stipulations, then, subset comparatives provide an argument for a degree-theoretic approach to the semantics of gradability and comparison.

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That's a beautiful dress that you're wearing: a curious relative clause construction in English*

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1 Introduction

In colloquial English, sentences like (1)–(4) are commonly heard:[1]

(1)   That's a beautiful dress that you're wearing.

(2)   That's a cute puppy that you have in your picture.

(3)   That's a lovely accent you have there.

(4)   That's an interesting idea you brought up.

These sentences, without a doubt, exemplify a type of relative clause (RC) construction, as they all contain an embedded clause (CP) which contains a gap and this gap is co-indexed with the noun phrase that immediately precedes it (henceforth head N), as sketched in (5) for (1). (Here, t_1 stands for the gap inside the embedded clause of an RC.)

(5)   [$_{TP}$ That's [*a beautiful dress*]$_1$ [$_{CP}$ that you're wearing t_1]]

In this paper, however, I show that these RCs exhibit several curious properties that make them stand out, and they pose interesting challenges to theoretical syntactic and semantic analyses of RCs. Since such RCs have not been dealt with in the extant literature, for ease of reference, below, I call them *what's that RCs*.

2 Characteristic properties of *what's that* RCs

What I call *what's that* RCs exhibit at least five characteristic properties.

First of all, they occur in copular clauses, occupying the post-copular position, and the subject of their embedding clauses is the distal demonstrative *that*. To exem-

plify this, consider first (6)–(9): These data show that the post-copular noun phrases that occur in (1)–(4) cannot occur in object positions.

(6)   *I like a beautiful dress that you're wearing.

(7)   *I like a cute puppy that you have in your picture.

(8)   *I like a lovely accent you have there.

(9)   *I like an interesting idea you brought up.

Consider now (10)–(13). These data show that replacing the subject of the embedding clause of a *what's that* RC with *this* or *it* yields ungrammaticality or pragmatic infelicity; it has to be *that*.

(10)   a. *_It_'s a beautiful dress that you're wearing.
        b. #*This* is a beautiful dress that you're wearing.

(11)   a. *_It_'s a cute puppy that you have in your picture.
        b. #*This* is a cute puppy that you have in your picture.

(12)   a. *_It_'s a lovely accent you have there.
        b. */#*This* is a lovely accent you have there.

(13)   a. *_It_'s an interesting idea you brought up.
        b. */#*This* is an interesting idea you brought up.

Secondly, *what's that* RCs require that their head Ns be indefinite and this is exemplified by the ungrammaticality of the data given in (14)–(17).

(14)   *That's *the* beautiful dress that you're wearing.

(15)   *That's *the* cute puppy that you have in your picture.

(16)   *That's *the* lovely accent you have there.

(17)   *That's *the* interesting idea you brought up.

Thirdly, the head Ns of these RCs must be modified by an attributive adjective (ADJ). To see this, compare (18)–(21) with (1)–(4).

(18)   *That's *a* dress that you're wearing.

(19)   *That's *a* puppy that you have in your picture.

(20)   *That's *an* accent you have there.

(21)   *That's *an* idea you brought up.

Fourth, what I call *what's that* RCs require that the relative pronoun (REL) be either *that* or null but not a *wh*-pronoun. This is illustrated by the badness of the data in (22)–(25).

(22) *That's a beautiful dress *which* you're wearing.

(23) */#That's a cute puppy *which* you have in your picture.

(24) *That's a lovely accent *which* you have there.

(25) *That's an interesting idea *which* you brought up.

Fifth, the embedded clause of a *what's that* RC may only have present or simple past tense or realis mood. By way of illustration, consider (26)–(29) in comparison with (1)–(4); these sentences all have an irrealis mood in their embedded clauses.

(26) *That's a beautiful dress that you'*ll* be making.

(27) *That's a cute puppy that you *may* have in your picture.

(28) *That's a lovely accent that you *wish to* have.

(29) *That's an interesting idea that you *are to* bring up.

Additionally, consider (30)–(33), which are all judged good and which all have simple past- or present-tensed embedded clauses, just like (1)–(4) but unlike (26)–(29).

(30)　　That's an interesting idea you *have come* up with.

(31)　　That's an interesting idea you *tried* with the Rover.

(32)　　That's a crazy idea you*'ve got* there.

(33)　　That's a wonderful life you *have*!

Finally, let me also point out that although *what's that* RCs typically have *you* as the subject of the embedded clauses, cases where the embedded clause's subject is a 3rd person are not hard to come by, as shown in (34)–(37).[2]

(34)　　That's a beautiful dress *she* is wearing!

(35)　　That's a cute puppy that *she* has in her picture.

(36)　　That's a lovely accent that *she* has there.

(37)　　That's an interesting idea that *she* has brought up.

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2 Sentences (35)–(37) are constructed but I have verified their grammaticality with native speakers of English.

In sum, then, what I call *what's that* RCs have the following characteristic properties:

(38)　*Characteristic properties of* what's that *RCs*

　　i.　They occur in copular sentences whose subject is *that*, occupying the post-copular position.
　　ii.　Their head N is indefinite.
　　iii.　Their head N must be modified by an attributive ADJ.
　　iv.　Their REL cannot be a *wh*-word; it must be *that* or null.
　　v.　Their embedded clause's tense/aspect/mood must be simple past or present, not irrealis.

3　Questions raised by *what's that* RCs

What's that RCs raise several non-trivial questions for generative linguists, in particular those interested in syntax–semantics interface issues.

　　First of all, even though their head Ns cannot be definite, they are interpreted in a way that is analogous to how RCs with definite head Ns are interpreted. To see this, consider first (39), which is a close approximation of the intended meaning of (1). (Here and below, embedded clauses are put inside square brackets, i.e., '[ ]'.)

(39)　*Interpretation of (1), which contains a* what's that *RC*
　　　That's a beautiful dress that [you're wearing].
　　　→ (I see that) [you're wearing a dress] *and it* is beautiful.

Consider now (40), which is comparable to (1) but which does not exemplify what I call a *what's that* RC since it contains a definite head N.

(40)　*Interpretation of a RC whose head N is definite*
　　　That's *the* dress that [you were wearing the other day].
　　　→ [You were wearing a dress the other day] *and it* is that one.

Considering both (39) and (40) shows that, in both cases, the embedded clauses introduce a new discourse referent and the REL contributes the logical connective '&' and a pronoun that refers back to the newly introduced discourse referent, as indicated by italics.

　　For comparison, consider now the sentences in (41), which are similar to (1)–(4) but which do not exemplify what I call *what's that* RCs. These sentences are interpreted in a very different way than those in (1)–(4). For example, the embedded clause of (41a) does not introduce a new discourse referent which is referred back to by the REL *that*, as shown in (42); instead, here, the embedding clause

is first interpreted verbatim and then the embedded clause is interpreted, with the REL being given the meaning of 'and' plus a definite pronoun which refers to the discourse referent introduced by the embedding clause.

(41) a. That's *an* interesting point that I hadn't considered.
b. That's *a* stupid prank that's very unsafe.

(42) *Interpretation of (41a), which contains a RC whose head N is indefinite but which does not instantiate a* what's that *RC*
That's an interesting point that [I hadn't considered].

a. $\nrightarrow$ (I see that) [I hadn't considered a point] *and it* is interesting.
b. $\rightarrow$ That's an interesting point *and* [I hadn't considered] *it*.

Notably, the way (41a) is interpreted is in accordance with what would be predicted by applying the semantic operation Predicate Modification (Heim & Kratzer 1998) given in (43), and this suggests that the material occurring in the post-copular position of (41a) and (41b) has a syntactic structure that is typical of restrictive RCs under which both the head N and the RC are under the scope of the same determiner as given in (44), however such a structure might be derived (see, e.g., Kayne 1994, Ch. 8, and Alexiadou et al. 2000)).

(43) *Predicate Modification* (Heim & Kratzer 1998)
If α is a branching node and $\{\beta, \gamma\}$ the set of its daughters, then, for any assignment a, α is the domain of $[\![\,]\!]^a$ if both β and γ are, and $[\![\beta]\!]^a$ and $[\![\gamma]\!]^a$ are both of type $\langle e, t \rangle$. In this case, $[\![\alpha]\!]^a = \lambda x : x \in D$ and x is in the domain of $[\![\beta]\!]^a$ and $[\![\gamma]\!]^a.[\![\beta]\!]^a(x) = [\![\gamma]\!]^a(x) = 1$.

(44) *Syntactic structure of typical restrictive RCs*

```
            DP
           /  \
        D      \
              /  \
            NP    CP
           /\     /\
```
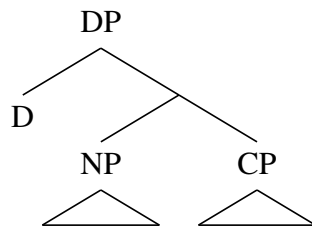
On the other hand, the fact that sentences in (1)–(4) are interpreted in a rather different way (as spelled out in (39) for (1)) raises the question of what might be their underlying structure and how their interpretations can be formally composed. What is clear is that in the case of sentences like (1)–(4), the RC is not under the scope of the indefinite article *a* (if it carries any meaning). Therefore, we cannot assign the structure given in (44) nor apply the semantic operation Predicate Modification in interpreting them.

In this context, I should also mention that what I call *what's that* RCs resemble free relatives in terms of their meaning. By way of example, all the sentences in (1)–(4) and (35) are synonymous in meaning with those given in (45)–(49).[3]

(45)   *What you're wearing* is a beautiful dress.

(46)   *What you have in your picture* is a cute puppy.

(47)   *What you have there* is a lovely accent.

(48)   *What you brought up* is an interesting idea.

(49)   *What she is wearing* is a beautiful dress!

Yet, given that *what's that* RCs have a distinctively different form than free relatives, one cannot help but to wonder how exactly their meanings might be derived in a compositional manner.

Obviously, the demonstrative *that* that occurs in the subject position of the embedding clause of a *what's that* RC plays some role, not to mention the content of the embedded clause; the subject *that* seems to indicate that the speaker is commenting on something that is within their perceptual space and the embedded clause's content spells out what that something is. But beyond this, I do not have much to offer at this point and I therefore have to leave the questions raised above to future research.

4   Summary and conclusion

In this paper, I have introduced a hitherto unremarked-on RC construction in English, which I have labeled here as *what's that* RCs for convenience. These RCs exhibit several interesting semantic properties and in conjunction with the particular syntactic form they take, they present equally many interesting puzzles to anyone interested in the syntax and semantics of RCs.

References

Alexiadou, Artemis, Paul Law, André Meinunger & Chris Wilder. 2000. *The syntax of relative clauses*. Amsterdam: John Benjamins.

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3 By contrast, the sentences in (41) are not, as shown in (i).

(i)   a.   That's an interesting point that I hadn't considered.
                ↛ *What I hadn't considered* is an interesting point.
          b.   That's a stupid prank that's very unsafe.
                ↛ *What's very unsafe* is a stupid prank.

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Geis-ambiguity and tense harmony

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Geis (1970) notes that English sentences like (1) are ambiguous between the high reading and the low reading. According to the high reading, the connective *before* in (1a), for instance, orders the matrix event time with respect to the time of the higher predicate in the *before*-clause; namely the saying time. The low reading compares the matrix event time relative to the most embedded predicate, and it says that Liz left before Liz's leaving time according to what you said.

(1)   a.   Liz left before you said she had.
      b.   John will leave after Mary says that he will.

Geis also observes that the ambiguity disappears when what he calls the Tense Harmony Rule is not obeyed. Compare (1b) with (2).

(2)   John will leave after Mary said that he would.

(2) lacks a high reading and only has a low reading. Geis argues that the higher predicate in the *after*-clause is marked [+ PAST] whereas the lower predicate is marked [− PAST], and therefore only the feature on the latter matches that in the matrix predicate.

For concreteness, let us assume Larson's (1990) analysis of Geis-ambiguity. He proposes that temporal adjunct clauses contain a null operator, and depending on where it originates, the ambiguity arises, as shown below:

(3)   a.   John will leave after [$_{CP1}$ OP1 Mary said t$_1$ [$_{CP2}$ he would]].
      b.   John will leave after [$_{CP1}$ OP1 Mary said [$_{CP2}$ he would t$_1$]].

Semantically, a null operator is like a relative pronoun in the sense of Heim & Kratzer (1998) and is an abstractor over a variable ranging over times. The CP1 in (3a) denotes the set of times in the past at which Mary speech is made. The CP1 in (3b), on the other hand, denotes the set of times of John's leaving, which is in the future with respect to Mary's speech time in the past. This set includes both past and future times with respect to the speech time.

The following fact supports this conclusion. When the future auxiliary *would* is embedded under past, the embedded predicate can be modified by past or future adverbials:

(4) a. A week ago, Mary said he would leave yesterday.
     b. A week ago, Mary said he would leave tomorrow.

A morphological fact also casts doubt on Geis's claim. The auxiliary *would* is often analyzed as the past tense form of *will*. Thus, it is not clear whether the temporal adjunct clause in (3b) is in fact marked [− PAST].

The Tense Harmony Rule is originally proposed to restrict the distribution of different tense forms in English temporal adjunct clauses.

(5) a. *John left before/after Bill leaves.
     b. *John will leave before/after Bill left.

A different account based on semantics/pragmatics can be offered, however. English tenses in temporal adjunct clauses are argued to be absolute tenses, interpreted relative to the speech time (Stump 1985, von Stechow & Grønn 2013, among others). Thus the following sentences are ruled out as contradiction:

(6) a. *John left after Bill leaves.
     b. *John will leave before Bill left.

The unacceptability of the following sentences is reduced to pragmatic considerations (Stump 1985).

(7) a. *John left before Bill leaves.
     b. *John will leave after Bill left.

If John left in the past, and Bill leaves now (or in the scheduled future), we already know that the former event takes place before the latter. The information conveyed by the temporal connective *before* is redundant.

The analysis along this line explains that (2) lacks a high reading. It also explains what is left unaccounted for by the tense harmony analysis. Suppose that (4a) is what I hear about John's leaving, and later I report (2). What I mean is that John will leave after tomorrow. Knowing (4b), however, it is inappropriate to use (2).

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Multiple *wh*-movement and extraction from VPE sites[*]

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1 Introduction

It has proven difficult to understand what drives apparent *wh*-movement in languages with multiple sluicing that lack multiple *wh*-movement. Many authors, including Abels & Dayal (2016), Gärtner (2002), and Richards (2001), propose that the appearance of multiple *wh*-remnants in these languages is the result of an interaction of covert *wh*-chains with ellipsis: Ellipsis of the tail of a covert *wh*-movement chain forces pronunciation of a higher link in the chain, deriving what I will refer to as *exceptional wh*-movement. Although this makes for an elegant analysis of multiple sluicing, I argue the assumptions underlying the analysis appear to make unwelcome predictions about *wh*-movement out of verb phrase ellipsis sites. Verb phrase ellipsis (VPE) should motivate exceptional multiple *wh*-movement, but it does not appear to do so.

I begin in Section 2 by discussing how covert movement approaches derive multiple sluicing in languages without multiple *wh*-movement and why such approaches are appealing theoretically. In Section 3, I show that these approaches predict that VPE should drive exceptional *wh*-movement when VPE sites contain the tail of a covert *wh*-chain, contrary to fact. Following this, in Section 4 I describe multiple *wh*-extraction out of VPE sites in Romanian, showing that overt multiple *wh*-movement is possible in VPE contexts. In Section 5, I sketch how we might account for the differences between sluicing and VPE in a derivational approach to ellipsis, though mysteries remain.

2 Multiple *wh*-sluicing in languages without overt multiple *wh*-movement

In this section, I briefly the describe the standard theoretical approach to sluicing, followed by a description of multiple sluicing and why it is a problem for the standard approach. I then describe Richards's (2001) approach to multiple sluing in languages without multiple *wh*-movement.

2.1 Sluicing basics

Sluicing is an elliptical operation that deletes clauses out of which *wh*-question movement has occurred. Sluices look like stranded *wh*-phrases without accompanying clauses, yet they have the interpretation of full sentences: The second conjunct in (1) is interpreted as 'I don't know which book the students are going to buy', despite the fact that *which book* is the only component of the question that appears.

(1)   The students are going to buy a book, but I don't know which book$_i$.

The standard analysis is that the remnant *wh*-phrase moves out of a clause which undergoes ellipsis. Following Merchant (2001), the head that licenses *wh*-movement also licenses deletion of its complement. Since the *wh*-element is copied to a position outside of the ellipsis site, it escapes ellipsis, while the material remaining in the ellipsis site is left unpronounced, as schematized in (2):[1]

(2)   I don't know [$_{CP}$ which book$_i^2$ [$_{TP}$ ~~they are going to buy~~ which book$_i^1$]].

2.2 Multiple *wh*-movement and multiple sluicing

English does not permit overt multiple *wh*-movement to the left periphery. In embedded *wh*-clauses where two *wh*-phrases occur, only one *wh*-phrase undergoes movement (3). Movement of multiple *wh*-elements is ungrammatical (4).

(3)   Mary donated a different book to each charity, but I don't know which book$_i$ she donated to which charity$_k$.

(4)   *Mary donated a different book to each charity, but I don't know which book$_i$ to which charity$_k$ she donated.

Bolinger (1978) shows that, despite this, sluices can apparently have multiple remnants, as in (5). *multiple sluicing* is well-attested in languages that typically ban multiple *wh*-movement.

(5)   Mary donated a different book to each charity, but I can't remember which book$_i$ to which charity$_k$.

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[1] It is necessary to keep track different kinds of unpronounced material, and I use various typographical conventions to do so throughout. I use grey text to indicate an unpronounced copy and ~~strikethrough~~ to indicate ellipsis. Focus is indicated with SMALL CAPS when relevant.

It is also important to keep track of copies of the same element. I will use a subscript letter to indicate membership in a chain. A superscript numeral indicates which copy an element is. These are conventions I adopt for convenience; I do not assume these indices are linguistically real. Richards's (2001) strong and weak positions will be indicated with an S or a W superscript on a bracket, respectively. Remnants in examples will be underlined.

This poses a challenge to the standard analysis of sluicing sketched in (2). Since multiple overt *wh*-movement is not generally permitted in English, it is unclear how multiple *wh*-phrases escape the ellipsis site; i.e., (5) seems to require as a base structure the ungrammatical (4). To preserve the standard analysis of sluicing, we must find a way to allow multiple *wh*-fronting while restricting it to elliptical contexts.

2.3   Solution: exceptional movement

One approach to multiple sluicing is to propose that ellipsis drives exceptional movement of *wh*-elements to the left periphery. This relies on two assumptions:

i.   Movement of additional *wh*-elements happens covertly.

ii. Ellipsis precludes pronunciation of the tail copies of these *wh*-chains.

Richards (2001: 137–140), with these assumptions, proposes that multiple sluicing, as in (5), occurs when pronunciation of a lower copy is blocked by an independent application of clausal ellipsis: If ellipsis targets a phrase that contains the tail of a covert *wh*-chain, a higher link in the *wh*-element must be pronounced.

Richards (2001), assuming the copy theory of movement, argues that PF must receive unambiguous instructions regarding which element in a chain to pronounce. The difference between overt and covert movement is based on whether movement is triggered to a strong or weak position. A strong position requires a link in a chain be pronounced in that position, but a weak position does not, so movement to a weak position will usually be delayed until after spell out.[2]

Let us examine how this works in English. Assume that only the higher of the two *wh*-landing sites is a strong position; the lower positions are weak. The higher *wh*-element will be pronounced in the left periphery, whereas lower *wh*-elements are pronounced *in situ*:

(6)   but I don't know [$^S_{CP}$ who^2_i [^{W} what^2_k [$_{TP}$ who^1_i will buy what^1_k]]].

Because deleting TP blocks the lower copy of *what* from being pronounced, it cannot be pronounced *in situ*. Under Richards's view, this requires exceptional narrow-syntactic movement to a weak position: Ellipsis forces overt movement of the second *wh*-word, allowing for exceptional pronunciation in a weak position.

(7)   but I don't know [$^S_{CP}$ who^2_i [^{W} what^2_k [$_{TP}$ ~~who^1_i~~ ~~will buy~~ ~~what^1_k~~]]].

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2 There are several similar approaches in the literature; see, e.g., Gärtner 2002 and Abels & Dayal 2016. For simplicity, I will generally restrict my discussion to Richards 2001.

This solution is elegant because it explains why multiple sluicing is available in languages that allow overt movement of only a single *wh*-element without appealing to stipulative construction-specific movements or non-constituent deletions. The claim is that every *wh*-element undergoes movement and only when ellipsis forces lower copies to go unpronounced can higher copies be pronounced. Multiple *wh*-fronting in non-elliptical contexts is otherwise ruled out because there is only one strong position in the left periphery triggering overt movement.

2.4 Richards' analysis also explains pseudogapping

Richards also argues that ellipsis motivates exceptional movement out of VPE sites. Pseudogapping is a phenomenon where a *v*P-internal element (the remnant) appears stranded next to an auxiliary verb while the rest of the *v*P appears to be missing:

(8)   John could pull you out of a plane, like he did <u>his brother</u>.

A common analysis of this phenomenon involves movement of the remnant to a position outside *v*P and subsequent ellipsis of the *v*P. Richards (2001: 137) assumes that in English this movement is typically covert. Only when VPE deletes *v*P can an object be pronounced in this position, as in (9). This ties the fact that pronunciation in this position is limited to cases where pronunciation in the base position is independently blocked.

(9)   like he did [$_{\text{Agr}_\text{O}\text{P}}^{\text{W}}$ his brother$_k^2$ [pull ~~his brother~~$_k^1$ ~~out of a plane~~]].

Psuedogapping will be important going forward, since we will be turning our attention to away from sluicing and toward VPE. Since pseudogapping appears to be a case where VPE drives exceptional movement, we will want to use it as a point of comparison in our discussion of whether VPE can drive exceptional *wh*-movement.

2.5 Summary

Richards (2001) proposes that ellipsis prevents the tails of covert *wh*-chains from being pronounced, resulting in the exceptional pronunciation of higher links. This explains several phenomena, including multiple sluicing in languages without multiple (overt) *wh*-movement and movement of pseudogapping remnants.[3] As I explain in the following section, however, the approach overgenerates, predicting that there should be more movement out of ellipsis sites than is actually attested.

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3 Richards also argues that this analysis can explain sluicing in languages without any overt *wh*-movement, like Japanese. However, Japanese has been argued to lack true sluicing; see Merchant 1998.

3   The VPE problem

The issue I will raise with ellipsis-driven exceptional movement is that it predicts there should be more exceptional movement than is actually attested. Specifically, I look at predicted patterns of multiple *wh*-fronting in clauses containing VPE. Before this, I discuss the conditions on *wh*-extraction out of VPE sites, since there are certain restrictions on when this is possible that one must control for.

3.1   Extraction from VPE sites

Wh-movement out of VPE sites is well established, but in order for it to be licit, some new or focused material must occur between the extracted *wh*-element and the ellipsis site (Schuyler 2001):

(10)   They said they WOULD buy a puppy, but I don't know [$_{CP}^{S}$ which one$_i$ they SHOULD [$_{vP}$ ~~buy which one$_i$~~]].

(11)   MARY should buy that puppy, but I don't know [$_{CP}^{S}$ which one$_i$ BILL should [$_{vP}$ ~~buy which one$_i$~~]].

Without a focused element between the *wh*-element and the ellipsis site, clausal ellipsis (i.e., sluicing) is required, an effect known as MAX-ELIDE (Merchant 2008):

(12)   Mary should buy a puppy, but I don't know which one (*? she should).

   Remember going forward that the movement in these cases is driven by a strong feature in the left periphery, occurring regardless of whether ellipsis happens: The reason sluicing is preferred in (12) is not because VPE fails to motivate movement in these cases.[4] Introducing a focused element between the *wh*-element and the ellipsis site blocks the MaxElide effect, The parallelism between the possible sluice and its antecedent is destroyed and there is no antecedent for a sluice.

3.2   Multiple *wh*-extraction

Critically, languages without multiple *wh*-movement do not allow exceptional multiple *wh*-fronting if at least one of the *wh*-words originates in the VPE site:

(13)   *Each student must buy something, but I don't know [$_{CP}^{S}$ who$_i$ [^{W} what$_k$ [$_{TP}$ who$_i$ SHOULD [$_{vP}$ ~~buy what$_k$~~]]]].

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4 It is widely believed that movement somehow obligates ellipsis of the larger constituent due to the interaction of the LF-identity requirement on ellipsis (Sag 1976) and the way that movement introduces variables into LF representations.

(14)   *Mary said she wants to give one of these books to each of her students, but I can't tell her [$_{\text{CP}}^{\text{S}}$ which book$_i$ [$^{\text{W}}$ to which student$_k$ [$_{\text{TP}}$ she SHOULD [$_{vP}$ ~~give~~ ~~which book$_i$ to which student$_k$~~]]].

This appears problematic, given the approach to multiple sluicing introduced above. Examples (13) and (14) have covert *wh*-chains with tails inside *v*P. Eliding *v*P should render the tails of the *wh*-chains unpronounceable, and higher links should be pronounced. As (13) shows, exceptional *wh*-movement to the left periphery out of a VPE site appears to be blocked if the strong *wh*-position is occupied.[5]

3.3   *Wh*-pseudogapping and intermediate positions

Klaus Abels (p.c., Oct. 2016) suggests that cases like (13) and (14) are ruled out because the second *wh*-element may be stranded in a lower weak position, similar to what Richards (2001) proposes for pseudogapping. Because copies can be pronounced in this lower position, they are not pronounced in a higher weak position. However, native speaker judgments do not appear to support this conjecture.

   Recall from Section 2.4 that pseudogapping involves movement of a VP-internal element to a *v*P-external position. If *wh*-elements also pass through this position, VPE would not necessarily force pronunciation of the highest link in the covert *wh*-chain.[6] Instead, VPE might cause pronunciation of the *wh*-element in the position of pseudogapping remnants. This predicts that examples like (15) and (16) should be acceptable, where one *wh*-element moves to the left periphery, and a second is stranded below a modal or auxiliary verb (I will refer to this configuration as wh-*pseudogapping*):

(15)   *?Each student must buy something, but I don't know [$_{\text{CP}}^{\text{S}}$ who$_i^2$ [$^{\text{W}}$ what$_k^3$ [$_{\text{TP}}$ who$_i^1$ SHOULD [$_{\text{Agr}_{\text{O}}\text{P}}^{\text{W}}$ what$_k^2$ [$_{vP}$ ~~buy what$_k^1$~~]]]].

(16)   *?Mary said she was going to give one of these books to each of her students, but I don't know [$_{\text{CP}}^{\text{S}}$ which book$_i^2$ [$^{\text{W}}$ to which student$_k^3$ [$_{\text{TP}}$ she HAS [$_{\text{AgrP}}^{\text{W}}$ to which student$_k^2$ [$_{vP}$ ~~given~~ ~~which book$_i^1$ to which student$_k^1$~~].

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5 Alternatively, example (13) might be ruled out if there is no *wh*-movement in subject *wh*-questions at all (Rizzi 1996): If *who* remains in SpecTP, there is no valid landing site for *what* below SpecTP. This, however, cannot explain (14), since the subject is not a *wh*-element.

6 Nothing in Richards's (2001) approach or those following it make it clear that a lower weak position should be preferred to a higher one just in case the base position becomes unavailable, only that each element should only be pronounced once. Other approaches to multiple copies, like Nunes 2004, suggest that higher copies should in fact be preferred.

As best as I can determine, English speakers find examples such as these ungrammatical.[7] Nearly every speaker I have consulted finds (15) unacceptable;[8] in more detailed conversations, speakers have reported finding these cases marginally ungrammatical at best, preferring unelided equivalents or suggesting alternate examples with multiple sluices if appropriate.[9]

3.4 Generalizations

It seems clausal ellipsis can generally drive exceptional movement (see also Weir 2014). The bad cases above involve VPE rather than clausal ellipsis. We might therefore propose the hypothesis in (17):

(17)   VPE cannot drive overt movement to weak positions.

While some cases seem to allow exceptional movement out of VPE sites, such as pseudogapping, multiple *wh*-extraction is impossible. It has been argued that ellipsis can and does drive movement out of VPE sites: In LaCara 2016, I argue that ellipsis drives movement of focused subjects out of *v*P in inverting *as*-parentheticals, and Sailor & Thoms (2014) argue that certain apparent cases of non-constituent coordination may be VPE with movement out of the ellipsis site. That said, Lasnik (1999) actually argues that pseudogapping involves overt movement, and in previous work (LaCara 2015) I argue that movement of subjects in *as*-parentheticals occurs overtly. If these cases involve overt movement, then it may well be the case that only clausal ellipsis drives exceptional movement, and (17) can be maintained.

4   Multiple overt *wh*-movement out of VPE sites is possible

Before trying to understand why (17) might be true, it is worth investigating a second possibility: Perhaps VPE is, in general, incompatible with multiple *wh*-movement. Evidence from Romanian, however, does not support this hypothesis. Romanian, unlike English, allows multiple *wh*-movement (Rudin 1988):

(18)   <u>Cine</u> <u>cui</u>   <u>ce</u>   ziceai   [că i   -a promois]?
         who whom.DAT what said.2SG that him.DAT has promised

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7 One respondent to an informal Facebook survey said she hated (15) 'so much' and threatened to unfriend any respondent who found it acceptable.

8 Examples where the second remnant is a PP as in (16) are judged marginally better, similar to what is reported in cases of multiple sluicing (Lasnik 2014).

9 Pseudogapping has a somewhat 'marginal character' (Lasnik 1999: 150–151), and multiple sluicing is often reported to be only marginally acceptable (Lasnik 2014). If they are derived in the same way, as Richards (2001) proposes, (15)–(16) should be no worse than pseudogapping or multiple sluicing. I have yet to undertake a careful comparison of the phenomena, but my impression thus far is that speakers who accept multiple sluicing and pseudogapping reject these examples.

'Who did you say promised what to whom?'   (Rudin 1988: 453, (9a))

VPE in Romanian is more restricted than in English, but Nicolae (2016) shows that it does occur after the modal *putea*, 'can, could'. One way to be sure that this is ellipsis is that it is possible to move *wh*-elements out of the ellipsis site:[10]

(19) Nu știu   pe cine vrei   să invit,   însă eu
      not know.1SG DOM whom want.2SG SUBJ invite.SUBJ.1SG but I

      știu   pe *cine* pot   Δ.
      know.1SG DOM whom can.1SG

      'I don't know who you want me to invite, but I do know who I can.'
                                                    (Nicolae 2016: 627, (32a))

These examples tell us two important things. First, there is VPE in Romanian, and second, it is possible to move *wh*-elements out of VPE sites. Given that Romanian allows multiple overt *wh*-movement, it is unsurprising that multiple *wh*-movement out of a VPE sites is also possible.[11]

(20) Stiu   ca vrei   sa dau fiecare carte unui   student
      know.1SG that want.2SG SUBJ give each   book one-DAT student

      diferit,   dar nu stiu   [ce carte] [carui   student] pot.
      different, but not know.1SG what book which-DAT student can.1SG

      'I know you want me to give each book to a different student, but I don't know what book I can (give) to which student.'

(21) ?M-ai   intrebat cine trebuia sa   zica secretul carui   student,
      me.CL-have asked   who must   SUBJ tell secret.the which-DAT student,

      si [cine] [carui   student] nu putea.
      and who   which-DAT student not can.3SG

      'You asked me who had to tell the secret to which student, and (also) who couldn't (tell the secret) to which student.'[12]

This shows multiple *wh*-extraction from VPE sites is possible in at least one language. Thus, it cannot be the case the VPE blocks multiple *wh*-movement generally.

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10 Nicolae specifically controls for MaxElide in these examples. Notice that there is no matching modal in the antecedent.

11 My thanks to Rodica Ivan for judgments and discussion of the Romanian data.

12 Rodica prefered it if the second *wh*-element followed the verb in this example. This may have to do with the first *wh*-element being a subject.

5 Why should sluicing behave differently from VPE?

We are left with a bit of a mystery: If we accept hypothesis (17), why should clausal ellipsis drive exceptional movement but not VPE? I propose that we may find an account of this by appealing to the relative timing of exceptional movement and VPE, though the precise details of how this would work are admittedly still sketchy.

5.1 Derivational timing

Whatever is going on here, we don't want to completely block multiple extractions out of VPE sites in English in general. It must be possible to do both A-movement and A$'$-movement out of a single ellipsis site:

(22)   I know what Mary was given, but I don't know [$_{CP}^S$ what$_k^2$ [$_{TP}^S$ John$_i^2$ was [given ~~John$_i^1$ what$_k^1$~~]]].

Additionally, we need to make sure that exceptional movement is permissive enough to allow multiple sluicing. Thus, we need to find a principled way of limiting the exceptional *wh*-extraction possibilities out of VPE sites without restricting overt movements or precluding multiple sluicing.

Numerous recent approaches to ellipsis attempt to limit the amount of material that can be extracted from an ellipsis site by proposing that ellipsis is actually a narrow syntactic operation that can interact with movement operations (Harwood 2013, Bošković 2014, Aelbrecht 2010, among others). Rather than being a simple case of PF deletion, ellipsis occurs as soon as a licensing head merges, freezing elided phrases for further syntactic operations. Such an approach might be able to block exceptional movement if, as Weir (2014) proposes, exceptional movement occurs later than overt movement. As sketched below, once ellipsis occurs, movement of the second *wh*-element would become impossible:

Step 1: *Overt movement of first* wh-*element*:
   [$_{vP}$ *wh*$_1$ [$_{VP}$ *wh*$_1$ *wh*$_2$]]

Step 2: *Merge T^0, elide VP*:
   [$_{TP}$ T$_{[E]}^0$ [$_{vP}$ *wh*$_1$ [$_{VP}$ ~~*wh*$_1$ *wh*$_2$~~]]

Step 3: *Merge C^0, Overt* wh-*movement to SpecCP, exceptional movement blocked*:
   [$_{CP}$ *wh*$_1$ *wh*$_2$ C^0 [$_{TP}$ T$_{[E]}^0$ [$_{vP}$ *wh*$_1$ [$_{VP}$ ~~*wh*$_1$ *wh*$_2$~~]]

Sluicing, however, is triggered late enough that wh_2 is still available for movement. Since the verb phrase is not frozen by ellipsis at Step 2, it remains possible to extract wh_2 when C^0 is merged:

Step 1 *Overt movement of first* wh-*element*:
$$[_{vP} \; wh_1 \; [_{VP} \; wh_1 \; wh_2 \;] \;]$$

Step 2 *Merge T^0; no ellipsis*:
$$[_{TP} \; T^0 \; [_{vP} \; wh_1 \; [_{VP} \; wh_1 \; wh_2 \;] \;]$$
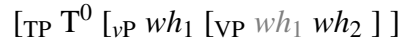
Step 3 *Merge C^0,* wh-*movement to SpecCP*:[13]
$$[_{CP} \; wh_1 \; wh_2 \; C^0 \; [_{TP} \; T^0 \; [_{vP} \; wh_1 \; [_{VP} \; wh_1 \; wh_2 \;] \;]$$
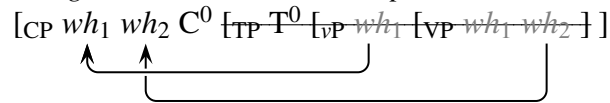
This is why understanding what happens in languages with multiple *wh*-movement is so important. If overt multiple *wh*-movement happens all at the same time while exceptional movement is delayed, we might be able to explain the difference between sluicing and VPE with regard to exceptional movement.

5.2   Implications

If this proposal is on the right track, then assumptions about how and when this exceptional movement actually occurs will start to matter; neither the conception in Richards 2001 nor Abels & Dayal 2016 seems to be the right one. In Richards's view, this is exceptional overt movement to weak position normally associated with covert movement. It's not clear that this happens *later*, so much as it has to have happened to satisfy the constraint that PF receive unambiguous instructions about which copies to pronounce. Under the assumptions adopted by Abels & Dayal (2016), overt and covert movement happen at the same time, the difference between them being which copies are pronounced. A derivational timing account does not obviously work under this assumption.

Furthermore, assumptions about phases will matter, too, especially to explain Step 2 above: We need to understand what forces wh_1 out of the ellipsis domain in Step 1, and why wh_2 should remain inside it. Furthermore, why wouldn't ellipsis at Step 2 force exceptional movement of wh_2?[14]

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13 Assume that ellipsis and movement can happen simultaneously (Aelbrecht 2010).

14 Note that since SpecTP is not a A′-position in English, there will be no covert copy of the *wh*-element there, so VPE will not force pronunciation of a *wh*-element in SpecTP. We need to explain, then, why wh_2 cannot move to Spec*v*P, though perhaps the relative acceptability of *wh*-pseudogapping examples suggests that this is marginally possible.

To echo the words of Johnson (2001), the size restriction on this paper rescues me from improving my hypothesis. However, I hope to have shown that VPE behaves differently from sluicing with regard to exceptional movement. If we assume that cases like pseudogapping actually involve overt (rather than covert) movement to the middle field, we can claim that VPE does not drive exceptional movement, as proposed in (17), and a derivational timing account may allow us to explain this difference.

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A note on reflexive ECM subjects

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1 Introduction

In an influential contribution, Johnson (1991) championed the view that what was in
those days called VP is sister to a silent function head μ in the specifier of which ob-
jects are assigned Case subsequent to overt raising. This idea was further developed
by Kratzer (1996) into the by now widely adopted little-vP/VoiceP hypothesis. In
this squib, I would like to propose an analysis for an interpretive contrast unearthed
in Moulton 2005, 2008 which crucially relies on Johnson's original insight that cer-
tain arguments raise to positions above VP in course of the syntactic derivation.[1]

    In Lechner 2012 I argued that the core properties of Condition A fall out from
two natural assumptions. First, the reflexivizer *self* is assigned a lexical meaning
and modeled as a function over two-place relations (Bach & Partee 1980, Keenan
1987/1989, Szabolcsi 1987 amongst others). In the concrete implementation (1),
self combines with one of its two individual arguments first before applying to this
binary relation. Moreover, the meaning contribution of *self* is located in the presup-
position, which introduces an identity requirement on its two individual arguments
(Sauerland 2013, McKillen 2016, Spathas 2017, amongst others).[2]

(1) $[\![self]\!] = \lambda x_e.\lambda R_{\langle e,\langle e,t\rangle\rangle}.\lambda y_e.R(x)(y) : x = y$ (To be revised)

While (1) can be directly combined with lexical predicates that denote binary rela-
tions (*Alice saw herself*), the analysis does not extend to cases in which the reflexive
is bound by an object:

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1 Billy Wilder famously had a sign on his wall that asked *What would Lubitsch have done?* My
  incarnation of this sign reads *How would Kyle have done it?* There are very few things that I did not
  learn from you, Kyle, as a teacher, linguist, writer of impeccable scientific prose and friend. (How
  to become a decent dresser might be among them, alas!)
2 The definition (1) diverges from Sauerland's in that *self* applies to one of its individual arguments
  first. This makes it possible to avoid vacuous pronoun movement, as in Sauerland 2013. In Lechner
  2012, *self* was treated as an arity reducer ($[\![self]\!] = \lambda R_{\langle e,\langle e,t\rangle\rangle}.\lambda x_e.R(x)(x)$). Although nothing bears
  on the particular choice for present purposes, the presuppositional account affords additional analyt-
  ical options that are useful in the analysis of strict reflexives (Sauerland 2013, McKillen 2016; see
  also below).

(2)	a.	John showed Alice (to) herself (in the mirror).
	b.	LF: John Alice [showed$_{\langle e,\langle e,\langle e,t \rangle \rangle \rangle}$ (to) herself] (✘ Type mismatch)

Compositional integration of the reflexive in (2) is guaranteed by the second assumption, though. At LF, the antecedent α raises (3a), followed by movement of *self* in between α and λ_1, the λ-binder of α (3b), resulting in a configuration of *Parasitic Scope* (Barker 2007, Sauerland 1998, Nissenbaum 1998, Bhatt & Takahashi 2011, Kennedy 2009, Lechner 2012, 2016, amongst others).

(3)	a.	$[\alpha \ldots \textit{pron-self}_{\langle \langle e,\langle e,t \rangle \rangle, \langle e,t \rangle \rangle}]$
	b.	$[\alpha \quad\quad [_{\langle e,t \rangle} \lambda_1 \ldots [t_{1,e} \ldots \textit{pron-self}_{\langle \langle e,\langle e,t \rangle \rangle, \langle e,t \rangle \rangle}]]]$
	c.	$[\alpha [\textit{pron-self}_{\langle \langle e,\langle e,t \rangle \rangle, \langle e,t \rangle \rangle} [_{\langle e,\langle e,t \rangle \rangle} \lambda_2 [_{\langle e,t \rangle} \lambda_1 \ldots [t_{1,e} \ldots t_{2,e} \quad\quad]]]]]$

(4) demonstrates that this setup derives the correct meaning for object oriented anaphors (for concreteness, suppose that *Alice* and *herself* are attracted by a higher functional head; subject movement and the preposition are not represented):

(4)	*Derivation of* John showed Alice to herself
$$[\![\text{XP}]\!]^{g,w} = show(g(3))(alice)(john) : alice = g(3)$$
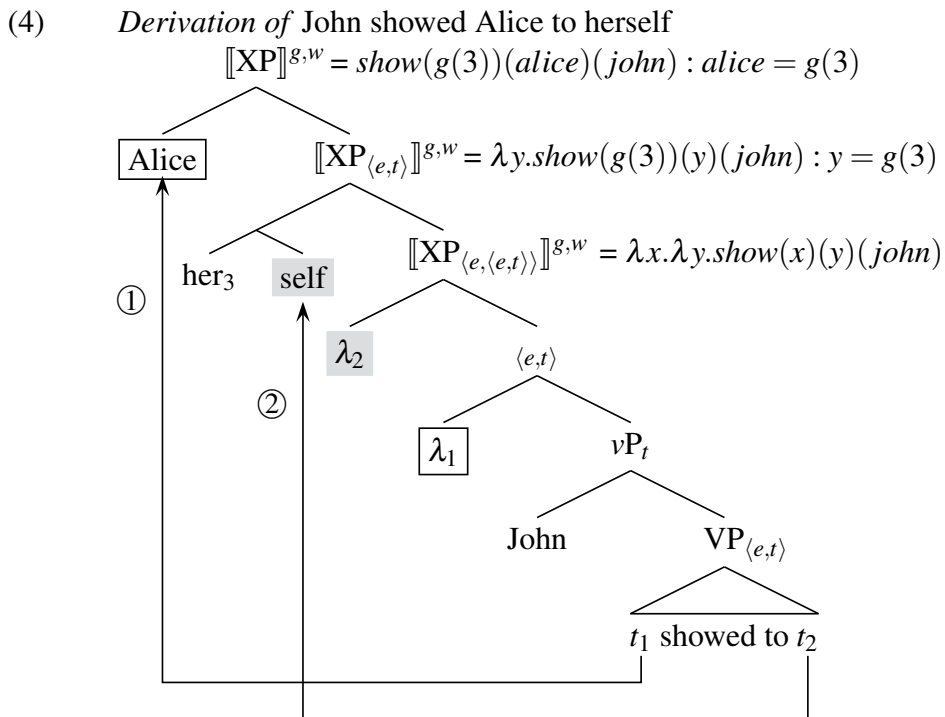
Since on this view, reflexivization implicates two dislocation operations, one is led to expect that the movements need to satisfy the principles of natural language syntax, in particular the general requirement that attraction by a single head proceeds in such a way that higher elements are moved first (Richards 2001 and

references).[3] This ordering condition offers a straightforward explanation for why the antecedent needs to c-command the anaphor. While the sequencing in (5) produces an interpretable parasitic scope constellation, the derivation violates syntactic locality, since the lower element (*pron-self*) moves first. By contrast, the alternative parse (6) is syntactically well-formed but is filtered out as a type mismatch: *pron-self* fails to find in its local neighborhood the two-place relation it wants to combine with.

(5)   *Heself/himself saw John.   (✗ Syntax/ ✓ Semantics)

     a. [John $[_{\langle e,t \rangle}$ λ_1 ... $[_{vP}$ self $[_{VP}$ saw $t_1]]]]$

     b. [John $[$ *pron-self* $_{\langle\langle e,\langle e,t \rangle\rangle,\langle e,t \rangle\rangle}$ $[_{\langle e,\langle e,t \rangle\rangle}$ λ_2 $[_{\langle e,t \rangle}$ λ_1 ... $[_{vP}$ t_2 $[_{VP}$ saw $t_1]]]]]]$

(6)   *Heself/himself saw John.   (✓ Syntax/ ✗ Semantics)

     a. $[$ *pron-self* $_{\langle\langle e,\langle e,t \rangle\rangle,\langle e,t \rangle\rangle}$ $[_{\langle e,t \rangle}$ λ_2 ... $[_{vP}$ t_2 $[_{VP}$ saw John]]]]$

     b.   [John $[$ λ_1 $[$ *pron-self* $_{\langle\langle e,\langle e,t \rangle\rangle,\langle e,t \rangle\rangle}$ ✗ $[_{\langle e,t \rangle}$ λ_2 ... $[_{vP}$ t_2 $[_{VP}$ saw t_1 $]]]]]]$

Thus, Condition A can be reduced to the interaction of two components: a transparent semantics for reflexives and a derivation generating parasitic scope configurations that is subject to the general syntactic laws regulating the order and landing site of multiple movements.[4]

2 Reflexive ECM subjects

The present section extends the relational analysis of *self* to contexts in which the reflexive serves as the subject of an ECM-complement. The more specific objective consists in delineating a plausible account for a finding chronicled in Moulton 2005.

It has been known at least since Bresnan 1972: 149ff that ECM predicates fall into two discrete classes. A number of diagnostics, some of which are illustrated in (7), indicate that accusative subjects of B-class verbs, exemplified by *believe*, *consider*, *prove*, *deny* and *suppose*, behave as if being part of the superordinate clause, whereas ECM-subjects of W-class predicates, among them *want*, *prefer*, *desire*, *need* and *expect*,[5] are located within their own minimal clause.[6]

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3 The operations are counter-cyclic. For a re-analysis that abides by the Strict Cycle see Lechner 2012.

4 Further evidence from phrasal comparatives can be found in Lechner 2016.

5 The verb *expect* has been claimed to be ambiguous (Bresnan 1972: 162pp, Pesetsky 1992: 29). I will ignore this additional complication here.

6 Another sign for raising is the ability of ECM subjects to license anaphors in the higher clause. Whether this property is in fact absent in W-class verbs, as predicted, has to my knowledge, not been tested yet.

(i)   The DA [[believed *the defendants*$_1$ to be guilty] during *each other*$_1$*'s* trials].

(7)   *B-class: subject to object raising*

    a.   We believe John to win (*during the next race).

                                                  (Simultaneity requirement)

    b.   John was believed to have won.   (Passive)

    c.   *John believes to have won.   (No obligatory control)

(8)   *W-class: no subject to object raising*

    a.   Mary wants John to win (during the next race)

                                          (No simultaneity requirement)

    b.   *John was wanted to (have) won.   (No passive)

    c.   John wanted PRO to win.   (Obligatory control)

Following a longstanding tradition, it will be assumed that these structural differences correspond to differences in the evolution of the representations underlying these two classes of constructions. Specifically, suppose that ECM subjects of B-class predicates overtly raise into a Case position of the higher clause (Spec*v*P; Lasnik 1999), possibly by Overt Covert Movement (Nissenbaum 2000) and that such an operation is absent from derivations that involve W-class verbs.

    Moulton (2005) adds a further observation to this catalogue: Only reflexive ECM-subjects of W-class predicates admit *de re* interpretations.

(9)   *W-class: de re reflexives*

    a.   John wanted *himself* to win.   *de se*/*de re*

    b.   John wanted *himself* to win.   (Chierchia 1989: (26c))   *de se*/*de re*

(10)   *B-class: no de re reflexives*

    a.   John believed *himself* to win.   (Chierchia 1989: (26b)) *de se*/*de re*

    b.   John considered *himself* to be the winner.   *de se*/*de re*

In (9a), for example, John either self-ascribes the property of winning (*de se*) or he expresses the desire for some individual John to succeed, who, unbeknownst to him, is in actuality John himself (*de re*). (10a) lacks such a *de re* interpretation, which typically arises in situations of 'mistaken identity', where the attitude holder is unaware of her/his being identical to the *res* nominal. A more precise formal rendering of the two readings has to await Section 3. For the moment, suffice it to say that *de re* reflexives impose a weaker condition on the reflexive relation between the attitude holder John on the one side and his counterparts in John's bouletic, doxastic or expectation alternatives on the other side. This has the desirable consequence that *de re* readings are empirically detectable, for instance by designing suitable models of 'mistaken identity' which satisfy the *de re* truth conditions only.

In what follows, I will provide a further criterion that might aid in distinguishing between these two readings, proceeding from there to some thoughts as to how the contrast can be correlated to independent properties of the two verb classes (Section 3).

The judgements pertaining the contrast (9) vs. (10) are not as strong as one might wish (Keir Moulton, p.c.). A potentially useful tool for strengthening one's intuitions comes from a variation on Russell sentences. (11) is ambiguous between a contradictory reading, on which the speaker ascribes to Ann the belief that Ben's height exceeds Ben's height, and a consistent interpretation on which Ben is in fact shorter than Ann believes him to be. This ambiguity is usually attributed to two different binding options for the underlined world/situation variable relative to which the degree predicate *tall* is evaluated (von Stechow 1984). Co-binding of the world/situation variables results in the contradictory proposition (11b), whereas interpreting the second occurrence of *tall* with respect to the evaluation world renders the meaning compatible with consistent models ((11); $Dox_{x,w}$ is the set of doxastic alternatives for x in w.):

(11)   Ann believes that Ben is taller than he$_3$ is.   ($g(3)$ = Ben)

    a.   LF: λw[Ann believes $\lambda w'$[that Ben is taller w' than he$_3$ is $\langle$tall $\underline{w'/w}\rangle$]]

    b.   *Contradictory belief (second occurrence of 'tall' opaque/*de dicto*)*
       $\lambda w.\forall w'[w' \in Dox_{a,w} \to \iota d.$Ben is d-tall in $w' \succ \iota d.$Ben is d-tall in $\underline{w'}]$

    c.   *Consistent belief (second occurrence of 'tall' transparent/*de re*)*
       $\lambda w.\forall w'[w' \in Dox_{a,w} \to \iota d.$Ben is d-tall in $w' \succ \iota d.$Ben is d-tall in $\underline{w}]$

Furthermore, substituting the ECM subject by a reflexive remnant in phrasal comparatives bleeds the consistent reading (12c) (Hellan 1981, Napoli 1983, Heim 1985, among others):

(12)   Ann believes that Ben is taller than himself.

    a.   LF: λw[Ann believes $\lambda w'$[that Ben is taller w'
        than himself $\langle$tall $\underline{w'/w}\rangle$]]

    b.   *Contradictory belief*   (✓ Ellipsis parallelism)
       $\lambda w.\forall w'[w' \in Dox_{a,w} \to Ben(\lambda x[\iota d.x$ is d-tall in $w' \succ \iota d.x$ is d-tall in $\underline{w'}])]$

    c.   *Unattested consistent belief*   (✗ Ellipsis parallelism)
       $\lambda w.\forall w'[w' \in Dox_{a,w} \to Ben(\lambda x[\iota d.x$ is d-tall in $w' \succ \iota d.x$ is d-tall in $\underline{w}]]$

Heim (1985) suggests that the absence of the transparent interpretation (12c) follows from standard mechanisms of ellipsis parallelism, which require the two underlined world variables to be co-bound.[7] Since consistency is contingent upon the

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7 This holds regardless of whether the ellipsis in phrasal comparatives is syntactic or semantic, as (Heim 1985) demonstrates.

two asymmetrically ordered degree descriptions to embed two different propositions, co-binding invariably leads to inconsistency.

But there is another strategy for generating consistent readings. Suppose that the locus of variation between the two propositions is not the index of *tall*, but in the interpretation of the subject. Such configurations are supplied by the paradigm (13), which is identical to (12) except that the ECM-subject is occupied by a second reflexive:

(13)   *W-class: consistent reading possible*

      a.   Ben wants *himself* to be taller than himself.   *de se/de re*

      b.   Ben would prefer *himself* to be taller than himself.   *de se/de re*

      c.   Ben had expected *himself* to score better than himself.   *de se/de re*

Recall at this point that reflexive ECM-subjects of W-class verbs are ambiguous between a *de re* and a *de se* interpretation. Provided that reflexive remnants of phrasal comparatives have to be read *de se*, a conclusion which is inescapable given (12), the embedded proposition is expected to express a consistent belief only if the ECM-subject can be assigned a *de re* interpretation. Even though judgments are subtle, such a reading of (13) exists for many of my consultants. Conversely, if the matrix predicate disallows reflexive *de re* subjects, as is the case with B-class predicates, the target interpretation should disappear. (14) documents that this appears to be correct:[8]

(14)   *B-class: inconsistent reading only*

      a.   Ben believes *himself* to be taller than himself.   *de se/*de re*

      b.   Ben considers *himself* to be smarter than himself.   *de se/*de re*

The relevant details underlying the contrast are made explicit in (15):

(15)   a.   Ben wants *himself*$_{de\ re}$ to be taller than *himself*$_{de\ se}$

                           (W-class: consistent)

    b.   Ben believes *himself*$_{de\ se}$ to be taller than *himself*$_{de\ se}$

                           (B-class: inconsistent)

To recapitulate, consistency in certain Russell sentences can either be achieved by contra-indexing the world/situation variables of the predicates or variation in the interpretation of the subjects. Crucially for present concerns, if the judgments

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8 The control version of *want* is predicted to lack a consistent reading, too, because PRO is always interpreted *de se*. Again, judgments are subtle but seem to point in the right direction:

(i)   Ben wanted PRO to be taller than himself.   *de se/*de re*

reported here turn out to be representative, they furnish support for Moulton's conjecture that W-class verbs can only combine with *de re* subject reflexives.

A remark is in order regarding representation (15). It has been noted on the basis of examples like (16) that *de se* reflexives cannot be long distance bound across c-commanding *de re* subjects ('*de re* ' blocking effect; Heim 1994, Percus & Sauerland 2003, Anand 2006, Sharvit 2011, among others). But then, the *de re–de se* constellation (15a) should be blocked for the same reasons that (16a) is:

(16)   Palin promised McCain PRO to vote for herself   (Sharvit 2011)

        a. $\text{PRO}_{de\ re}$ ... $\text{herself}_{de\ se}$
        b. $\text{PRO}_{de\ se}$ ... $\text{herself}_{de\ re}$

Notice, however, that there is an important difference between comparatives and the simple embedding in (16). All extant analyses of phrasal comparatives require a re-ordering of the constituents (usually at LF) which places the degree complement above the base position of the subject. Given that the *de re* blocking effect is structure sensitive (Anand 2006), the problem disappears because the LF representation of (15b) is now as shown in (17), where *himself* $_{de\ re}$ no longer c-commands *himself* $_{de\ se}$:

(17)   Ben wanted [[MORE than $\text{himself}_{de\ se}$] [λ_3 [$\text{himself}_{de\ re}$ to be d_3-tall]]]
        (*Ben wanted himself to be taller than himself*)

In sum, comparatives provide a useful tool for assessing interpretive properties of ECM-reflexives as they introduce an additional testable variable (consistency) into the judgment task.

3   Toward and analysis

This final section sketches the first steps toward a possible analysis of the paradigms in (9) and (10), relevant parts of which are repeated below as (18):

(18)   a.   John expected himself to win.   *de se/de re* (W-class)
        b.   John believed himself to win.   *de se/*de re* (B-class)

The specific goal consists in defining an algorithm that blocks *de re* readings for reflexive B-class ECM subjects.

I follow Moulton (2005) in assuming that reflexivity comes in two flavors, a strong and a weak variant. A relation is *strongly reflexive* if it is necessarily reflex-

ivity, i.e. if it holds across worlds, and it is weak otherwise. Two corresponding lexical entries for the presuppositional version of *self* are given in (19):[9]

(19)   *Presuppositional reflexives*

    a. $[\![self_{strong}]\!] = \lambda x_e.\lambda R_{\langle e,\langle e,\langle s,t\rangle\rangle\rangle}.\lambda y_e.\lambda w_s.R(x)(y)(w):$
                $\forall w R(x)(y)(w) \rightarrow x = y$ in w

    b. $[\![self_{weak}]\!] = \lambda x_e.\lambda w_s.\lambda R_{\langle e,\langle e,t\rangle\rangle}.\lambda y_e.R(x)(y): x = y$ in w

(19a) presupposes that the relation *self*$_{strong}$ applies to is reflexive independently of the choice of model and assignment, while for (19b), it is sufficient for the relation to be reflexive in the evaluation world. Also in line with Moulton, the strong variant of self will be assumed to produce *de se* readings, while the weak version yields *de re* interpretations.[10]

Once they have combined with their outer arguments, both variants of *self* select for binary relations and accordingly need to move, as suggested in Section 1, establishing a configuration of parasitic scope. What is of particular significance for the present proposal is that the two exponents impose different type requirements on their sister nodes. *Pron-self*$_{strong}$ needs an $\langle e,\langle e,\langle s,t\rangle\rangle\rangle$-type expression as input, while *pron-self*$_{weak}$ combines with a binary relation between individuals ($\langle e,\langle e,t\rangle\rangle$) once it has applied to its world/situation variable. This structurally disambiguates the admissible contexts for weakly and strongly reflexive *pron-self* as shown below:

(20)   a.   *pron-self*$_{strong}$ can be used only if its sister node is of type $\langle e,\langle e,\langle s,t\rangle\rangle\rangle$

        b.   *w-pron-self*$_{weak}$ can be used only if its sister node is of type $\langle e,\langle e,t\rangle\rangle$

In what follows, I will adopt the fairly innocuous and widely shared assumptions that situation/world variables are represented in the object language (Cresswell 1990, Percus 2000, among others) and that *v*Ps denote properties of situations (type $\langle s,t\rangle$). Moreover, I assume that the lower bound for insertion of these variables in the spine of the tree is the outermost *v*P. As a result, the first *t*-type node is situated above *v*P (see Lechner to appear for arguments in support of this claim.)

The analysis of *de se* reflexives proceeds as outlined in (21). Just as in simple constructions with anaphors, the antecedent and the reflexive move to create a context of parasitic scope. First, the antecedent raises and adjoins to *v*P, followed by movement of the reflexive. As was already seen in Section 1, in the semantic computation, *self* combines with its pronominal sister node before applying to the derived binary relation. (*Exp* collects expectation alternatives of the subject; see below.)

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9 I am indebted to Clemens Mayr for help in the definition of the weak version. All errors remain mine.

10 The weak version is also compatible with *de se* readings, it just does not enforce them.

(21)   *Derivation of* de se *reading of* John expects himself to win

$$\llbracket vP_{\langle s,t \rangle} \rrbracket \;=\; \lambda w. \forall w'[w' \in Exp_{j,w} \to g(3) \text{ wins in } w'] :$$
$$\forall w \forall w'[w' \in Exp_{j,w} \land g(3) \text{ wins in } w' \to g(3) = john \text{ in } w']$$

John

$$\llbracket vP_{\langle e,\langle s,t \rangle\rangle} \rrbracket \;=\; \lambda y. \lambda w. \forall w'[w' \in Exp_{y,w} \to g(3) \text{ wins in } w'] :$$
$$\forall w \forall w'[w' \in Exp_{y,w} \land g(3) \text{ wins in } w' \to g(3) = y \text{ in } w']$$

him₃ self_strong

$$\llbracket vP_{\langle e,\langle e,\langle s,t \rangle\rangle\rangle} \rrbracket = \lambda x. \lambda y. \lambda w. \forall w'[w' \in Exp_{y,w} \to x \text{ wins in } w']$$

λ_2 $\langle e,\langle s,t \rangle\rangle$

① λ_1 $\llbracket vP_{\langle s,t \rangle} \rrbracket \;=\; \lambda w. \forall w'[w' \in Exp_{g(1),w} \to$
② $g(2) \text{ wins in } w']$

$t_{1,John}$

expects $t_{2,self}$ to win

(*self strong* moves to a position *within* vP)
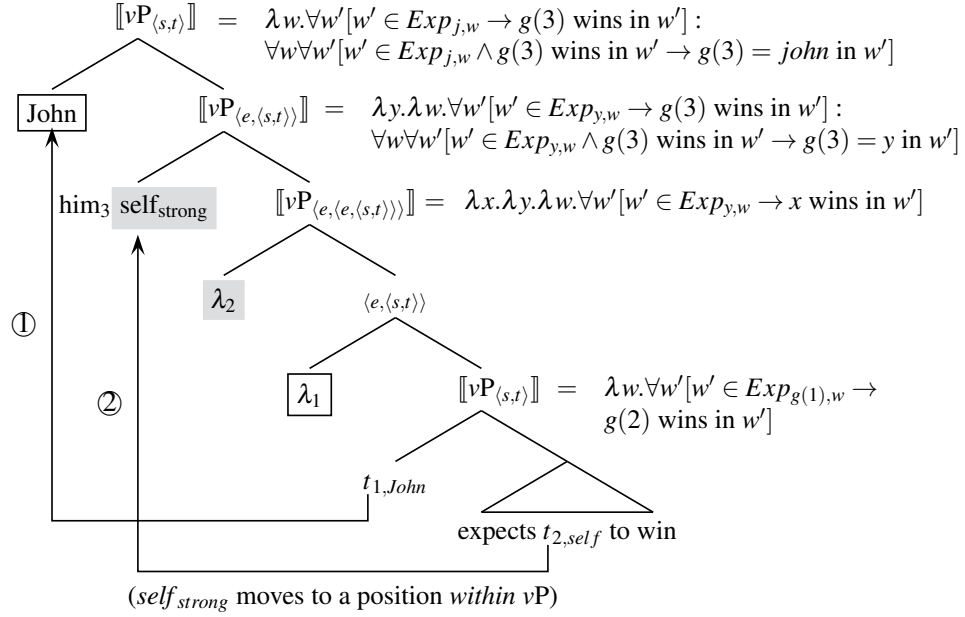
Note on the side that there is also an alternative, arguably simpler parse for (18a). Provided that v^0, which introduces the external argument (Kratzer 1996), is a function from VP-denotations to properties (22), *self* can move to a position in between v^0 and the base position of the subject. This analysis, relevant parts of which are made explicit in (23), equally supplies a suitable context for *self strong* without the need for a second movement operation, i.e. without parasitic scope.[11]

(22) $\llbracket v^0 \rrbracket = \lambda P_{\langle s,t \rangle}. \lambda x_e. \lambda w_s. P(w) \land External\_Argument(x)(w)$

(23)   *Alternative LF for the* de se *reading*
         [$_{vP}$ John [$_{vP}$ *self strong* [$_{\langle e,\langle e,\langle s,t \rangle\rangle\rangle}$ λ_1 [$_{\langle e,\langle s,t \rangle\rangle}$ $v^0_{\langle\langle s,t \rangle,\langle e,\langle s,t \rangle\rangle\rangle}$ [expected [t_1 to win]]]]]]]

Irrespective of whether (21) or (23) is adopted, the LFs translate into (24), which gives a close characterization of the *de se* interpretation. (24) presupposes that if John expects $g(3)$ to win, $g(3)$ is necessarily mapped to John, and asserts that John expects $g(3)$ to win. ($Exp_{x,w}$ is the set of expectation alternatives for x in w and (26) a naive semantics for *expect*.)[12]

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11 The derivations of (13) and (14), which include two reflexives, would accordingly involve two parasitic scope constellations, in addition to QR of the degree complement, modulo option (23).

12 ECM complements also lend themselves to an analysis in terms of concept generators. Then, the complement is of type $\langle\langle e, \langle s, e \rangle\rangle, \langle s, t \rangle\rangle$ (Percus & Sauerland 2003 among others). It is harder to see

(24) $\lambda w.\forall w'[w' \in Exp_{j,w} \rightarrow g(e) \text{ wins in } w'] :$
        $\forall w \forall w'[w' \in Exp_{j,w} \wedge g(e) \text{ wins in } w' \rightarrow g(3) = john \text{ in } w']$

(25)   For any $x \in D_e$ and world/situation w:
        $Exp_{x,w} =_{Def} \{w' \mid w' \text{ is compatible with } x\text{'s expectations in } w\}$

(26) $[\![expect]\!] = \lambda P_{\langle s,t \rangle}.\lambda w_s.\forall w'[w' \in Exp_{x,w} \rightarrow P(w')]$

Above, the pronominal part of the anaphor was interpreted as a free variable which is assigned a value by the assignment function. Semantically identical results can be obtained by interpreting *him* as a bound variable co-indexed with the antecedent (see Sauerland 2013).

Next, the derivation of the *de re* reading, outlined in (27), employs the same movements that were observed in (21), with the notable exception that they target *v*P-external positions instead of nodes inside the *v*P. This has the effect that, as detailed by (27), the *v*P-denotation applies to the underlined situation/world variable w_4 before the binary relation is created. As a result, the reflexive combines with a node of type $\langle e, \langle e, t \rangle \rangle$, which in turn is possible only if the derivation selects *self*$_{weak}$ instead of *self*$_{strong}$. Incidentally, (27) also makes visible a second, innocuous, difference between weak and strong *self* encoded in (19). Only *self*$_{weak}$ comes with its own world/situation variable (w_4), which is later bound at the sentence level.

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how a centered world approach would fare, though, which requires the sentential argument to denote a property.

(27)   *Derivation of* de re *reading of* John expects himself to win

$$\llbracket XP_{\langle s,t\rangle}\rrbracket \;=\; \lambda w.\forall w'[w' \in Exp_{j,w} \to g(3) \text{ wins in } w'] :$$
$$g(3) = john \text{ in } w'$$

$$\llbracket XP_t \rrbracket \;=\; \forall w'[w' \in Exp_{j,w_4} \to g(3) \text{ wins in } w'] :$$
$$g(3) = john \text{ in } w'$$

$$\llbracket XP_{\langle e,t\rangle}\rrbracket \;=\; \lambda y.\forall w'[w' \in Exp_{y,w_4} \to g(3) \text{ wins in } w_4] :$$
$$g(3) = y \text{ in } w'$$

$$\llbracket XP_{\langle e,\langle e,t\rangle\rangle}\rrbracket \;=\; \lambda x.\lambda y.\forall w'[w' \in Exp_{y,w_4} \to x \text{ wins in } w_4]$$

λ_4 John   him$_3$ self$_{weak}$ w_4 λ_2 $\langle e,t\rangle$ λ_1 XP$_t$ w_4 vP$_{\langle s,t\rangle}$ $t_{1,John}$ expects $t_{2,self}$ to win

①   ②

(*self$_{weak}$ moves to a position *above* vP*)
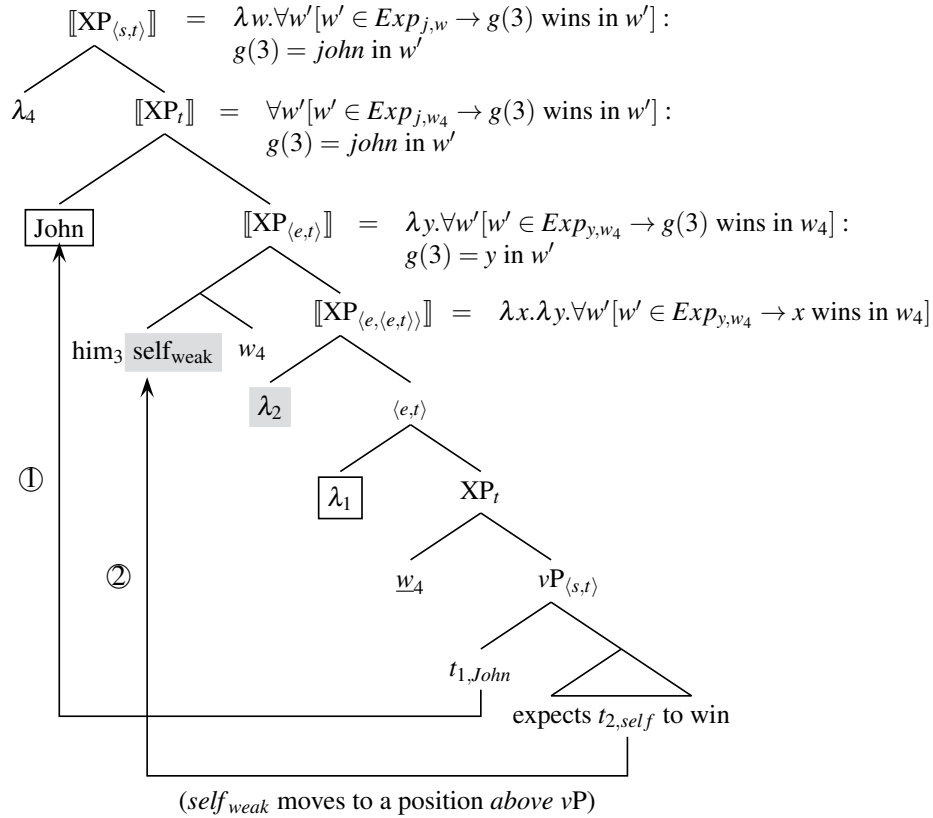
(28) provides a rough translation of (27). (28) triggers the weaker presupposition that $g(3)$ is John, and asserts that $g(3)$ won in all expectation alternatives of John's. Hence, the 'real-world' counterpart of the winner is presupposed to be John. Again, this seems by and large correct.

(28) $\lambda w.\forall w'[w' \in Exp_{j,w} \to g(3) \text{ wins in } w'] : g(3) = john \text{ in } w'$

Turning finally to the differences between the two verb classes, recall that ECM subjects of B-class verbs undergo overt A-movement to SpecvP, a strategy which bears an uncanny resemblance to object raising in Johnson 1991. Suppose now the derivation selects *self$_{weak}$* as the lower subject of a B-class predicate. In order to avoid a type mismatch inside vP (29a), *self$_{weak}$* would then have to move on from SpecvP to a vP-external position, as shown in (29b).

(29)   John believed himself to win.   *de re*

a. *Step 1: Case driven overt movement of reflexive* (✗ Type mismatch)
[John [$_{vP}$ himself$_{weak,\langle\langle e,\langle e,t\rangle\rangle,\langle e,\langle e,t\rangle\rangle\rangle}$ [$_{vP\langle e,\langle e,\langle s,t\rangle\rangle\rangle}$ $\lambda_2 \lambda_1$ [$t_{1,John}$ believed $t_{2,self}$ to win]]]]

b. *Step 2: covert raising*   (✗ Syntax)
[John [himself$_{weak,\langle\langle e,\langle e,t\rangle\rangle,\langle e,\langle e,t\rangle\rangle\rangle}$ [$_{vP\langle e,\langle e,t\rangle\rangle}$ $\lambda_3 \lambda_4$ [$_{vP}$ w [$_{vP\langle s,t\rangle}$ $t_{4,John}$ [$t_{3,self}$ [$_{vP\langle e,\langle e,\langle s,t\rangle\rangle\rangle}$ $\lambda_2 \lambda_1$ [$t_{1,John}$ believed $t_{2,self}$ to win]]]]]]]]]

But there is a number of reasons why such derivations are implausible and should accordingly not be made available by the grammar. First, the two-step movement procedure (29) is more costly than the derivation based on *self*$_{strong}$, which produces *de se* readings and involves only a single movement. On this conception, the grammar would compare subparts of derivations with identical lexical exponence (yet differences in meaning), selecting the most succinct one. Evidently, this raises questions, among others, about the proper definition of comparison sets, which I will not pursue further at this occasion, though. Second, one might entertain the idea that Case driven movement of the ECM-subject to Spec*v*P induces Freezing effects known from Case driven movement in overt syntax (Chomsky 2000). Third, it has been observed that cross-linguistically, overt dislocation operations that feed interpretation, among them scrambling in German, bleed further covert movement operations that would produce additional readings. (29) can be seen as another manifestation of this principle.

None of the complications above show up with W-class verbs, because these predicates do not require overt raising of the ECM-subject to a non-canonical object position (read: μP of Johnson 1991). Rather, reflexive movement is postponed to the covert component, where it implicates a single movement step. The reflexive is accordingly free to choose an appropriate landing site, either within *v*P or above *v*P, depending on the lexical choice (*self*$_{weak}$ vs. *self*$_{strong}$) the derivation was based on.

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Passive, smuggling and the *by*-phrase[*]

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1 Background and overview

The classical Government-Binding analysis of passive assumes that the *-en* passive morphology takes the accusative case and the external theta-role (a non-obvious cluster of properties), yielding movement of the internal argument to EPP position as a result. How the external theta-role (agent/causer) comes to be associated with the *by*-phrase is solved by by saying that *-en* behaves as a clitic, the *by*-phrase being its doubling DP/PP.

Collins (2005) argues that this is really too complex. No special capability of taking the accusative case and the external theta-role is associated with the *-en/-ed* participial morphology — which is in fact identical for passives and perfects. Rather, a passive *v*P has exactly the same shape as an active *v*P at first Merge. However, there must be a reason why the internal argument and not the external argument moves to the EPP position. For Collins the reason is that VP moves to SpecVoiceP; this positioning of VP removes the intervention of the external argument in Spec*v*P from the movement path of the internal argument — i.e. it smuggles the internal argument in the position from where it moves. Part of this analysis is that there is no *by*-phrase. *By* is the head of VoiceP, which as such is immediately followed by the external argument in Spec*v*P.

There are two types of problem with the smuggling proposal. The first problem is that Collins assumes what we may call Kayne-type movement (Kayne 1994), not necessarily endowed with any relevance at the Conceptual-Intentional (C-I) interface. Chomskyan movement is never semantically empty. This problem is addressed by Gehrke & Grillo (2009) who suggest that VP movement to SpecVoiceP is necessary for VP to become associated with the event time. The latter is hosted in an Asp projection immediately above Voice. As for the reason why this movement takes place only in passives, Gehrke and Grillo mention Focus, but this seems an inappropriate notion to invoke, since there is no sense in which the participial structure is focussed in passives.

In short, Collins doesn't consider what motivates VP movement and Gehrke and Grillo, while addressing this issue, give at best a partial answer (i.e. the movement

is Asp-related). More importantly, there is no obvious independent evidence that we can think of, either interpretive or syntactic, that VP moves in passives. The main evidence consists of the very fact that VP movement is supposed to explain, namely the possibility of moving the internal argument to EPP position.

There is a second problem with the smuggling analysis, concerning the sequence *by*–external argument. For reasons of restrictiveness we side with Chomsky's (1995) requirement that heads must bear interpretable content. This bars saying that *by* is a 'dummy preposition' (i.e. one consisting entirely of uninterpretable features) selecting for *v*P; we agree with Franco et al. (2015) that linkers are not a good example of uninterpretable heads. Furthermore there is plenty of evidence that *by*-DP is a constituent; therefore some Kaynian type of movement is necessary to reconstitute it from the merely adjacent *by*-DP sequence in Collins's analysis (presumably moving DP to the Spec of *by* and then adjoining *by* to DP). The discussion that precedes implies that we consider a grammar of this type to be unnecessarily rich. Bruening (2012), while forcefully making the point that the *by*-phrase is hosted by the same projection as any other external argument (a Kratzerian VoiceP), nevertheless takes the view that it is a constituent. In his proposal, the Pass projection responsible for passive is syntactically compatible with the oblique, while it is not with a non-oblique external argument; this introduces in turn a rather undesirable disjunction between semantic and syntactic selection.

Even assuming that Collins's approach to *by* is theoretically acceptable, it meets empirical problems. For instance, one may raise the issue of agent *by*-phrases inside DPs and specifically non eventive DPs (e.g. *a book by Chomsky*). Even remaining within the sentential domain, and even factoring away locative uses, *by*-phrases occur in active sentences with the meaning of instruments and causers as in (1). Causer *by*-phrases are not constrained to select for *v*P (Alexiadou et al. 2015), and indeed they occur with unaccusatives, as in (2).

(1)   a.   I found it by luck/by searching.
        b.   We took them by hunger/by force.

(2)   a.   He died by exposure/by hunger.
        b.   He was killed by John/by hunger.

Furthermore similar, but not identical, facts hold cross-linguistically. In Italian the *by*-phrase is introduced by *da* (which means 'from' as a locative). While introducing agents and causers (3), *da* cannot introduce instruments (4a); the latter are prototypically introduced by *con*, 'with', including in environments that allow *by* in English, (4b). These behaviors must depend on the lexical interpretive properties of the prepositions involved, which cannot be 'dummies'.

(3)   a.   La casa fu costruita da Gianni / distrutta dal   fuoco.
                  The house was built   by John   / destroyed by.the fire

          b.   Muoio dal   caldo / dalla   fame.
                  I.die   from.the heat / from.the hunger
                  'I am extremely hot/hungry.'

(4)   a.   Ho trovato casa   *dal cercarla / *dall'inganno   / *dall'astuzia.
                  I   found home by   seeking / by.(the).cheating / by.(the).cunning

          b.   Ho trovato casa con l'inganno / con l'astuzia / con un annuncio.
                  I   found home with cheating / with cunning / with an ad

In Section 2 we provide an analysis of the *by*-phrase based on the construal of the preposition as endowed with interpretive content. In Section 3 we discuss why merger of the agent/causer as a *by*-phrase is restricted to perfect participles (and why the have auxiliary blocks this possibility in active perfects). In Section 4, we observe that oblique PPs are not possible goals for Agree probes — as can be seen from the fact that they never agree with the verb, independently of their position relative to DPs. Therefore the *by*-phrase cannot count as an intervener in the probe-goal relation involving C/I and the internal argument. This makes smuggling irrelevant for movement. The same holds of short passives, assuming that the external theta-role is an open variable in syntax and bound only at the C-I interface by existential closure.

2   The syntax and interpretation of oblique prepositions/cases

In a number of works, Manzini & Savoia (2011), Manzini & Franco (2016), and Franco & Manzini (2017) lay out an analysis of the syntax and interpretation of genitive 'of', dative 'to', and instrumental 'with' based on the assumption that these elements are endowed with interpretive properties interacting with the internal organization of the predicate/event.

Consider dative 'to'. The line of analysis of ditransitive verbs initiated by Kayne (1984) is characterized by the assumption that verbs like 'give' take a predication as their complement; the content of this predication is a possession relation between the two internal arguments. For Pesetsky (1995), in a DP-*to*-DP structure the possession predicate head is *to*, as in (5a). Harley (2002) takes English *to* to be a P_{LOC} as in (5b). Beck & Johnson (2004) follow Larson (1988) in adopting a variant of the structure where the DP and *to*-DP complements occupy the Spec and sister position of V respectively, as in (5c).

(5)   a.   . . . give a letter [PP to Sue]   (Pesetsky 1995)

b. ... CAUSE [$_{PP}$ a letter [[$_{P_{LOC}}$ to] Mary]]   (Harley 2002)

c. ... [$_{VP}$ the guide [$_{V'}$ send to Satoshi]]   (Beck & Johnson 2004)

In an English Dative Shift sentence, the head of the possession predication is an abstract verb HAVE for Beck & Johnson (2004), as in (6c). For Harley (2002) it is an abstract preposition P$_{HAVE}$, as in (6b). Pesetsky (1995) limits himself to an abstract characterization of the predicate head as G, as in (6a). Note that at least Pesetsky's or Harley's version of the proposal amount to saying that in the Dative Shift alignment, the Theme is demoted to the object of a P, i.e. an oblique — essentially the same idea as in Larson 1988 (Larson speaks of the Dative Shift construction as a 'passive').

(6) a. ... give Sue [$_G$ a letter]   (Pesetsky 1995)

b. ... CAUSE [$_{PP}$ Mary [P$_{HAVE}$ a letter]]   (Harley 2002)

c. ... send [$_{HAVEP}$ Satoshi [$_{HAVE'}$ HAVE the guide]]

(Beck & Johnson 2004)

A question fairly obviously arises concerning the nature of the empty preposition postulated in (5). Since this head takes the possessee as its internal argument and the possessor as its external argument, it is in fact the reverse of *to*. Levinson (2011) suggests *with* (or Icelandic *með*, Romance *com/con*) as a possible overt realization of it. Therefore the Dative Shift alternation is closely comparable to the alternation between *He presented his pictures to the museum* and *He presented the museum with his pictures*. In all of this, it is uncontroversial that the P head *to* makes an interpretive contribution to the event structure.

Manzini & Savoia (2011) and Manzini & Franco (2016) argue that the best characterization of the content encoded by *to* is in terms of the notion of '(zonal) inclusion' proposed by Belvin & den Dikken (1997) for *have*. They assimilate this content to an elementary part/whole predication and notate it as $\subseteq$, so that in their terms (7a) is roughly structured as in (7b). In (7b) the constituent enclosed in square brackets depicts the result of the causative event, namely that 'the book' is included by (or part of) 'him'. Manzini & Savoia (2011) treat genitive 'of' as the externalization of the same relation $\subseteq$ in DP-internal contexts. What is more relevant for present purposes is that the characterization of goal to in (7) is also extended to its occurrences with unergative predicates, such as talk in (8a). The idea is that the $\subseteq$ elementary predicate is used to connect an argument 'talk' to the subevent 'talk' in a representation of the type in (8b), paraphrased roughly as 'I caused a talking event with John on its receiving end'.

(7) a. I gave a book to him.

b. I CAUSE [a book $\subseteq$ him]

(8)   a.   I talked to John.
      b.   I CAUSE [talk $\subseteq$ John]

With this much background, we are in a position to consider *by*-phrases, as in (1)–(2) or Italian *da*-phrases as in (3)–(4). We dismiss right away a couple of concerns that loom large in Collins 2005 precisely because his general outlook is consonant with Kayne 1994. First, Chomsky's (1995) Inclusiveness forbids notations such as projection bars, so that the X-bar theoretic difference between a SpecXP and an adjunction to XP is not obviously statable. Therefore saying that an agent/causer merges with a given projection as a Spec or as an adjunct are not clearly distinguishable statements. Furthermore, we follow Chomsky (2013) in assuming that dominance is the only order relevant for core syntax, while rightward or leftward orientation of head-complement pairs is a matter for the SM interface. Since all complements of the *v*-V head sequence are ordered to its right, an oblique causer/agent will also be ordered to the right.

The crucial question is what the content of English *by*/Italian *da* is and how it interacts with the event structure to yield agent/causer interpretations. Manzini et al. (2017a) address the motion-to meaning of *a* 'to' and the motion-from meaning of *da* 'from'. They assume that location can be conceived as inclusion in location and is therefore captured by a locative restriction on $\subseteq$, namely $\subseteq_{(Loc)}$. They go on to propose that in telic events, *a* 'to' expresses location at the telos of the event, i.e. at the result clause implied by it, as *I send the children to school*, or in *I go to school* in (9). By contrast, *da* 'from' implies location outside the telos of the event, hence at its causal component, as in *I get out from school* in (10). Once the locative restriction is factored away, the structure in (9) is consistent with what we now know of dative 'to', namely that it corresponds to a telos, as in (7)–(8).

(9)   CAUSE [$_{VP}$ go I [$_{\subseteq_{(Loc)}}$ to school]]

(10)   [$_{vP}$ CAUSE [$_{VP}$ get out I] [$_{\subseteq_{(Loc)}}$ from school]]

It remains for us to show that once the locative restriction is removed (10) is consistent with the fact that Italian *da* introduces causers and agents, as in (3). In other words, suppose that the structures for Italian (3) are as in (11). The *da*-phrase attaches to the *v*P projection providing a lexicalization for the argument which owns/locates the causation event. Thus in (11a) 'there is a caused event of the house being built and Gianni is the owner/locator (author) of this causation'. In (11b) 'there is a caused event of me dying and the causation belongs to/is located at hunger'.

(11)   a.   [$_{vP}$ CAUSE [$_{VP}$ costruita la casa] [$_{(\subseteq)P}$ da Gianni]]
       b.   [$_{vP}$ CAUSE [$_{VP}$ muoio (io)] [$_{\subseteq P}$ dalla fame]]

The English structures in (12) for examples (2) in principle exactly parallel those in (11).

(12) a. $[_{vP}$ CAUSE $[_{VP}$ killed he] $[_{(\subseteq)P}$ by John]]
      b. $[_{vP}$ CAUSE $[_{VP}$ died he] $[_{\subseteq P}$ by hunger]]

In short, 'by' is a Preposition with the basic relator content of other oblique prepositions/cases. For the sake of falsifiability, we associated this content with the notion of possession/inclusion/part-whole. This elementary content works in combination with a structured predicate, where *by*-phrases are adjoined to *v*P. In this position, what the *by*-phrase does is insert the external argument causer/agent as a possessor/locator of the causation event.

The next question we face is obvious. Even assuming that everything that precedes is correct, or at least on the right track, how come the structure in (12a) is only available with perfect/passive participles (further embedded under a copula)? Why isn't it available with any other form of the verb? In other words, why can't we say *There killed him/he by John*? We turn to this issue in the next section. Having completed our picture of the structure of passive predicates, in Section 4 we then consider their derivation, and exclude that VP movement/smuggling is involved.

3   The structure and derivation of passive

Apart from the passive/active alternation, there is another famous alternation between nominative and oblique subjects involving the perfect participle, namely the so-called ergativity split. Cross-linguistically, where an aspectual split occurs (Georgian, Nash 2014; Basque, Laka 2006; Mayan, Coon 2013) it is the perfect that has the ergative alignment, characterized by the external argument surfacing as an oblique. The literature on ergativity agrees on the conclusion that progressive aspect requires a larger structure than perfective aspect — though implementations vary. Laka (2006) and Coon (2013) propose that in Basque, Mayan and cross-linguistically, progressive aspect is realized as a bi-sentential structure. We have no doubt that this may be the case in some languages or some environments (see Manzini et al. 2017b for a treatment of Romance periphrastic progressives along these lines). Nevertheless following Nash (2014) on Georgian and Manzini et al. (2015) on Punjabi, we assume that this is not necessarily the case. Specifically, Nash proposes that the *v*-V predicate structure that we have employed so far is further embedded under an Event layer. The Event node is comparable to the Voice layer introducing the external argument in recent literature (Harley 2013, Legate 2014, Alexiadou et al. 2015) — except that this layer of structure is aspectually motivated and missing in perfects; similarly, Manzini et al. identify the extra layer of structure of Punjabi progressives with Asp, again missing in perfects.

Let us then to go back to passives. Following Nash (2014) and Manzini et al. (2015) we may consider that perfect participles have a reduced structure not involving the Asp/Event/Voice layer which supports the attachment of a DP external argument. If this reduced structure is embedded under the *be* auxiliary nothing happens to alter it; the external argument surfaces as an oblique. If the reduced structure is embedded under *have*, then the external argument is introduced by *have*, leading to a nominative alignment.

We illustrate this proposal in (13)–(15). In the long passive (13a), the perfect participle does not have the layer of structure — call it Asp/Event/Voice — necessary for the Merge of external arguments. Therefore the external argument is introduced as an oblique — exactly parallel to (12a) above. Short passive is also possible. In this instance, an external argument slot made available by the predicate remains unsaturated; this is read as an open variable at the C-I interface and is interpreted by existential closure, as in (13b).

(13)   a.   ... was [$_{v}$P [$_{v}$P v [$_{VP}$ killed he]] [$_{(\subseteq)}$P by John]]
      b.   ... was [$_{v}$P $\exists$ x, x v [$_{VP}$ killed he]]

The passive structures in (13) need now to be compared on the one hand to active perfects and on the other hand to non-perfect forms. Let us begin with the former. By hypothesis, perfect active sentences have the same participial structure as in ((13), lacking an Asp/Event/Voice layer capable of hosting an external argument. However, the auxiliary *have* introduces its own external argument, as suggested in (14), leading again to nominative alignment. A particularly simple way for *have* to introduce the external argument is to project an Asp/Event/Voice layer. More transparently, progressive participial forms, or more generally verb forms other than the perfect participle, are associated with an additional Asp/Event/Voice layer — and this allows the external argument to be introduced, as in (15).

(14)   John has [$_{v}$P v [$_{VP}$ killed him]]

(15)   John is [$_{Asp/Event/Voice}$ ~~John~~ [$_{v}$P v [$_{VP}$ killing him]]]

Note that while we have committed ourselves to an extra predicative (Asp) layer in the progressive (15), we have been vaguer on the *have* perfect in (14). This is because at least one alternative opens at this point, suggested by Kayne (2000) — namely that *have* results from the incorporation into be of an oblique preposition, leading to possessor raising out of the participial clause. This obviously resonates with the possession structure we are proposing here for perfect participles. Transferring the notation of Kayne 2000 to present notation, *have* would be the pronunciation of V+($\subseteq$) in (16), where incorporation leads *John* (the possessor) to raise to matrix subject. In the terms of Section 2, the position of the oblique

in (16) is identical to that in (13a) from the point of view of dominance, while we assume that linearization is a procedure at the SM interface (Chomsky 2013). The order in (13a) and the reordering in (16) are indicated merely for ease of processing, specifically the processing of raising in (16).

(16)   John [$_{\text{VP}}$ V [$_{v\text{P}}$ [$_{(\subseteq)\text{P}}$ ($\subseteq$) ~~John~~] v [VP killed him]]]

The modified Kaynian approach in (16) straightforwardly applies to a language like Italian (French etc.) where only transitive predicates are construed with auxiliary *have*. At the same time one may account for languages like English (Spanish etc.) where unaccusatives are also associated with *have* by assuming that the ($\subseteq$) layer is obligatorily generated. Potential gray areas concern the exact translation of Kayne's structures into ours as well as the definition of auxiliary assignment parameters. Nevertheless, the approach represents a principled idea as to why *have* transitivizes perfect structure, which is to be preferred to more stipulative alternatives, if feasible at all.

Summarizing so far, there is no specialized passive participle, since the passive participle is in fact the perfect participle, adopting the insight of Collins (2005) in this respect. The basis for passive is aspectual, as correctly perceived by Gehrke & Grillo (2009). However, aspect does not determine VP-movement, but it directly triggers the oblique or existential treatment of the external argument. *By* is a bona fide preposition, with a relational content and this content interacts with event structure to express agent/causer interpretation in the same way as happens for any of the other obliques reviewed in Section 2. In Section 4 we will put the last tassel of the picture into place, namely the raising of the internal argument to the EPP position.

4   Against smuggling

No evidence reviewed so far excludes VP movement, even though we argued in Section 11 that it corresponds to an undesirably rich grammar. Furthermore, in Section 2 we saw that VP movement is not needed to yield the correct word order. The order whereby the *by*-phrase, while introducing the external argument, appears to the right of the verb, corresponds to the normal rightward head-complement/adjunct order of head-initial languages. In Section 3, we just saw that an aspectual characterization of passive does not depend on VP-movement either, but can be attached to base-generated passive structures. Before concluding, it remains for us to address one last issue: is VP movement necessary in order for promotion of the internal argument to the EPP position to comply with Minimality and the Phase Impenetrability Condition?

Our answer to the Minimality question is negative, since neither the oblique *by*-phrase nor the variable in (13) count as interveners. First, we assumed that the

variable corresponding to the external argument in (13b) is existentially closed at the C-I interface; hence what the syntax sees is a free variable, which we assume does not create an intervention effect, lacking phi- and other referential features. The oblique in (13a) requires some more careful discussion. We may observe for instance that the internal argument moving to the EPP position passes any number of obliques other than the *by*-phrase; however this doesn't tell us much, since smuggling theorists may argue that it is VP movement that makes this possible.

Recall however that the probe–goal mechanism underlying movement is an Agree mechanism. The nominative case assigned to the EPP argument is itself a by-product of Agree with I (Chomsky 2001). Therefore, we may consider the question whether in active sentences, where by definition VP doesn't move, there is any evidence of obliques serving as goals of an Agree probe. The answer is negative. Neither a *v* probe nor an I probe can ever target an oblique. For instance, (17a) shows that an accusative clitic triggers agreement in phi-features with the perfect participle; despite the morphological identity of the dative clitic in (17b) with the accusative in (17a), and the absence of an accusative goal, agreement with the perfect participle is impossible.

(17)   a.   Le   ho   viste.
             them.F I.have seen.F.PL
             'I saw them'
        b.   Le   ho   parlato/*parlata.
             to.her I-have spoken/spoken.F.SG
             'I spoke to her'

In present terms, the preposition/oblique case creates structural layers embedding the DP, which removes it from the search domain of the probe. Whatever the reason why Agree cannot target obliques, the implication is that obliques cannot be targeted by movement. But if they are not possible goals, then obliques cannot count as interveners on any given movement path. This means that in (18) the *by*-phrase, i.e. the only argument present, is not a position to block the movement of the internal argument.

(18)   He was [$_{vP}$ [$_{vP}$ *v* [$_{VP}$ killed he]] [$_{(\subseteq)P}$ by John]]

The argumentation is straightforward in the Romance or Germanic languages with which we are directly concerned here. Unfortunately, there is considerable variation cross-linguistically as to whether agreement with obliques is allowed. For instance, Anand & Nevins (2006) formulate a Visibility of Inherent-Case to Verbal Agreement (VIVA) Parameter ("A language will differ as to whether the verb can agree with an inherently case-marked DP") using the theoretical notion of inherent

case rather than the theory-neutral notion of oblique that we have used throughout. They point out that datives agree in Basque and in Georgian, and it is well-known that closely related Indo-Aryan languages differ as to whether they agree or not with DOM prepositional objects or with ergative subjects.

Though we dutifully note the issue, there is more than one reason why our objections to a Minimality motivation for VP movement still stand. First, in languages with the Italian (Icelandic etc.) setting for the VIVA parameter, there must indeed be some reason independent of Minimality motivating VP-movement; but if the discussion that precedes is correct, it is difficult to find one. Second, though a great deal of typological evidence is available on the VIVA parameter, we are not aware of a (standard) theoretical treatment. This undermines the present argument, but also arguments for smuggling, to the extent that the basis for the potential intervention of obliques in Minimality is theoretically unclear. Thus further research is required on this point.

Turning lastly to the PIC, the matter is slightly complicated by ideas about a tripartitite Voice-*v*-V organization of the sentence, that we have adopted. It is possible that in such an organization the phasal node is Voice (here Asp/Event). If so, in passive structures lacking this level of organization the internal argument finds itself automatically in the CP sentential phase. This reconstructs the original proposal of Chomsky (1995) that passives lack the *v*P phase, within a two-layered *v*-V framework for predicates, and achieves the desired result in the simplest way.

In conclusion, VP movement is not necessary to circumvent Minimality and the PIC via smuggling of the internal argument. Therefore VP-movement and smuggling are not necessited by empirical evidence. If so, it is safe to conclude that they are excluded on simplicity grounds, since they do not comply with the more restrictive picture of movement, under which this operation only affects arguments in the core syntax, and always has interpretive motivation and interpretive import.

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Some thoughts on VP coordination in Niuean[*]

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1 Introduction

This squib presents a first consideration of the structure of VP coordination[1] in Niuean, a Polynesian language with VSO word order and ergative case marking. VSO languages have long been a testing ground for configurationality because they do not have a surface VP constituent (Anderson & Chung 1977, McCloskey 1983), which leads to questions about whether and how VP coordination is possible in such languages. In the context of V-fronting, VP-internal subjects, and extended functional projections such as *v* and Voice, the question shifts somewhat, as so-called VP coordination can involve nodes higher than the actual VP, allowing for more analytic options (e.g. Chung 1990, 1998, Davis 2005, McCloskey 1991b,a). Nevertheless, VSO languages still raise particular interesting issues for analyses of coordination.

In this paper, we show that under certain assumptions, standard examples of VP coordination in Niuean cannot be analyzed with an across the board (ATB) movement analysis (VoiceP coordination) or with a low coordination shared subject analysis (*v*P coordination). Instead, it seems that Niuean VP coordination must involve nodes as high as IP, thus requiring a deletion or pro-drop analysis of VP coordination. This does not necessarily mean that there is no VP node in the language, however, as the constraint against VoiceP and *v*P coordination can be attributed to a strict V-initial licensing requirement at PF (as well as LF) in the language. At the end of the paper, we show that in fact low true VP coordination can be said to exist in Niuean, as can VoiceP coordination in gapping constructions.

[1] We use VP coordination as a neutral descriptive term to mean coordination that consists on the surface, of a [VO] second conjunct with a missing subject.

2   Analyses of coordination

Descriptively, in VP coordination structures, we find a missing thematic argument in the second conjunct, which is coreferential with the single overt subject, as shown in (1).

(1)   (At the party,) Kyle$_i$ wore a tie and __$_i$ sported a hat.

There are (at least) three broad approaches to the analysis of this missing element (cf. Camacho 2000). First, we might consider the subject in the second conjunct (Sbj2) to be present at Merge, but to be unpronounced at PF, through some process of high coordination along with PF deletion, ellipsis, or PRO DROP (e.g. Van Valin 1986). This is possible if we assume either an IP or VoiceP level coordination, as shown in (2), where we illustrate with a pro-drop analysis.[2]

(2)   a.   [$_{ConjP}$ [$_{IP}$ Kyle [$_{VoiceP}$ ~~Kyle~~ wore a tie]] and [$_{IP}$ *pro* [$_{VoiceP}$ ~~pro~~ sported a hat]]]
         b.   [$_{IP}$ Kyle [$_{ConjP}$ [$_{VoiceP}$ ~~Kyle~~ wore a tie] and [$_{VoiceP}$ *pro* sported a hat]]]

Second, we might consider Sbj2 to be present at Merge, but to be extracted via ATB MOVEMENT, along with the subject of the first sentence, to a shared IP specifier (e.g. Williams 1978). This necessarily involves a coordination lower than IP, such as VoiceP coordination as in (3).

(3)   [$_{IP}$ Kyle [$_{ConjP}$ [$_{VoiceP}$ ~~Kyle~~ wore a tie] and [$_{VoiceP}$ ~~Kyle~~ sported a hat]]]

Third, we might consider there to be only one subject merged, in a structure that involves *low coordination with a shared subject* (cf. Goodall 1987). This can involve *v*P coordination as in (4a), but VP coordination is also possible here as in (4b), if we allow a single *v* head to check accusative case with two objects, one inside each conjunct.

(4)   a.   [$_{IP}$ Kyle [$_{VoiceP}$ ~~Kyle~~ [$_{ConjP}$ [$_{vP}$ wore a tie] and [$_{vP}$ sported a hat]]]]
         b.   [$_{IP}$ Kyle [$_{VoiceP}$ ~~Kyle~~ [$_{vP}$ *v* [$_{ConjP}$ [$_{VP}$ wore a tie] and [$_{VP}$ sported a hat]]]]]

Although there are many other variable points within these analyses (e.g. whether objects raise to a position outside VP, whether verbs similarly raise, etc.), the above outline captures in broad strokes the various types of proposals that have been proposed for VP coordination. In the next section we turn to Niuean coordination.

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2 It is also possible with CP conjunction but we put this aside. Note we take no position on the internal structure of the Conjunction Phrase (see e.g. Munn 1993, Progovac 1998/2003, Zhang 2010).

3 Niuean VP coordination

We start our discussion of Niuean with the coordinated transitive VP in (5). To ease the discussion, we will shorten this sentence as in (5b), leaving out modifiers and replacing the proper name with a pronoun, and we will present the various proposed syntactic structures using the English glosses, as this will allow for a clearer focus on the abstract syntactic structure of the coordinations.[3]

(5) a. Ne   fakatū e   Misi Lao e   aoga fakaako akoako mo e
         PAST start ERG.P Mister Lao ABS.C school train   pastor and
         fakaako ai   e   falu a   fuata Niue.
         teach   there ABS.C some LNK youth Niue
         'George Lawes started a pastors' training school and taught some Ni-
         uean youths.'   (Talagi 1982)
     b. Ne   fakatū e   ia e   aoga mo e fakaako ai   e
         PAST start ERG.P 3SG ABS.C school and teach   there ABS.C
         falu a   fuata.
         some LNK youth.
         'He started a school and taught there some youths.'
                                                    (shortened version of (5a))

We analyze VSO order in Niuean as involving remnant movement of VP ([V+t$_O$]) to the specifier of IP, and we consider that the object is previously extracted out of VP to a specifier of *v*P position where it is licensed with absolutive case (Massam 2000, 2001). Following many (e.g. Aldridge 2004, Legate 2006, 2017, Mahajan 1989, Massam 1998, Sheehan 2017, Woolford 1997, 2006) we assume that ergative case is assigned in situ (i.e. in specifier of VoiceP) to agents of transitive verbs, and that subjects do not move from their merged positions.[4] We consider the preverbal tense particle to be in C, and we will set it aside for the rest of this discussion. The analysis of a transitive sentence is thus as shown in (6) (using English gloss words in place of Niuean words, as noted above).

(6)   [IP [VP start ~~school~~] [VoiceP he [*v*P school [VP ~~start school~~]]]]

How might we analyze the coordinated sentence (5) within the three broad approaches to coordination outlined in Section 2, with these assumptions about Ni-

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3 The Niuean word for 'and' is comitative *mo e* (or *mo*, if the following word is a proper noun). See Massam et al. 2016 for general information about Niuean coordination. Abbreviations used in the Niuean glosses are as follows: ABS, absolutive; C, common; DIR3, direction away; ERG, ergative; LNK, linker; P, proper.

4 Note this is very like Johnson's analysis of English (e.g. Johnson 1996/2004, 2009), except that we assume that Niuean subjects do not extract to IP.

uean clause structure? First, the deletion analysis with conjoined IPs, as in (2a), would be as in (7).

(7) $[_{IP}$ [start ~~school~~] $[_{VoiceP}$ he $[_{vP}$ school $[_{VP}$ ~~start school~~]]]] and $[_{IP}$ [teach ~~youth~~] $[_{VoiceP}$ *pro* $[_{vP}$ youth $[_{VP}$ ~~teach youth~~]]]]

This works straightforwardly to derive a so-called VP-coordination structure, especially since Niuean is a (radical) pro-drop language, although notably, it involves the coordination of two IPs, rather than of any level of VP (Chung 1990, 1998, Polinsky 2016: 19).[5]

A deletion analysis with conjoined VoicePs along the lines of (2b) does not work for Niuean, however, as it leaves the verb in the second conjunct in situ, where it presumably cannot be licensed in Niuean, given the universality of V-initial word order in the language. We might here adapt ideas of Fox (2000) (cf. Lin 2002) and claim that the first verb (phrase) reconstructs at LF, allowing for the second verb (phrase) to in turn move to IP for licensing. However, this still yields the wrong word order, since at PF the second object precedes the second verb. Thus, the approach in (2b) with conjunction of VoiceP is ruled out, as shown in (8), with the offending items in bold.

(8) *$[_{IP}$ [start ~~school~~] $[_{ConjP}$ $[_{VoiceP}$ he $[_{vP}$ school $[_{VP}$ ~~start school~~]]] and $[_{VoiceP}$ *pro* $[_{vP}$ **youth** $[_{VP}$ **teach** ~~youth~~]]]]]

The second option outlined above is the ATB movement analysis, as in (3). Such an analysis is also not possible for Niuean, assuming subjects are licensed with ergative case in situ, in specifier of VoiceP, and do not move to IP. There is, simply, nowhere for the subjects (in bold in (9)) to ATB-move to. In addition, the analysis fails because the second VoiceP conjunct is not large enough to allow for verb fronting, yielding the wrong word order, shown in bold, as was the case also in (8).

(9) *$[_{IP}$ [start ~~school~~] $[_{ConjP}$ $[_{VoiceP}$ **he** $[_{vP}$ school $[_{VP}$ ~~start school~~]]] and $[_{VoiceP}$ **he** $[_{vP}$ **youth** $[_{VP}$ **teach** ~~youth~~]]]]]

The third approach is the low coordination analysis with a shared subject as in (4a)/(4b) above for English, where the two *v*P or VP conjuncts are topped with a single shared VoiceP or *v*P respectively. The first of these does not work for Niuean, as shown in (10a), because it yields the wrong word order, similarly to (8) and (9), because the second *v*P conjunct is not large enough to allow for V fronting, as required prior to Spell Out.

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5 Chung (1990, 1998) notes that this type of analysis only works if pro is always found as Sbj2 and not Sbj1. This appears to be the case in Niuean (Massam et al. 2016).

(10)   a.   *[IP [start ~~school~~] [VoiceP he [ConjP [vP school [VP ~~start school~~]] and [vP **youth** [VP **teach** ~~youth~~]]]]]]

       b.   [IP [start ~~school~~] [VoiceP he [vP school [ConjP [VP ~~start school~~] and [VP teach youth]]]]]]

In (10b), such an approach is still in the running, as the PF word order is VO in the second conjunct. Here, following Fox (2000), we would assume that the first verb reconstructs at LF, allowing the second verb to move up to be licensed, and the first object reconstructs at LF, allowing the second object to move up to be licensed.

Summing up, for Niuean, VP coordination derived through coordination of IP with Sbj2 as pro is straightforward, while attempts to coordinate VoiceP or vP will not work, as they will yield the wrong word order in the second conjunct. In addition, ATB movement of the subject is additionally ruled out, assuming that Niuean subjects are licensed in situ and do not undergo movement to any grammatical subject position.[6]

As noted, it is also possible to derive the VO word order with low VP coordination and a shared subject as in (10b), assuming LF reconstruction as outlined above. A problem arises however, when we consider coordination of VPs other than transitive ones. Taking examples of two unaccusatives as in (11), this type of derivation fails.[7] The reason is that the so-called shared subject here is a derived one, extracted to vP from the object position of the unaccusative verbs. Under the low coordination shared subject analysis, the second subject (in bold in (12)) is trapped in the lower VP or vP and cannot be shared. (An ATB or a pro solution would fare better in such cases.) The impossible structures are given in (12).[8]

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6 Of course, everything depends on our assumptions: e.g. if Niuean subjects do undergo movement to a higher position, an ATB analysis of subject movement is more possible, but there is still the problem of the OV word order. But then, if V-initial order is derived by successive head movement instead of by remnant movement, the options change also, as V could move to Voice to achieve VO order. These options require further research.

7 There are no established tests for unaccusative *vs* unergative verbs in Niuean. We are assuming based on meaning that the verbs here are unaccusative. But note that even if the first verb in (11a) is (plausibly) considered to be unergative, or the second one in (11b) is, the same problem arises, as the unaccusative conjunct would have a derived subject (arguably in specifier of vP) and the unergative would presumably not, assuming, as is usual, that unergative subjects are merged in specifier of VcP (but see Massam 2009, Tollan 2016, and Oxford & Tollan 2017; also Polinsky 2016). Thus, an unergative and an unaccusative cannot share a single subject; nor can an unergative and a transitive.

8 Collins (2016) also notes that low coordination of an unergative and an unaccusative is ungrammatical and that high coordination is required in Samoan, a related language which has multiple conjunction types. See also Otsuka 2000 and Tollan & Clemens 2016. Burton & Grimshaw (1992) discuss similar issues in SVO languages.

(11) a. Fina atu ai a ia mo e nofo mau ai.
          go DIR3 there ABS.P 3SG and stay permanent there
          'He went there and stayed there.'   (Talagi 1982)

      b. Ati ita e ika mo e fakafualoto.
          then jealous ABS.C fish and hurt
          'The fish became jealous and hurt.'   (Talagi 1982)

(12) a. (Attempt at analysis of low VP and shared subject: two unaccusatives)
          *[$_{IP}$ [go ~~he~~] [$_{vP}$ he [$_{ConjP}$ [$_{VP}$ ~~go he~~] and [$_{VP}$ stay **he**]]]]

      b. (Attempt at analysis of low VP and shared subject: unergative and
          unaccusative)[9]
          *[$_{IP}$ [go] [$_{VoiceP}$ he [$_{vP}$ [$_{ConjP}$ [$_{VP}$ ~~go~~] and [$_{VP}$ stay **he**]]]]]

In addition, in cases of transitive VPs coordinated with unergative ones, only one of
the two conjunct types would license a VoiceP with ergative case, so it is impossible
for the two conjuncts to share a single VoiceP. Assuming that Niuean subjects do
not raise to a higher position for licensing but are licensed in situ, such an analysis
is impossible.

All such sentences, however, are derivable if we assume IP adjunction with a
null pro subject in the second conjunct, as in (2a) and (7). This would suggest that
there is no coordination of any extension of VP in Niuean for sentences such as (5)
and (11) which have apparent VP coordination. Another construction exists, how-
ever, which arguably does involve VP coordination, that is, VP, not *v*P or VoiceP,
coordination, as in (13). In this sentence, we find an object that has been Pseudo-
Noun-Incorporated to the verb (Massam 2001), such that the overt [VO] is coordi-
nated. In such cases, the objects are licensed within VP, thus the entire [VP + VP]
coordination can be fronted, with no licensing violations, as objects are licensed
within VP and both verbs undergo the required fronting. A somewhat abbreviated
analysis is shown in (14).[10]

(13) Fai hoana mo e fai taane oti a lautolu.
      have wife   and have husband all ABS.P they
      'They all have wives or husbands.'   (Talagi 1982)

(14) [$_{IP}$ [VP and VP] [$_{VoiceP}$ they [$_{vP}$ [~~VP and VP~~]]]]

Thus, VP coordination does seem possible in Niuean, but only in cases of
Pseudo Noun Incorporation (and in cases of apparent [V+V] coordination also, of
course), where the verb and the object together undergo fronting.

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9 The lower object in (12) could move to vP but this does not help to derive the sentence.

10 *Fai* 'have' is an obligatorily incorporating verb. We assume here that PNI verbs are like unergatives,
   with the external argument in specifier of a non-ergative assigning VoiceP.

4 Thoughts on gapping

Johnson (2009) argues that gapping is formed through the coordination mechanism of ATB movement (thus explaining why gapping is only possible with coordination). Interestingly, gapping is found in Niuean.[11]

(15)   Ne   tutuli he   kuli e   lapiti mo e pusi e   kinipiki.
          PAST chase ERG.C dog ABS.C rabbit and   cat   ABS.C guinea-pig
          'The dog chased the rabbit and the cat the guinea-pig.'

Gapping might be similarly handled in Niuean as ATB movement of two verbs to IP from conjoined VoicePs, as shown in (16), where the elements undergoing ATB movement are in bold (cf. McCloskey 1991a). A complication is that the shared VP contains the trace of two different objects, as shown in (16a), which is tricky for the Copy Theory of Movement, but an alternative is to allow the second V alone to undergo ATB movement, in which case the copy of *rabbit* alone would appear in specifier of IP as in (16b). In (16) we once again present the data with the English gloss words, to facilitate focus on the structure.

(16)   a.   [$_{IP}$ [**chase trace**$_{i/j}$] [$_{ConjP}$ [$_{VoiceP}$ dog [$_{vP}$ rabbit$_i$ [$_{VP}$ ~~chase rabbit~~]]] and [$_{VoiceP}$ cat [$_{vP}$ guinea pig$_j$ [$_{VP}$ ~~chase guinea pig~~]]]]]
          b.   [$_{IP}$ [**chase** ~~rabbit~~] [$_{ConjP}$ [$_{VoiceP}$ dog [$_{vP}$ rabbit$_i$ [$_{VP}$ **chase** ~~rabbit~~]]] and [$_{VoiceP}$ cat [$_{vP}$ guinea pig$_j$ [$_{VP}$ **chase** ~~guinea pig~~]]]]]

It would seem therefore that conjunction of VoiceP in Niuean might not be ruled out in and of itself, but rather, that it is not generally possible due to the need for every verb to undergo movement to IP for licensing at PF. If a verb can undergo this movement via ATB movement, the structure is grammatical as in (16), but if it cannot, the structure fails as in (9). In addition, an ATB analysis of gapping, unlike an ATB analysis of VP coordination, does not require movement of transitive subjects, which by our assumptions do not undergo movement in Niuean, being licensed in situ in VoiceP with ergative case.

5 Conclusion

This paper presents an initial exploration of VP coordination in the VSO ergative language Niuean. We have argued that, given certain assumptions about V-initial order and ergative case in Niuean, ATB and low coordination shared subject analyses of VP coordination both fail for this language, since they involve conjunction

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11 We thank Malotele Kumitau Polata and Rebecca Tollan for this data. Of special interest is that the ergative case marker on Sbj2 is missing, replaced by the non-proper marker *e* which is part of the conjunction word *mo e*. This deserves further study.

of either *v*P or VoiceP, both of which prevent the verb in the second conjunct from moving to IP at PF. Interestingly, true VP coordination does seem possible in cases of Pseudo Noun Incorporation, where objects do not require licensing outside of VP and where both VPs can thus move as a coordinated unit to IP for licensing. In addition, VoiceP coordination is possible in cases of gapping, where the verb in the second conjunct is able to undergo ATB fronting to a matrix IP for licensing along with the verb in the first conjunct. Of course, there remain many questions, and many other avenues to be explored.

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Object positions (in Irish)

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1 Grammatical relations

When talking about syntax[1] it is hard to avoid loose talk of 'subjects' and 'direct objects'. Such terms sometimes seem convenient, but they are also mysterious and it is one of the signal achievements of syntactic theory since the 1980's to have eliminated the need to make use of them. Their elimination has been achieved in the way that one would like — by way of reduction to more fundamental and independently necessary concepts such as the combinatorics of structure building (which yield command as a measure of prominence), and the interactions we call case and agreement.

For example, the network of interactions which jointly define 'subjecthood,' we now understand as a set of interactions entered into by closed class lexical items which appear relatively high in the clause. In earlier conceptions, one particular head (INFL, later TENSE) played a distinguished role in that set of interactions. More recent work, however, makes it clear that no one head has such a privileged (and therefore mysterious) role. Rather, any head which is sufficiently high in the extended projection to command external arguments may, in principle, have the relevant properties and thereby enter into the relevant interactions (see, for instance, Cable 2012 on Dholuo and Zyman 2017 on P'urhepecha).

2 Objecthood

If we take the numerology of Relational Grammar seriously, then the 'direct object' relation is ranked second in the overall hierarchy of grammatical relations. If that is so, it is a very important task for syntactic theory to construct an understanding of that relation and the interactions through which it manifests itself (case, agreement, ordering, characteristic semantics, behavior under extraction and so on). In work of the 1980's, however, there remained a disturbing asymmetry between the emerging understanding of subjecthood and the kinds of understanding of objecthood that were available. Subjects were defined by their morphosyntactic connections with

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[1] I draw here on much earlier work on Irish syntax. See especially Guilfoyle 1990, 1994, Noonan 1992, 1994, Duffield 1995, and Ó Donnchadha 2010.

a closed class head (INFL or TENSE or AgrS), while objects were defined by their connections and interactions with an open class item — the verb.

One of the most important early attempts to resolve this theoretical anomaly in an empirically rich and convincing way is Kyle Johnson's (1991) paper 'Object Positions', which proposed a shift from the characterization in (1a) to that in (1b), in which the direct object relation, like the subject relation, is conceived as a set of relations between a closed-class (functional) item and a nominal in its local command domain (the 'direct object').

(1)   a.
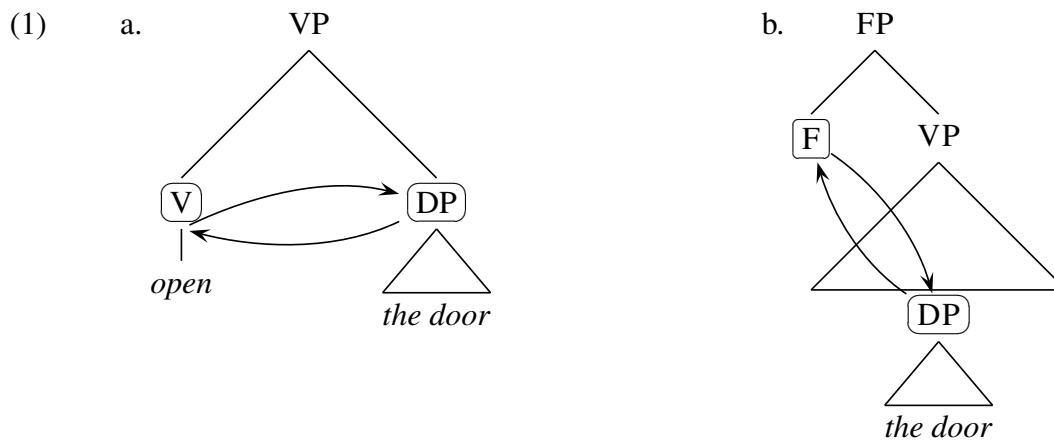
Johnson 1991 gives F of (1b) the nonce name μ; it is proposed that in English objects raise to the specifier of its complement (VP) and that verbs raise to μ. This pair of proposals yields an understanding of the relative prominence of objects with respect to other material in the verbal domain and of the fact that direct objects in general immediately follow the verb. The analysis of (1b), in its various variants, now represents the conventional wisdom within the framework of the Minimalist Program. But outside that circle, the analysis is widely criticized. For Culicover & Jackendoff (2005: 50–56), for example, the kind of analysis illustrated in (1b) is a symbol of all that is wrong with what they call MGG ('Mainstream Generative Grammar').

In this paper I would like to engage some of the issues that arise in the rethinking represented by (1b). I do that by way of a detailed examination of objecthood in Irish. My conclusion will be that, despite the misgivings of Culicover and Jackendoff, that examination yields support of an interesting and rather specific kind for the understanding represented by (1b).

First, though, we should take a step towards specificity of commitment by adjusting the proposals in Johnson 1991 in the light of more recent theoretical developments.

The discussion of the direct object relation in Chomsky 2008 can be read as just such an update — in a much-changed theoretical context. Chomsky there identifies Johnson's μ with the light verb v and assumes that English objects appear in the specifier of its VP-complement. That leaves us with the potential anomaly of postulating a movement-driving feature (an EPP-feature) on an open class element, the lexical verb. If we were to assume, with Harley (2013), Merchant (2013), Legate (2014) and others, that we should distinguish a Voice head from a verbalizing head v, the first selecting the second, we will have the structure in (2), and the potential anomaly is eliminated:

(2)
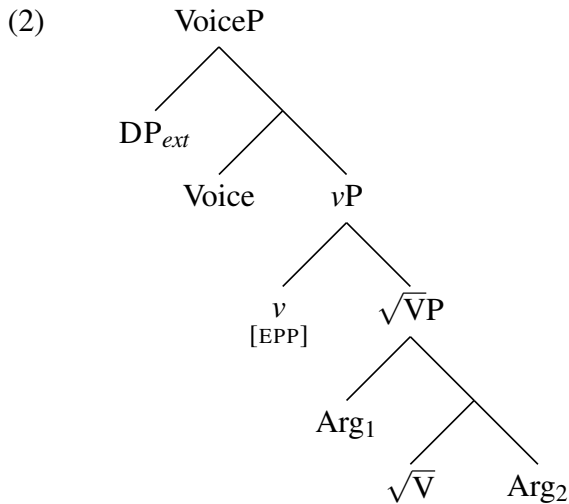
Given (2), agentive arguments are arguments of Voice and originate in its specifier; the most prominent nominal argument in VP (if there is one) raises to the specifier of v (and is the 'direct object'), and the verbal root raises through v to Voice yielding verb-object order, as before. English verbs thus lexicalize an array (a 'span') of three distinct atoms of the syntactic system.

Furthermore, an expected possibility is now that the Voice head may itself have the EPP-property, triggering raising into its own specifier position. If that interaction is restricted to nominal phrases, we will have a more prominent object position still. And the typological landscape we now expect to encounter is one in which, across languages, we should find evidence for at least three 'object positions' — the thematic position (which can be anywhere at all within the accessible command domain of Voice), the specifier of v, and the specifier of Voice. We in addition expect that, in contexts where we can clear away the confounding effects of head movement, we will find evidence for syntactically autonomous closed class items corresponding to Voice and v.

3   Objecthood in Irish

Irish is famously a VSO language, as seen in (3b). A less well known observation, however, is that the VSO pattern holds only for its finite clauses. In nonfinite clauses, as illustrated in (3a), the subject is initial, and the verb is medial. The verb in turn follows the direct object but precedes all other complement-types.

(3)   a.   Níor mhaith liom iad   bréag mar sin   a insint   domh.
            I-wouldn't like   them lie   like DEMON tell.NON-FIN to-me
            'I wouldn't like them to tell me a lie like that.'
      b.   Níor mhaith liom go n-inseodh siad bréag mar sin   domh.
            I-wouldn't like   C tell.COND they lie   like DEMON to-me
            'I wouldn't like them to tell me a lie like that.'

And a crude (but basically correct, I think) analysis of the relation between (3a) and (3b) suggests itself:[2]

(4)   VERB < SUBJECT < OBJECT _ OBLIQUE ARGS < ADVERBIALS

In (4) head movement of the verb to initial position is linked with its relative morphological complexity. Nonfinite verbs are much simpler in morphological terms (much more on this below) and appear close to the arguments that they select. Nonfinite clauses, then, may reveal more clearly than their finite cousins do what the building blocks of the clause are and how those building blocks combine — in a way that is less obscured by head-movement than is the case for finite verb-initial clauses. The form of nonfinite clauses can in turn be described by way of the informal schema in (5), in which square brackets indicate optionality:

(5)   *Constituent order in nonfinite clauses*
        [NEG] [Subject] [Direct Object] V [PP-complement] [CP-complement]

The VSO pattern of finite clauses is constant across the dialects and has been established since the earliest period for which we have records (late in the sixth century). The SOVX pattern of nonfinite clauses, on the other hand, is a relatively recent innovation which emerges into view in the manuscript tradition only in the late sixteenth and early seventeenth centuries and it shows a great deal of variation across the Gaelic dialect-continuum. I will not engage that variation here, but focus exclusively on Northern dialects, where the descriptive and expositional challenges are somewhat less daunting than for others. The crucial question is now, of course: What is the syntax that yields the informal description in (5)?

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2 See McCloskey 2017 for a recent working out of this line of analysis.

The focus of this paper is objecthood and so I will set aside questions having to do with subjects. Because finite clauses are in addition fairly unrevealing about the syntax of objects (though see Bobaljik & Carnie 1996 for an important discussion), I will narrow the gaze still further and focus on the syntax of direct objects in nonfinite clauses and on what it can teach us about objecthood in general.

4 The transitivity particle

In (3a) and in (5), the sequence *a insint* is glossed simply as a 'nonfinite verb'. That is not inaccurate, but to understand the syntax which produces (5), we must probe its internal composition. It consists, in fact, of three elements:

(6)   { PREV { $\sqrt{V}$ + SUFFIX }}

The verbal root *inis* is suffixed with a morpheme *-int*, the fusion so produced known in the Irish grammatical tradition as a 'verbal noun'. That complex word is in turn preceded by a pre-verbal particle *a*—written separately, but accent-less and at least phonologically dependent on the following 'verbal noun'. The 'verbal noun' is a form which was formerly nominal in its syntax but which in the contemporary language is entirely verbal (Gagnepain 1963, McCloskey 1980, McCloskey & Sells 1988, Stuber 2012). The particle which precedes the 'verbal noun' in (6) is one of a class of such preverbs, whose members appear always and only in nonfinite contexts of various kinds. This particular preverb exhibits an interesting distributional pattern.[3]

ONE: It is obligatorily present with objects (preverbal nominal arguments):

(7)   a.   Ba mhaith liom an teach seo   [a]   dhíol le   duine
             I-would-like   the house DEMON PREV sell.VN with person
             inteacht.
             some
             'I would like to sell this house to someone.'
        b.   cha   dtig liom   an fear choíche [a]   phósadh
             NEG-FIN come with-me the man ever   PREV marry.VN
             'I can't ever marry the man.'   SRNF 11

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3 Examples with tags like 'BSM 48' are naturally occuring. I will be glad to provide the source information on request.

TWO: It is obligatorily absent, or silent, with intransitive verbs of all types:

(8)   a.   bhí an chúis ró-mhór le Sasain géilleadh go síothchánta
            was the matter too-grave with England yield.VN peacefully
            'The matter was too grave for England to yield peacefully.'   BSM 48

        b.   Is   cuimhin   liomsa muid cruinniú i New York
            COP-PRES memorable to-me us   gather.VN in
            'I remember us gathering in New York.'   DM 106

        c.   cionnus an bósun tuitim thar an taoibh
            because the bosun fall.VN over the side
            'because the bosun fell overboard'   BG 239

        d.   Seo an darna huair a leithéid tarlú.
            this the second time its like   happen.VN
            'This is the second time such a thing has happened.' RNG 29-09-2008

        e.   Ba   mhian leat   gan   mé creidbheáil ins an rud
            COP-PAST desire with-you NEG-FIN me believe.VN in the thing
            'You wanted me not to believe in the thing.'   UMI 167

THREE: It is optionally present with verbs which take CP-complements of various types:

(9)   a.   go dtáinig leis a' tseanduine [a]   chreidbheáil gur i
            C came   with the old-person PREV believe.VN C   in
            Rinn na bhFaoileann a bhí sé
                          C was he
            'that the old man came to believe that it was in Rinn a bhFaoileann he
            was'   D 277

        b.   dhiúltaigh siad creidbheáil go bhfuil an domhan cruinn
            refused   they believe.VN C is   the world   round
            'they refused to believe that the world is round'   AM 46

(10)   a.   níorbh fhurast [a]   thabhairt ar m' athair an lán mara a
            was-not easy   PREV give.VN on my father the tide   PREV
            ligean ar shiúl air
            let.VN away   on-him
            'it wasn't easy to make my father miss the tide'   NBM 65

        b.   ní   thiocfadh   liom   tabhairt air   níos mó a
            NEG-FIN come.COND with-me bring.VN on-him more   PTC
            innse
            tell.VN
            'I couldn't make him tell any more'   FFF 69

(11) a. an bhfuil dochar [a] fhiafruighe díot   caidé'n scéal éagsamhail
          Q is   harm PREV ask.VN of-you what   story strange
          a tá in do   chionn
          C is in your head
          'Is there any harm in asking you what strange story you have in your
          head'   CP 135
     b. Ar   mhiste domh fiafraí duit   cé   an áit   a bhfuil an
          INTERR harm   to-me ask.VN of-you what the place C is   the
          baile agat?
          home at-you
          'Would it be OK if I asked you where your home is?'   SSOTC 266

The preverb is also implicated in Object Agreement in nonfinite clauses. Objects
agree with the preverb under the usual idiosyncratic Irish conditions (McCloskey
& Hale 1984, Andrews 1990, McCloskey 1986, 2011, Legate 1999, Doyle 2002,
Ackema & Neeleman 2003, among many others), and the preverb is, as expected
in this heavily head-marking language, the bearer of object agreement morphology.
We see this in the example of (12):

(12) a. I ndiaidh iad   mo cháineadh.
          after   them S1 criticize.VN
          'after they criticized me'
     b. is   fearr domh do leanstan agus féacháil le   do philleadh
          COP-PRES better to-me S2 follow.VN and try.VN   with S2 turn.VN
          'It would be better for me to follow you and attempt to turn you back'
                                                    COC 157

The structure must be as in the schematic (13), then, where *pro* indicates the position
of the silent pronominal argument (in this case the direct object) whose presence is
always implied by agreement morphology on a functional head in Irish.[4]

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4 The nominal origins of the verbal noun system are reflected in the fact that the Object Agreement
  markers are syncretic with the Possessor Agreement markers.

(13)

PrevP

Prev
[ϕ]   VP

pro
[ϕ]
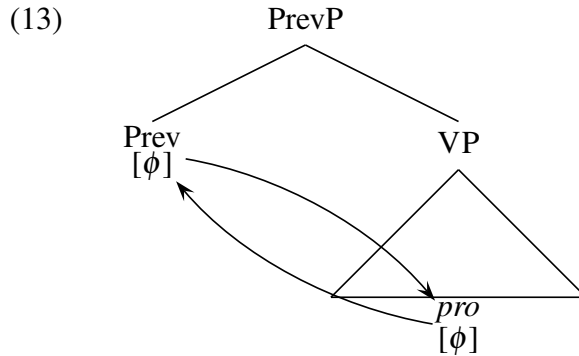
Summing up these observations, the preverbal particle *a* in Irish nonfinite clauses seems to be the crucial ingredient in the expression of transitivity. In fact the preverb can be taken to be the fundamental particle mediating the interactions which constitute objecthood in this environment. It attracts the highest nominal argument into its second specifier position (the first being occupied by the external argument), a movement which yields the obligatory Object Shift characteristic of nonfinite clauses.[5] It licenses (by Case-marking on classical interpretations) the object and therefore must be present if an object is to appear within the verbal domain. And finally it hosts the ϕ-probe in the Object Agreement interaction. These properties are definitional of the category Voice (in its transitive guise) and it surely makes sense to identify the transitivity preverb as F of (1b) and therefore to identify it with the Voice head of (2). It is the element whose existence is predicted by the theory of direct objects that we are scrutinizing.

It will not be possible here to consider the interesting case of clausal complements and their interaction with the transitivity preverb (the observations of (9)–(11)). But a case can be made that when the preverb appears (in the a-examples of (9)–(11)) there is a null pronominal in object position, one which is linked with an extraposed clause, and that in the cases without the preverb (the b-examples of (9)–(11)) the CP occupies its position of origin.

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5 I use the term 'Object Shift' here because it seems appropriate. It is important to note however that the Irish phenomenon is very different from the Scandinavian phenomenon for which the term has also been used. Object Shift of the Irish type is obligatory, not optional. It has no semantic or pragmatic consequences or side-effects. There are no phonological or morphological restrictions on its application. The verb in Irish remains low and to the right of the raised object. And *v*P-adjoined adverbs may intervene between the raised object and the nonfinite verbal complex (see example (7b) above). Clearly the analyses of the two phenomena must be very different.

5 The lower verbal domain

We have arguably made some progress at this point in better understanding the syntax of the nonfinite verbal complex, whose internal structure is illustrated again in (14):

(14)   { PREV { $\sqrt{V}$ + SUFFIX }}

We have identified the preverb of (14) with the Voice head postulated in (2). But what of the second piece of (14) — the 'verbal noun' formed by combining a root with a 'verbal noun' suffix? The structure considered earlier in (2) for English will take the form (15) in Irish, with the Voice head bearing EPP and driving Object Shift to its second specifier:

(15)

```
                VoiceP
               /      \
          DP_ext       \
                  \      \
              VOICE       vP
              [EPP]      /  \
                        v    √VP
                            /    \
                        Arg₁      \
                            /  \   
                          √V    Arg₂
```
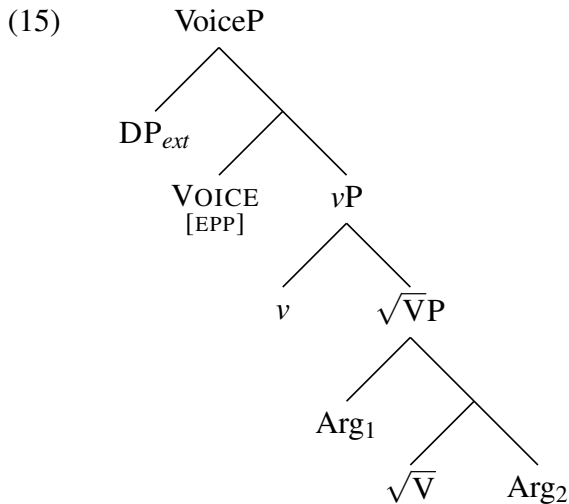
If (15) captures something real about the syntax of the verbal domain in Irish, we will have two expectations. The first is that all internal arguments, including direct objects, will have their point of origin as specifiers of or as a complement of the root. The second is that we will find evidence for the presence of a 'verbalizing' element within the verbal domain in non-finite clauses.

For the first expectation we already have the observation encapsulated in (5) that all non-DP complements follow the 'verbal noun'. In (16a) we have two PP arguments, in (16b) a PP and a nonfinite CP complement.

(16)   a.   Ba   chóir duit   labhairt leis   faoi seo.
              COP-COND proper to-you speak.VN with-him about DEMON
              'You should speak to him about this.'

b.   ní   thiocfadh liom   tabhairt air   níos mó a
        NEG-FIN come.COND with-me bring.VN on-him more   PREV
        innse
        tell.VN
        'I couldn't make him tell any more'   FFF 69

The order of elements in (16) implies of course that the root must raise in (15) and left-adjoin to *v* to form the 'verbal noun'. We thus identify the verbal noun suffix with *v*, construed as a 'verbalizer'. The raising appealed to here, with its resultant mirror-image order of morphemes, represents the extent of head movement in the nonfinite domain.

That even direct objects originate as low as all other complements (that is, as complement or specifier of the root) is suggested by the examples in (17).

(17)   a.   ní   hionann sin agus an tAifreann a   léamh uilig
         NEG-FIN same   that and the Mass   PREV read.VN all
         'That's not the same as reading the entire Mass.'   IDCS 73
     b.   agus an scéal a   inseacht uilig dhó
         and the story PREV tell.VN all   to-him
         'and to tell him the whole story'   DGD 200
     c.   Iad a   rá   uilig, an ea?
         them PREV say.VN all   is-it
         '(You want me to) sing them all, is it?'   RNG 8-7-95

All of the examples of (17) involve Quantifier Float (see Ó Baoill & Maki 2008 for extensive discussion). If the isolated universal quantifier *uilig* in the examples of (17) marks the point of origin for the raised objects (as seems likely) we have evidence that they have a pre-Object Shift position within the complement of *v* and therefore to the right of the 'verbal noun'. Raising of the entire DP headed by the quantifier is, as expected, also possible:

(18)   a.   ní   hionann sin agus an tAifreann uilig a   léamh
         NEG-FIN same   that and the Mass   all PREV read.VN
         'That's not the same as reading the entire Mass.'
     b.   agus an scéal uilig a   inseacht dhó
         and the story all   PREV tell.VN to-him
         'and to tell him the whole story'
     c.   Iad uilig a   rá,   an ea?
         them all   PREV say.VN is-it
         '(You want me to) sing them all, is it?'

A final observation is in order. There are many distinct verbal noun-forming suffixes (see Bloch-Trojnar 2006 for general discussion), but one of the more productive among them is the suffix whose orthographic form is *-(e)áil*, illustrated in (19):

(19) Rinne   sé teach a   thóg-áil.
      do.PAST he house PREV raise.VN
      'He built a house.'

This suffix has other uses. Among them is to facilitate the borrowing of English verbs into Irish — both nonce borrowings and long-term borrowings. To be used as verbs in an Irish context, such borrowed items must be augmented with the *-áil* suffix, as seen in (20):

(20) a. *Nonce borrowings*:
          miss-áil, *enjoy-áil*, *bother-áil*
      b. *Permanent borrowings*:
          vót-áil (vote), *péint-eáil* (paint), *smugl-áil* (smuggle), *bóist-eáil*
          (boast), *póits-eáil* (poach), *cic-eáil* (kick), *fón-áil* (phone)

Such uses provide perhaps some support for the idea that among the functions of the morphemes used to form verbal nouns in Irish is that of making appropriate verbs — that is to act as a 'verbalizer'. If this is so, then the identification of these suffixes with the verbalizer *v* receives some interesting support.

6   Autonomy of the transitivity particle

But what, finally, of the most contentious part of this framework of assumptions — the idea that the preverb (now identified as a Voice head) is a syntactically independent entity, a closed class item similar in fundamental respects to a member of the class C, or a member of the class D. Are there reasons which go beyond theoretical consistency which would suggest this interpretation?

An initial observation is that if there were a second head movement step which incorporated the verbal stem into Voice, that movement (unlike the one we have postulated for the creation of the verbal noun) would not respect Mark Baker's (1988) Mirror Principle. If it did, the preverb would in fact be the final element of the infinitival verbal complex. The preverb in fact appears in exactly the position we would expect a Voice head which was syntactically independent to occupy — the position from which it selects *v*P.

But I would also like to develop a less theory-bound (if slightly salacious) argument in favor of the idea that the preverb is a syntactic head like any other. The core of our proposal is that the transitivity preverb in a nonfinite clause acts like

any other functional head — it selects and therefore precedes its phrasal comple-ment (*v*P in this case). In terms of the morphosyntax nothing more need be said. However, like many other functional heads (in Irish in particular) the Voice head is phonologically deficient and as a consequence is a phonological dependent of the material that follows. The strict adjacency implied by this phonological dependency makes it difficult to construct the obvious kinds of argument for the autonomy of the preverb since nothing can intervene between it and following material.

Or almost nothing. As it happens, though, certain swear-words borrowed from English may so intervene, as we see in (21):

(21)   tá sé ceaptha thú a   *feckin* ghortú
       is it intended you PREV   hurt.VN
       'It's intended to feckin' hurt you.'   GDDR 271

Crucially, this is not an instance of expletive infixation of the well studied English type. It is absolutely impossible to insert a borrowed swear-word within a morpho-logically complex word, as shown, for example, in (22):

(22)   a.   chaithfidís
            must.COND.P3
            'they have to'
       b.   *chaithfi-feckin-dís

       c.   *ambasa-feckin-dóir

Speakers are very clear about this and no attested examples of the type in (22) have so far been observed. In sharp contrast, examples like (21) can be found very easily and speakers judge them as natural without hesitation.

Similar effects turn up in a number of other contexts. The same set of borrowed swear-words, for example, can appear between a preposition and its complement DP, as seen in (23):

(23)   Feicfidh mé arú amáireach   thú le   dhul   ar *feckin'* siúlóid
       see.FUT I   day-after-tomorrow you with go.NON-FIN on   walk
       mar sin.
       as   that
       'I'll see you the day after tomorrow to go on a feckin' walk then.'
                                                                     GDDR 305

They also occur between many kinds of determiners and their phrasal complements. This is shown for possessive determiners in (24), and for the definite determiner in (25).

(24)   a.   níl   mé ag   iarraidh ortsa   mo *feckin* cháil
              NEG-FIN-be.PRES I   PROG ask.VN on-you my   reputation
              a   scriosadh
              PREV destroy.VN
              'I'm not asking you to destroy my feckin' reputation.'   GDDR 304

        b.   Dún do   *friggin* chlab, a Mhamaí.
           close your   gob   VOC-Mammy
           'Shut your friggin mouth, Mammy'   RNG 13-06-2012

(25)   a.   an *focain* deartháir úd.
              the   brother   DEMON
              'that fuckin' brother'   J 95

        b.   thar thairseach an *focain* tí   seo.
           over threshold the   house.GEN DEMON
           'through the door of this fuckin' house'   J 95

Finally they may intervene between a negative complementizer and its TP-complement, as seen in (26).

(26)   Ná   *focain* fliuch an bosca!
        NEG-IMP   wet   the box
        'Don't fucking wet the box.'   J 117

The evidence is fairly clear, then, and can be visualized by way of the sequence of trees in (27), which lays out the array of well-formed patterns so far identified.

(27)
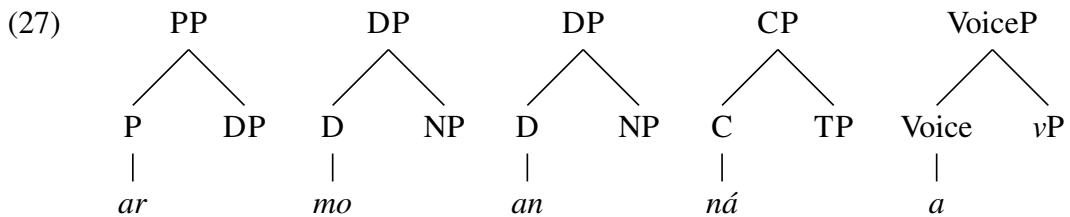
The generalization suggested by (27) seems very clear: Swear words borrowed from English never appear within a morphological word. However, they may appear between a prosodically dependent functional head and the complement of that head.[6] All of the well-formed examples in (21)–(26) meet this condition. If this interpretation is accurate, we have evidence that the relation between the transitivity particle and the projection of the verbal stem is indistinguishable from the relation between P and DP, between D and NP, or between C and TP. If the transitivity preverb is a

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6 Baronian & Tremblay (2017) describe what looks like a very similar distributional pattern for the same borrowings in Montréal French.

closed-class lexical item which selects a phrasal complement (the projection of *v*), the well-formedness of (21) is expected as part of a larger pattern. But this is the core of the proposal in (15) and is precisely the hypothesis that we wanted to put to the test.

7 Conclusion

We are thus brought by this language-internal deductive path to the theory of object-hood which Chomsky (1995, 2000, 2001) arrives at by way of general theoretical deduction, which Kratzer (1996) arrives at by deduction from semantic considerations and which Johnson (1991) arrives at by way of close examination of English. The properties crucial for objecthood inhere not in verbs but in syntactically independent functional heads which select phrases headed by verbal stems. Verbal phrases are therefore multi-layered and there are at least three 'object positions'.

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Spurious coordination in Vlach multiple *wh*-fronting

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1 The phenomenon

Many (perhaps all) multiple *wh*-fronting languages allow for what I will call a *spurious coordinator* to appear between fronted *wh*-items, particularly arguments, as in (1b) from Vlach.[1]

(1)   *Vlach*

    a. acari či   ari vijutụ?
        who what has seen   'Who saw what?'

    b. acari s   či   ari vijutụ?
        who and what has seen
        'Who$_1$ saw something and what did they$_1$ see?'

Such coordinations have been studied primarily in Russian (Kazenin 2002, Grebenyova 2004, Gribanova 2009), Romanian (Comorovski 1996), Hungarian (Lipták 2003), and Serbo-Croatian (Browne 1972). The main properties that have been previously noted are the following. 1. Spurious coordinated questions only allow *single pair* answers, not the *pair-list* answers that are usually required in multiple *wh*-questions in these languages (as noted first in Kazenin 2002). 2. In multiple *wh*-fronting languages with superiority effects (Hungarian, Macedonian), these effects persist in spurious coordinated questions (Lipták 2003). To these characteristics I add the following: 3. Only conjunctions show this behavior, not disjunctions. 4. The 'coordinated' *wh*-phrases cannot occur in 'balanced' coordinations. 5. These structures only occur in languages that allow multiple fronting of *wh*-elements already (whether multiple *wh*-fronting is obligatory, as in Russian, or optional, as in Hungarian and Vlach).

I show that the two general strategies that have been pursued to date suffer from shortcomings. The first (variously Bánréti 1992, Giannakidou & Merchant 1998,

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[1] Vlach (also known as Vlah and Arumanian) is an endangered minority Romance language spoken in parts of northern Greece and surrounding areas by 50,000 people by some estimates; see Friedman 2001 for ethnographic discussion. All Vlach data not otherwise sourced come from my fieldwork in Katerini, Greece during the period 2007–2016; many thanks to Sakis Gaitanis, my primary informant (a 49-year-old Greek-Vlach bilingual male).

and Camacho 2003) posits coordinated CPs and applies a backwards ellipsis operation (like sluicing) to reduce the first conjunct to just a *wh*-phrase. Serious problems with such accounts are adduced by Kazenin 2002 and Lipták 2003; to these I add the fact that in Vlach, the otherwise obligatory clitic in the second conjunct cannot appear. The second general strategy (Kazenin, Lipták, Gribanova) has been to claim that the *wh*-phrases are themselves coordinated. The primary difficulties with the second strategy are 1. supplying an account of the movement (of WH_2) to an embedded position (which doesn't c-command its origin site), 2. blocking balanced coordinations, and 3. correlating these coordinations with multiple *wh*-fronting.

Instead, I adopt from the second strategy the claim that the conjunction is spurious here (not having its usual conjunctive semantics), but propose that the *wh*-movement is the usual one found in these languages:

(2)
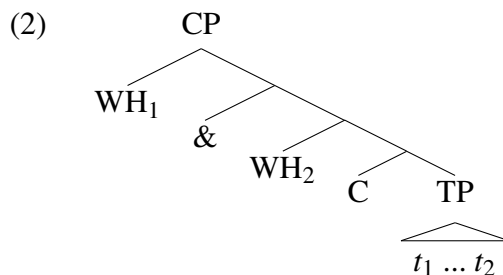
I show that this solution accounts for more of the properties of the construction with fewer stipulations. It immediately accounts for properties 2 and 5, and can capture properties 3 and 4 assuming that the 'spurious' conjunction is special (neither the left bracket coordinator nor disjunctions have spurious uses: cf. *(*Both) One more step and I'll shoot you = If you take one more step, I'll shoot you*; Culicover & Jackendoff 1997). Next, following Gribanova, the conjunction blocks the structural adjacency necessary for Higginbotham & May's (1981) Absorption operation which takes adjacent unary quantifiers and returns an n-ary one; with Absorption blocked, only a single-pair reading is possible. Finally, I relate this posited clausal left-edge conjunction to 'floating' focus uses of the conjunction in these and many other languages (where they have readings similar to *also, too*, German *auch*).

2 Main properties

2.1 Single-pair answers required

Spurious coordinated questions only allow *single-pair* answers, not the *pair-list* answers that are usually required in multiple *wh*-questions in these languages (as noted first in Kazenin 2002; see also Wachowicz 1974, Rudin 1988, 2007, Bošković 2002):

A pair-list question is illustrated in (3), and a single-pair question in (4) (note that multiple *wh*-questions can sometimes have single-pair answers, and in (4b)).

(3)   a. Q: Who brought what to the potluck?
          A: Alex brought the hotdogs, Ben brought the beer, and Cherlynn brought the dessert.

    b. 'pair-list': What are the pairs $<x,y>$ such that $x \in \{abby, ben, cherlynn\}$ and $y \in \{hotdogs, beer, dessert\}$ and $[\![brought(x,y)]\!]$ is true?

    c. $[\![bring]\!] = \{<abby, hotdogs>, <ben, beer>, <cherlynn, dessert>\}$

    d. presupposition: there is more than one pair $<x,y> \in [\![bring]\!]^M$

(4)   a. Q: Who did you see, and where?
          A: I saw Mr. Plum in the library.

    b. Q: Who hit who first?
          A: Sheila hit Rex first.

    c. 'single-pair': What is the unique pair $<x,y>$ such that $x \in \{sheila, rex\}$ and $y \in \{sheila, rex\}$ and $[\![hit.first(x,y)]\!]$ is true?

    d. $[\![hit.first]\!] = \{<sheila, rex>\}$

    e. presupposition: there is a unique pair $<x,y> \in [\![bring]\!]^M$

The absence of a spurious coordinator therefore leads to anomaly when the predicate is a one-time-only predicate (a predicate that cannot be true of multiple pairs):

(5)   Acari #(s   ) kundu̯ ari vatimatə muma-ts?
      who   and when̂ has killed   mother-your

      'Who killed your mother, and when?' (cf. #*Who killed your mother when?*)

Without the conjunction *s*, 'and', the question is infelicitous, due to the one-time-only nature of the predicate.

2.2 Superiority effects are maintained

In multiple *wh*-fronting languages with superiority effects (Hungarian, Macedonian), these effects persist in spurious coordinated questions (Lipták 2003).

(6)   Hungarian

    a. Ki és kiről   beszélt?
        who and who.ABOUT talked
        'Who talked and about whom?'

    b. ???Kiről és   ki beszélt?
            who.ABOUT and who   talked

2.3 Spurious *wh*-coordination involves conjunction

Only conjunctions show this behavior, not disjunctions:

(7) *Acari i   kundu̯ ari   vatimatǝ muma-ts?
        who or   when has   killed   mother-your

2.4 Spurious *wh*-coordination is always 'unbalanced'

The 'coordinated' *wh*-phrases cannot occur in 'balanced' coordinations:

(8) a. *S acari s   či   ari   vijutu̯?
           and   who and what has̯   seen (intended =(1b))

     b. *cf.* S   fičorlu̯ s   fiata   anu vijutu̯ muma-ts.
           and the.boy and the.girl have seen   mother-your
        'Both the boy and the girl saw your mother.'

2.5 Spurious *wh*-coordination only occurs in multiple *wh*-fronting languages

These structures only occur in languages that allow multiple fronting of *wh*-elements already (whether such fronting is obligatory, as in Russian, or optional, as in Hungarian and Vlach).

(9) *Who and when did you see?

(10) *Wie en   wanneer heb je   gezien? (Dutch)
          who and   when have you   seen

(11) *Pjon ke   pote idhes? (Greek)
          whom and when saw.2s

3 Previous analyses

3.1 Previous strategy 1: backwards sluicing

Spurious *wh*-coordination involves coordinated CPs with a backwards ellipsis operation (like sluicing) that reduces the first conjunct to just a *wh*-phrase (variously Bánréti 1992, Giannakidou & Merchant 1998, and Camacho 2003):

(12) a. acari s   či   ari vijutu̯?
           who and what has seen
           'Who$_1$ saw something and what did they$_1$ see?'

b.

```
                            CP
            ┌───────────────┴───────────────┐
           CP                        ┌───────┴───────┐
      ┌─────┴─────┐                 and             CP
    who₁       ┌───┴───┐                       ┌─────┴─────┐
              C     <TP>                     what₂     ┌───┴───┐
                  ┌───┴───┐                           C      TP
                 t₁ saw something                        ┌───┴───┐
                                                        he₁ saw t₂
```
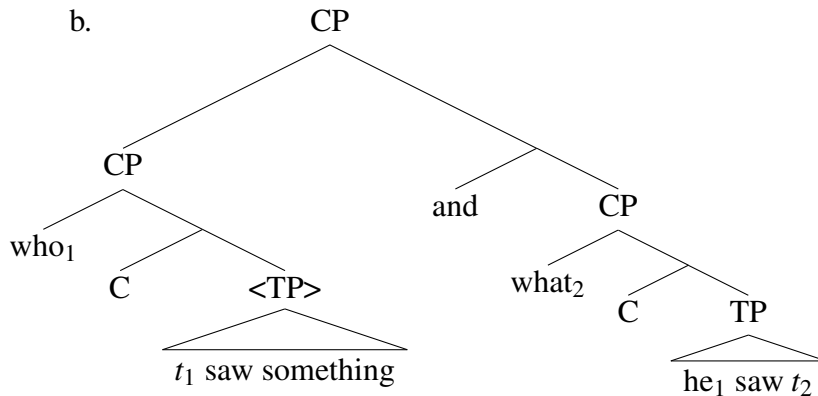
This kind of analysis has the advantage that it derives the restriction to single-pair answers, since coordinated questions share this property. But it suffers from insurmountable problems as well. First, not all the predicates that can occur in spurious coordinations allow for indefinite null arguments (Kazenin 2002, Lipták 2003, Gribanova 2009):

(13) a. Kto   i   kakoj gorod   zaxvatil?
         who.NOM and which city.ACC conquered.3s
         'Who conquered which city?'

   b. [CP Kto₁ <[TP ~~t₁ zaxvatil ec₂~~]>] i [CP [kakoj gorod]₂ [TP *pro*₁ zaxvatil t₂]]

   c. *Kto zaxvatil   i   kakoj gorod zaxvatil?
        who.NOM conquered.3s and   which city.ACC conquered.3s

Second, Hungarian definiteness agreement (object agreement on the verb) should be obligatory, and is in fact disallowed (Lipták 2003):

(14) a. Érdekel   (hogy) mit   csinálsz   és hogyan
         interest.3s (that) what.ACC do.2s.INDEF and how
         csinál-od/*-sz.
         do.2s.DEF/*INDEF
         'I care about what you do and how.'

   b. Érdekel   (hogy) mit   és   hogyan csinál-*od/-sz.
      interest.3s (that) what.ACC and how   do.2s.*DEF/INDEF
      'I care about what you do and how.'

Third, backwards sluicing obeys the Backwards Anaphora Constraint (Ross 1969):

(15) a. Although I don't know who, I know he wants to see someone.
     b. Although I know he wants to see someone, I don't know who.

    c. I know he wants to see someone, although I don't know who.

   d. ?*I don't know who, although I know that he wants to see someone.

Fourth, in Vlach, the otherwise obligatory clitic in the second conjunct (cf. (16b)) cannot appear:

(16) a. Acari s   kundu̯ (*łu̯) ai   vijutu̯?
           who and when (him) have.2s seen   'Who did you see, and when?'

      b. Acari ai   vijutu̯ s   kundu̯ *(łu̯) ai   vijutu̯?
           who have.2s seen and when (him) have.2s seen

For all these reasons, this strategy is not worth pursuing.

3.2   Previous strategy 2: Coordination of the *wh*-phrases

The second general strategy (Kazenin, Lipták, Gribanova) has been to claim that the *wh*-phrases are themselves coordinated:

(17)
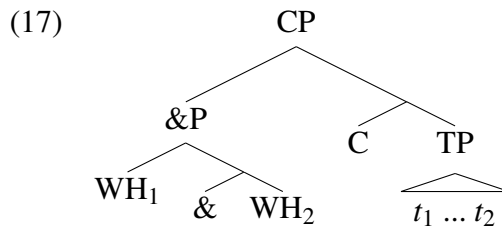
This analysis has the advantage, as Gribanova 2009 points out, that it can capture the lack of pair-list readings, by assuming a strict structural locality condition on Quantifier Absorption, an operation that takes n adjacent unary quantifiers and returns a single n-ary quantifier (Higginbotham & May 1981):

(18) a. Which man admires which woman?
        $[\text{WH}x : x \text{ a man}][\text{WH}y : y \text{ a woman}]x \text{ admires } y \rightarrow [\text{WH}_2^{1,2}x, y : x \text{ a man \&}$
        $y \text{ a woman}] \, x \text{ admires } y$

      b. Assumption: "In order to undergo QA [Quantifier Absorption], ... quantifiers ... must be *structurally adjacent*" (Q1 c-commands Q2 and no head c-commands Q2 but not Q1) (similar to May's (1985) condition on Σ-sequence formation)
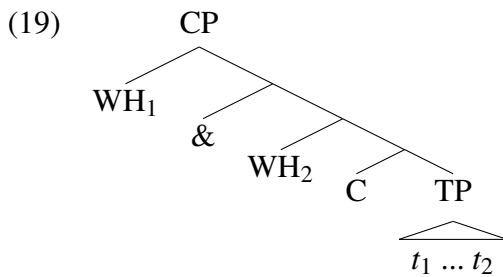
Second, this analysis captures some similar effects in Serbo-Croatian, where a *li* C intervening between two *wh*-phrases forces a single-pair answer (Grebenyova 2004, Gribanova 2009).

But it also raises some serious questions. First, how can movement target a non-c-commanding position (of the noninitial *wh*-phrase(s))? Second, how can it prevent

balanced coordinations from occurring? Third, why should there be a correlation between spurious coordinations and multiple *wh*-fronting? Finally, why should Superiority effects persist? Since none of these questions have persuasive answers, it is worth examining an alternative.

4 Analysis

I propose that the *wh*-movement in these structures is the usual *wh*-movement that targets the left-periphery (assuming multiple specifiers of CP for convenience) but that what makes these structures unusual is the presence of the spurious coordinator as an adjunct between the *wh*-phrases:

(19)

```
            CP
           /  \
        WH₁    \
           \    \
            &    \
          /   \   \
        WH₂    C   TP
                  /  \
                t₁ ... t₂
```

(20) '&' (*s, i, és*) is spurious, used as a discourse marker, not meaning $\lambda p \lambda q[p \wedge q]$

This structure, because it piggybacks on *wh*-movements independently attested in the language, derives the fact that only languages that multiply front *wh*-elements will have such spurious multiple *wh*-coordinated questions.

Second, whatever constraints operate on multiple *wh*-movements — such as Superiority — will continue to apply.

Third, only conjunctive morphemes, not disjunctive ones, grammaticalize such discourse marker status; although the reasons for this are not entirely clear, it is an independent fact that many discourse markers derive historically from conjunctive morphemes (Russian *i*, for example), while similar developments from disjunctive morphemes seem unattested. In fact, it is fairly easy to assemble a menagerie of nonconjunctive uses of conjunction morphemes:

(21) a. shi ashi *foglich* [sic] 'therefore'   (Boiagi 1915: 127)

b. shi seste că *wenn auch* 'even if'   (Boiagi 1915: 127)

(22) Greek

a. K' omos   (erxete). ('verum focus')
    and however come.3s
    'He IS coming. Er kommt DOCH. Si, il vient. '

b. An ke kseri, fevgi.
   if and know.3s leave.3s

   'Even though he knows, he's leaving.'

c. Oti ke na pis, fevgo.
   whatever and SUBJ say.2s leave.1s

   'No matter what you say, I'm leaving.'

(23) Russian

a. Ja daže i ne znal!
   I even and not knew

   'I didn't even know!'

b. On predskazal, čto my proigraem, čto i proizošlo.
   he predicted that we lose which and happened

   'He predicted that we would win, which indeed happened.'[2]

Fourth, and perhaps related to the previous point, left bracket coordinators don't occur in spurious uses:

(24) (*Both) one more step and I'll shoot you.
     (*Both) Two more beers and we're outta here. (Culicover & Jackendoff 1997)

Finally, we can adopt strategy 2's account of the lack of pair-list readings: if we follow that strategy in assuming that Quantifier Absorption is contingent on structural adjacency (à la Gribanova 2009 or Dayal 2002: 513). Then the intervening conjunction will block Quantifier Absorption.

Another possibility worth exploring using the structure posited above would be to propose that the conjunction itself imposes the presupposition for a single pair answer (implemented as a partial identity function over partial question meanings). In the system of Dayal 1996, 2002, given in (25), for example, we could assign such a meaning to filter out the lower node that dominates the lowest *wh*-phrase and its sister, passing up the denotation to be combined with the higher *wh*-phrase to yield the combined meaning only if the denotation of the answer predicate contained only a single n-tuple corresponding to the *wh*-phrases. (The details depend on how Dayal envisions the composition, of course, though they are immaterial to the idea of the conjunction filtering.)

(25) a. Which philosopher likes which linguist?

     b. [which linguist$_j$ [which philosopher$_i$ [t_i likes t_j]]]

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2 From community.livejournal.com/terra_linguarum/413531.html; thanks to V. Gribanova for the pointer.

   c. $Q = \lambda p \exists f_{\langle e,e \rangle}[Dom(f) = philosopher' \wedge Range(f) = linguist' \wedge p = \cap \lambda p' \exists x[p' = x \; likes \; f(x)]]$

   d.   For example, if $philosopher' = \{a,c\}, linguist' = \{b,d\}$, then

   e. $Q = \{$a likes b and c likes d, a and c both like b, a and c both like d, a likes d, c likes b$\}$

   f. $Ans(Q) = \iota p[^{\vee}p \wedge p \in Q \wedge \forall p' \in Q[^{\vee}p' \rightarrow (p \subseteq p')]]$

Some questions, inevitably, remain, however. How plausible is it to find independent, parallel grammaticalizations of conjunctive morphemes away from conjunctive semantics to focus, additive particles? Could the regular conjunctive semantics with two CPs involving ellipsis be a source for such a path? Can we spot languages in intermediate stages? (Might 'reverse sluicing' in Greek be a candidate?) The answers to these questions, I suggest, are: plausible, yes, yes, and yes.

5   Conclusions and consequences

The primary syntactic advantage to the posited structure is that no movement to a non-c-commanding position is necessary. The price we pay for this advantage is that we must countenance the idea that conjunctive morphemes have more, and more puzzling, usages than classical logic leads us to expect. But this is a conclusion that we should be more than familiar with in any case, and nothing but a great failure of imagination and experience with actual human languages could lead an analyst to believe that all words translated as *and* should have the semantics of propositional conjunction.

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Some viruses in the semantics[*]

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1 Introduction

This is a squib about weirdness — what it is, how to make sense of it, and whether we should resist making too much sense of it. It's about phenomena that are in a specific sense strange, complicated, formal, not especially child-friendly, associated with wavering judgments, and prone to inviting conscious self-reflection.[1]

Sobin (1994, 1997) proposed that certain syntactic processes should be regarded as what he called *grammatical viruses*, rules that operate outside the grammar. One prominent example is case in coordinate structures. The pronouns in (1) surface as accusative normally, but can surface as nominative in formal contexts:

(1)   a. Clyde and $\left\{ \begin{matrix} \text{I} \\ \text{me} \end{matrix} \right\}$ left.

        b. It was $\left\{ \begin{matrix} \text{I} \\ \text{me} \end{matrix} \right\}$.

Following Emonds 1986, Sobin suggests that the nominative forms are not really part of the grammar of English. He proposes that they are instead the result of a prescriptive rule — consciously acquired, awkwardly half-internalized — that speakers strive to observe, with only intermittent success. The trouble speakers seem to have with the nominative forms contrasts starkly with how effortlessly we deploy the accusative. This is the first indication that these two case configurations don't have the same status. The true grammar of English generates only the accusative forms, and in that respect it's simpler than it might otherwise have needed to be.

   If the syntax can be infected in this way, it stands to reason that the semantics might be as well. I'll argue that it may be. The potential viruses I'll examine are the

[1] I can't imagine why I thought it might be appropriate for a collection of squibs in honor of Kyle.

word *respectively*, factor/ratio phrases, and certain mathematical expressions such as *zero* (Bylinina & Nouwen to appear).

Sobin suggested thinking of viruses as, by definition, rules of the syntax, so the notion will have to be stretched slightly to extend it to the semantics. I'll also use the term "virus" itself perhaps more loosely than he intended, to include not just the principles that give rise to certain structures but also to particular lexical items and constructions themselves.

Of course, it's insufficient to simply announce that viruses don't need to be explained as part of the grammar proper. They still need *some* explanation. As Sobin says, without that, "'virus' becomes merely a label for unexplained phenomena". But even in the absence of a fully-developed theory of viruses, the benefit of recognizing viruses is, first, that doing so may account for empirical differences between viruses and the ordinary grammar, and, second, that it may simplify the grammar significantly.

2 Properties of viruses

Sobin (1997) suggest that viruses are distinguished by the following properties:

- They occur primarily in the prestige form of the language.

- They present a challenge for acquisition and are acquired relatively late.

- They may require what he calls "tutorial support" in the form of explicit prescriptive injunctions.

- Speakers have difficulty controlling them. They're prone to slip-ups and hypercorrection.

- They are consciously applied. Speakers make a self-aware attempt to observe a rule.

The case facts in (1) have all of these properties. *Clyde and I* is most natural in formal contexts. It's not the sort of thing young children say — but it is the sort of thing a schoolmarm might attempt to "correct" them with. The last point is perhaps the most revealing. Hypercorrect forms of the sort in (2) are widely attested:

(2)   a. She fed Alpo to Clyde and I.
      b. There have been some bitter disagreements between Clyde and I.

These are of course accusative positions, and the prescriptive injunction favors *me*. This involves over-application of the rule, but slip-ups in the other direction are

also natural. It wouldn't be hard to find speakers that strive mightily to observe it, in some cases as something akin to a moral obligation, and yet without conscious effort fail to apply it in contexts in which it's "supposed" to apply.

Sobin's principal other example involves agreement in existential constructions (but see Schütze 1999 for an argument against this). In (3), singular agreement is natural, but prescriptively disfavored:

(3)   There's fancy cufflinks on that suit.

Another probable virus is the nominative form in (4), which in most contexts would come off as almost comically pretentious:

(4)   It was I.

Lasnik & Sobin (2000) add the example of *whom*. Satisfyingly, the virus that gives rise to (4) reveals that *whom* is viral too. The only natural choice in (4) is of course the accusative *me*. *Whom* was historically an accusative form, but (5) is decidedly not natural:

(5)   *Whom was it?

Yet this is precisely what we would expect if it were straightforwardly accusative, for precisely the same reason that we normally use the accusative form in (4). Yet it seems safe to assume that no prescriptive injunction was ever required to stigmatize (5) and to compel speakers to use *who* in its place.

The analytical intuition Sobin and Lasnik articulate is that speakers engage in a kind of real-time self-monitoring, consciously editing their speech in accord with the demands of viruses.

3   "Respectively" and its kin

There is a not-so-small literature struggling with the lexical semantics of *respective* and *respectively* (Dalrymple & Kehler 1995, Gawron & Kehler 2004, Kac 1987, McCawley 1968, 1998, Stockwell et al. 1973, Moltmann 1992, Pullum & Gazdar 1982, Kay 1989, Eggert 2000, Okada 1999). The principal challenge involves sentences such as (6):

(6)   Fido and Felix ate Alpo and Whiskas respectively.

The principal challenge is that *respectively* flags that each element of the conjoined subject be paired with each element of the conjoined object in the order in which

they were mentioned. *Vice versa* behaves similarly (Kay 1989, Farkas 2015), as does the adjectival form *respective*.

This is odd and unnerving. It requires that the semantics make reference to the linear order of constituents in the sentence. We don't normally assume that it has this ability (though Morzycki 2008 recklessly raises this possibility in another context), but the conclusion seems virtually inescapable. Clearly, (6) doesn't have the same truth-conditions as (7):

(7)   Fido and Felix ate Whiskas and Alpo respectively.

Yet how to achieve this result? Superficially, this would seem to suggest that the denotation of *Alpo and Whiskas* should be different from *Whiskas and Alpo*. If they're directly referential, it's unclear how to accomplish this. It would seem to imply that there are two different plural individuals in the model that each of these (respectively) denote.

Alternatively, we could assume that these nevertheless do have the same denotation, and that *respectively* invites the addressee to, metaphorically, play back the tape of the utterance to match up the members of coordinate structures correctly. For what it's worth, my intuition is that this is precisely what happens, and in parsing these I feel a conscious awareness of the tape rewinding.[2] This, of course, requires that there be a tape in the first place, and that the semantics have access to it.

What Gawron & Kehler (2004) propose is roughly along these lines. They introduce a "sequencing function" as an element of the discourse context, which maps non-atomic objects of arbitrary type to assignment functions, which in turn map natural numbers to objects. A sequencing function might, for example, reach into the plurality of Felix, Fido, and Rover, and pull out the second-mentioned atomic member (Fido). The sequencing function, then, presupposes something like a tape of preceding discourse. Suppressing the necessary cross-categoriality and taking notational liberties, their denotation is as in (8), where f is the sequencing function and $|f|$ is the cardinality of elements that f sequences:

(8) $[\![\textit{respectively}]\!] = \lambda P_{\langle e,t \rangle} \lambda x \,.\, \bigwedge_{1 \leq i \leq |f|} f(P)(i)(f(x)(i))$

This uses f to reach into each member of the plural property P and applies it in turn to each member of the plural individual x, and ultimately turns (7) into something like $\mathbf{ate}(\mathbf{Alpo})(\mathbf{Fido}) \wedge \mathbf{ate}(\mathbf{Whiskas})(\mathbf{Felix})$. This represents what needs to be done, but suppresses inside f the details of how it's achieved.

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2 Rewinding is an archaic mechanical process involved in the manipulation of certain forms of historical recorded media.

Answers are straightforwardly imaginable, of course, but they're not trivial. Perhaps the denotation of every linguistic expression includes some representation of words of which it's composed. Indeed, Potts (2007) proposes something along these lines to account for quotation and metalinguistic negation, and Morzycki (2011) considers (but rejects) the possibility for metalinguistic comparatives. It's worth noting, though, that it's not just the phonological string that's crucial but also its syntactic structure. All this would grant to a single adverb a considerable amount of power. If this were possible in general, we might expect language to be riddled with expressions that manipulate the relations between any two arbitrary discontinuous constituents in unrelated parts of the sentence, or even in preceding sentences. One might imagine an adverb, for example, that has the effect of swapping the two most recently mentioned verbs, or of predicating ugliness (for example) of the last member of the most recently mentioned conjoined DP. It's virtually a rejection of compositionality itself. All this, just for *respectively*?

I'm disinclined to go down this road, and presumably it's clear enough what road I find more appealing: *respectively* is a virus. It's not an ordinary adverb, and we shouldn't pretend that it is. It's weird. It's associated with the prestige form of the language, or in any case a formal elevated register. It's certainly not something kids say. It's not clear to me that it's something around which there are prescriptive injunctions or explicit instruction, but it's certainly something that's easy to botch. Indeed, pulling it off in extemporaneous speech with more than two- or three-member coordinate structures comes off as a flamboyant feat of linguistic acrobatics. Try it and you might find that your interlocutor applauds — or, more likely, that you've lost your train of thought.

The most interesting element of this, though, is that there's something distinctly self-conscious about it. It requires us to engage in a kind of metalinguistic reflection as we rewind the tape. This accords with Sobin and Lasnik's intuition that viruses involve real-time linguistic self-monitoring. It provides an independently-motivated understanding of the feeling of rewinding the tape. That's precisely the sort of thing that viruses manipulate.

This also presents what I'd like to suggest as another characteristic of viruses: they can be powerful, in a sense too powerful.[3] Certainly, *respectively* has powers far beyond the ken of ordinary adverbs. Treating it as a virus entails that it operates outside of the normal grammar. We therefore don't need to give the grammar the full power *respectively* demands, and thereby we avoid the prediction that affronts to compositionality like *respectively* should be commonplace. We needn't sacrifice compositionality itself on the alter of one grubby little adverb.

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3 That may in some sense be implicit in the concept itself, and it seems to be a chord audible in Sobin's discussion.

Importantly, as far as I can see this isn't an argument against any particular account of the lexical semantics of *respectively*. It merely provides a theory of why its semantics might be special, a principled understanding of its weirdness. It also presents us with an interesting project: sorting out what analyses of semantic viruses have in common. To do that, it would help to briefly consider some more candidates.

4 "Zero" and negative numerals

Bylinina & Nouwen (to appear) provide an elegant analysis of the numeral *zero*, as in (9):

(9)   a. Zero Americans enjoy natto.
         b. Most semanticists buy zero fancy cufflinks.

Their thesis is that *zero* is simply an ordinary numeral, no different from *three*, but that it predicates of a plurality that it has zero members. That would account for why it seems to be parallel to ordinary numerals in most respects, but it entails a bold ontological commitment: that there are pluralities with no members.

We are immediately in now-familiar territory: an uncomfortable and yet apparently necessary conclusion about the power of an apparently peripheral linguistic expression. Indeed, things might get worse. What to make of negative numbers?[4]

(10)   a. ??It got warmer by negative ten degrees.
        b. ??Negative six people arrived.

It's relatively clear what (10a) is trying to mean: that it cooled by ten degrees. I'm not sure whether it quite manages it. I'm relatively sure that (10b) can't mean that six people left. But in both cases amid the wavering intuitions there's an impulse to throw up one's hands. God knows what sentences like these mean. They're nerdy half-jokes. Still, it would be nice not to have to regard them as simply ungrammatical either.

Yet if we regard *zero* and negative numerals as viruses, this is all expected. They're associated with a formal register. They're not often produced by toddlers. They require extensive tutoring to master. They are marked by a distinct sense of self-consciousness, a feeling of pushing at the boundaries of the language. We have to consciously reflect on what they mean, or what they're trying to mean. Our judgments are sometimes a little unsteady and wavering.

Most interesting, though, is again the question of power. Must we conclude that it's normal for pluralities to have zero members? If that were a possibility that's

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4 This question was asked by Daniel Lassiter during a question period at SALT 27.

generally available, we'd expect languages to reflect it widely. We'd expect that other constructions would provide evidence for it. We'd expect it to occur across languages. After all, all things being equal we'd expect natural language ontology to be relatively similar across languages. Indeed, we'd expect to find manifestations of it in languages associated with cultures that have no concept of zero. If the possibility is straightforwardly available, it should be no harder to grasp than, say, a negated existentially-quantified proposition. All that holds true even more robustly for negative numbers. Treating these expressions as viruses addresses all these concerns.

As before, the analysis of these expressions would remain the same — but Bylinina & Nouwen's beautiful and alarming hypothesis is rendered less alarming, but no less beautiful.

This discussion raised two novel points. First, we've confronted the possibility that aspects of the ontology can themselves be viruses. Second, the notion of semantic viruses has helped us avoid an undesirable prediction not just about what's commonplace in a single language, but also what's commonplace across languages. Viruses allow us to avoid investing every language with the full power necessary in only some corners of only some languages.

5   Factor phrases

Precisely these points also arise in the domain of degrees. Factor or ratio phrases such those in (11) remain relatively little-studied (but see Gobeski 2009, in preparation, Gobeski & Morzycki to appear, Sassoon 2010a,b, Rett 2008):

(11)   a. Kyle's BMW is many times more expensive than his cufflinks.
        b. South College is half as tall as the new shiny new building.
        c. Fido has two times as much Alpo as Felix.

As Sassoon (2010a,b) points out, factor phrases provide a convincing argument for certain assumptions about the ontology of degrees. They demonstrate the scales of which degrees are members are *ratio scales*, the richest in the four-way taxonomy of measurement types. A ratio scale is, straightforwardly enough, one on which it's possible to compute ratios because it measures relative to a zero-point. That makes ratio scales richer — in the sense of having more structure — than mere interval scales, such as temperature, on which relative distances can be computed but ratios can't. And it makes them richer than ordinal scales, which don't support even that, and nominal scales, which are simply labels.

The interest of this is that it is incompatible with certain theories of what degrees are. On one popular view, a degree of height such as "six feet" can be understood as

the equivalence class of individuals that are six feet tall (Cresswell (1976) among others). This is a relatively simple and ontologically conservative way of thinking, but it doesn't yield a ratio scale. This issue doesn't arise with a sufficiently rich representations of degrees. On the assumption that degrees are a distinct atomic type in the model, they can be construed as elements of scales with a structure isomorphic to the real numbers (von Stechow 1984, Kennedy 1997 among others). Of course, that provides sufficient structure for ratios to be defined.

But across languages, this argument is harder to make. Most human languages were spoken by people with no explicit mathematical understanding of ratios. For this reason, factor phrases must be a relatively recent and relatively parochial development. Many languages lack them, and so lack (at least this piece of) evidence for ratio scales. Worse, even differential measure phrases like *three feet taller*, aren't universal, so many languages lack evidence for even interval scales. And, following this line of thought to its logical conclusion, in many languages, there is little evidence for degrees at all (Bochnak 2013).

That leaves us with the conclusion that the ontology underlying natural languages is not only not universal, but that it can vary dramatically in its complexity. That runs afoul of the appealing intuition that the basic structure of the ontology should be relatively invariant because it has to interface with the same language faculty across languages.

There is, however, a way to resolve this tension. Perhaps factor phrases are viruses? This may be stretching the point, but it's certainly the case that they're not typical of child language and they require explicit instruction. Arguably, they're associated with formal language, setting aside uses that don't involve actual ratios like *a million times as depressed*. Moreover, they have clearly have the two additional properties of semantic viruses I've pointed to above. In a clearly definable sense, they require more power in the semantics — more structure — than we otherwise have reason to assume. And they are absent in many languages, and therefore unlikely to be a feature of the language faculty itself.

Indeed, if one is in a sufficiently radical mood, one might consider measure phrases themselves in a similar spirit, or even degrees themselves. It might be best to get off this train considerably short of that station, but it's headed in an interesting direction. Lasnik & Sobin (2000) regard the viral *whom* as kind of historical relic. Perhaps viruses can play the opposite role too, as mechanisms by which complexity enters a language before becoming fully "nativized" into the grammar.

6   A final remark

I've suggested that the semantics, like the syntax, may be infected with grammatical viruses — phenomena that are weird in a precise sense that needs to be recognized

in linguistic theory. In semantics, it's helpful to attend to two additional properties of viruses: first, that they require more power than we'd like to make available to the grammar more broadly, and second, that they are unusual not only within a language but crosslinguistically. Much rests on how to construe "more power", of course, but "more structure" seems a reasonable first approximation. This raises the possibility of regarding certain elements of the ontology or certain aspects of its structure as viruses.

If the case for viruses in the semantics is at all convincing, we might seek them in the phonology too. The notion of "crazy rules" (Bach & Harms 1972) might provide a starting point (Anne-Michelle Tessier, p.c.). And if that case is convincing, it's worth sorting out in detail what analyses of semantic viruses have in common, and, ultimately, whether it's possible to develop a general theoretical framework for their analysis.

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Determiners on clauses[*]

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1 CP predicates

There have been a number of proposals[1] suggesting that finite clausal arguments can be predicates. In particular, these proposals suggest that CPs are predicates of things with propositional content. The idea takes inspiration from clausal complements of nouns, as in (1).

(1)   the idea that Bob is a fraud

One reason to think that these CPs are not 'true' arguments but rather predicate modifiers is that many of the nouns they combine with do not take arguments of any sort (2a), even if their parent verb is transitive (2b).

(2)   a.   *his claim of that/*the belief of the story   (Zucchi 1989: 14)
        b.   He claimed that./He believed that story.

Stowell (1981) suggested that the CP was in apposition to the noun, like a nominal appositive as in *Hepburn, a/the winner of four Oscars*. Yet while extraction is somewhat available from CP complements of N (3a), just as with some relative clauses (3b), extraction is not possible from appositives (3c).

(3)   a.   the money$_i$ which I have [{ hopes/a feeling} that the company will
             squander t$_i$] amounts to $400,000   (Ross 1967: 85)
        b.   Then you look at what happens in languages that you know and lan-
             guages$_i$ that you have a friend who knows t$_i$.   (McCawley 1981:
             108)
        c.   *What award is Hepburn, a/the winner of, dead?

Instead of an appositive modifier, then, CPs could be profitably likened to predicate modifiers like relative clauses. CPs that combine with nouns behave like modi-

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[1] Kratzer 2006, Moulton 2009, 2013, 2015. Related ideas are found in Arsenijevic 2009.

fiers in a number of respects. Like relative clauses (4a), and unlike arguments (4b), CP complements can obviate condition C violations (5) (Lasnik 1998, Kuno 2004, Moulton 2013, compare to Freidin 1986 and Lebeaux 1988):

(4) a. Which book [that John$_1$ hated most] did he$_1$ read?   *relative clause*
     b. *Which depiction [of John's$_1$ face] does he$_1$ hate most?   *argument*

(5) a. The fact that [John$_1$ has been arrested] he$_1$ generally fails to mention.
     b. Whose allegation [that Lee$_1$ was less than truthful] did he$_1$ refute vehe-
         mently?   (Kuno 2004: 72)

CP complements of N also behave like relative clauses with respect to Williams's generalization. Williams's generalization states that an extraposed (adjunct) restricts the scope of its source DP (Fox & Nissenbaum 1999).[2] So while the non-extraposed relative in (6a) allows the quantifier to take wide or narrow scope with respect to the *before*-clause, only a wide scope reading of *every* is possible when the relative clause undergoes extraposition (6b). On the Fox and Nissenbaum view, extraposi-tion brings (a copy of) the quantifier to a position that scopes over the *before*-clause, which then forces the ellipsis to have a variable object not a quantified one.

(6) a. John dismissed every rumour that was spread before Mary did.
         $\forall >$ before / before $> \forall$
     b. John dismissed every rumour, before Mary did, that was spread.
         $\forall >$ before / *before $> \forall$

   Now look at the pair in (7) with CP complements.

(7) a. John dismissed every rumour that he was resigning, before Mary did.
         $\forall >$ before / before $> \forall$
     b. John dismissed every rumour, before Mary did, that he was resigning.
         $\forall >$ before / *before $> \forall$

If (7b) were true on a narrow scope construal of *every*, it could truthfully describe a scenario like (8), where t_n is time and $r_{a...d}$ are distinct rumours.

(8) t_1 Mary dismissed r_a
         John dismissed r_a
     t_2 Mary dismissed r_b
     t_3 Mary dismissed r_c
         John dismissed r_b & r_c & r_d.

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2 Fox & Nissenbaum (1999) offer other pieces of evidence that CP complements behave differently from relatives in tests for Late Merge. It has taken me nine years to address half of these data, so the other half will have to wait for another time.

        t$_4$ Mary dismissed r$_d$

In the context in (8) it is true that John dismissed the totality of rumours before Mary dismissed them all — it took until t$_4$ for Mary to dismiss r$_d$, which rumour John dismissed at t$_3$. But it is not true that for every rumour *a...d* John dismissed it before Mary did: namely Mary dismissed r$_b$ before John dismissed r$_b$.[3] Our judgment is that (8b) with an extraposed complement CP is infelicitous in this context whereas the non-extraposed CP in (8a) is not.

These considerations suggest that like relative clauses, CP complements do not themselves move rightward[4] and that they can Late Merge. Late Merge is possible for modifiers — their semantics lets them exist in one copy and not the other, unlike arguments. The predicate analysis of CP complements predicts this because it treats CPs as predicates of propositional content (such sorts of individuals are subscripted by *c*).

(9)   ⟦ **that Bob is a fraud** ⟧ = $\lambda x_c \lambda w[\text{CONT}(x_c)(w) = \lambda w'$. Bob is a fraud in $w']$
        $\text{CONT}(x_c)(w) = \{w' : w'$ is compatible with the intentional content determined by x_c in w$\}$ (after Kratzer 2013: 25)

Predicate CPs are of the same type as content nouns like *idea*, and the two can compose by predicate modification.

(10)   a.   ⟦ **idea** ⟧ = $\lambda x_c \lambda w.\text{idea}(x_c)(w)$
        b.   ⟦ **idea that Bob is a fraud** ⟧ = $\lambda x_c \lambda w[\text{idea}(x_c)(w)$ & $\text{CONT}(x_c)(w) = \lambda w'$. Bob is a fraud in $w']$

The predicate analysis of CPs makes a prediction that no other theory of CPs I am aware of makes: if the language allows determiners to combine with CPs without a mediating NP[5], we would expect those constructions to refer to individuals with propositional content. There do appear to be such languages, Greek the most famous (Roussou 1991). The determiner *to* can combine with CPs headed by the complementizer *oti*.

(11)   [to   oti lei   psemata] ine   fanero.
        the-NOM C tell.3SG lies-ACC be.3SG obvious-NOM
        'That she tells lies is obvious.'   (Roussou 1991: (45b))

The determiner is required for the CP to sit in subject position.

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3 Thanks to Luka Crnič and Brian Buccola for helping craft these disambiguating scenarios.
4 They do not move leftward very far either.
5 Many accepted analyses of free relatives admit such configurations, as do many Kaynean raising analyses of headed relative clauses.

(12) [*(to)   oti lei   psemata] apodhiknii tin   enohi tis.
        the-NOM that tell.3SG lies-ACC   prove.3SG the-ACC guilt her-GEN
        'That she tells lies proves her guilt.'   (Roussou 1991: (25a))

Roussou (1991) argues at some length that there is no null noun, like *fact*, in these constructions. She claims that these constructions are instances of a determiner directly selecting a CP. Here's the interesting thing: *to oti* clauses do not have to be factive.[6] This is demonstrated by (13a): if the subject were factive the sentence would be non-sensical like (13b).

(13)   a.   [To oti ine   plusios] ine psema.
             The that is.3SG rich   is   lie
             'That he is rich is a lie.'   (P. Pappas, p.c.)
        b.   #The fact that he is rich is a lie.

This is good news for the predicate hypothesis: we predict languages like Greek where (overt) determiners can combine directly with content-denoting predicate CPs. The DP subject of (13a) refers in world w_0 to a (salient) thing whose propositional content is that some guy is rich:

(14) $[\![$ **(13a)** $]\!] = \iota x_c[\text{idea}(x_c)(w_0)\ \&\ \text{CONT}(x_c)(w_0) = \lambda w'. \text{he is rich in } w']$

This is a non-factive nominalized CP. No other theory of CPs I know of predicts this because no other theory has CPs alone introduce properties of (contentful) individuals.[7] The good news for the predicate hypothesis, though, rests on the claim that there is no null noun in such constructions. Spanish, it turns out, delivers some bad news.

2   Spanish *el que* and *lo de que*

Spanish has two potential candidates for constructions that involve D selecting CP. The first involves the masculine determiner *el*, which can take a finite (15a) or non-finite CP (15b).

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[6] The literature often equates noun-y clauses with factivity (Kiparsky & Kiparsky 1970). It is true that there is often a presupposition associated with nominal clauses but it is not necessarily a factive one, as explored in Bogal-Allbritten & Moulton 2017.

[7] Takahashi 2010 suggests that the D combines with an $\langle s,t \rangle$ denoting CP and returns a plurality a worlds. Maybe that will work for complements of attitudes, but it is hard to see how a plurality of worlds can be equated with a lie as in (13a).

(15) a. [**El** [que creas   que hay   fantasmas en la azotea]] carece
            that   that believe.2SG that there-is ghosts   in the attic   lacks
            de lógica.
            of logic.
            'That you believe that there are ghosts in the attic is illogical.'

      b. Lamento   mucho [**el** [PRO haberme visto obligado a explicar
            regret.1SG lot   the   to-have seen forced   to explain
            todo esto]]
            all   this
            'I regret a lot to have been forced to explain this.' (Picallo 2002:
            (6a,b))

As with Greek, some linguists suggested *el+CP* constructions are actually complex
NPs, perhaps with a null noun *hecho* 'fact' (see Picallo 2002 for details and ref-
erences). But Picallo presents a very nice argument against a null noun using an
interesting counterpart to *el+CP* constructions: *lo+de+CP*.[8]

(16) a. **Lo de** que se   tenga que pagar un impuesto adicional
            the of that people have that to-pay a   tax   additional
            provocará un unánime   rechazo.
            will-cause a   unanimous revolt
            'The (idea/proposal) that people have to pay an additional tax will
            cause a unanimous revolt.'

      b. **Lo de** ir   a Mallorca este verano   no nos convence.
            the of to-go to Mallorca this summer not us   convince
            'The (idea/proposal) of going to Mallorca this summer does not con-
            vince us.'   (Picallo 2002: (9a,b))

While the translations in (16) include nouns like *idea* and *proposal*, there is no
overt noun in the Spanish sentences. But the presence of the particle *de* indicates
that there is a null noun. In Spanish, *de* is required when a CP complements N.[9]

(17) Lamento   el hecho *(de) que no me saludara.
        regret.1SG the fact   of   that not me greet.3SG
        'I regret the fact that he did not greet me.'   (Picallo 2002: fn. 3 (ia))

But *de* is disallowed in the *el+CP* construction (at least when presented out of the
blue, unlike *lo+de+CP* constructions).

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8 In traditional grammar, *lo* is labeled the neuter.
9 This fact in itself is a little troubling for the predicate hypothesis.

(18) Lamento   el (*de) que no me saludara.
       regret.1SG the of   that not me greet.3SG
       'I regret that he did not greet me.'   (Picallo 2002: fn. 3 (ib))

Picallo's argument, then, is that while there is a null N in *lo+de+CP* construction — given that *de* is obligatory as with overt nouns — there must not be one in *el+CP* constructions. The null N must be a true null element too, not ellipsis. Spanish has NP ellipsis, and it it can apply in the *el+que* construction when there is a linguistic antecedent for the elided N, as with *hechos* 'fact' in (19) (note also the presence of *de*).

(19) Consideró   varios **hechos** independientemente. **El** [e] **de** que
       considered.3SG several facts   independently   the   of that
       hubieran apoyado tal   propuesta era el más conspicuo.
       had.3PL supported such-a proposal was the most conspicuous
       'S/he considered several facts independently. The (fact) that they had supported such a proposal was the most conspicuous one.'
                                                                (Picallo 2002: (8a))

In contrast, no such linguistic antecedent is required for the *lo+de+CP* constructions, suggesting that it is a null N as distinct from an elided N. So to summarize, Picallo's conclusion is that *el+CP* constructions do not have a null N but *lo+de+CP* constructions do, and this null noun is not a result of ellipsis.

Now for the promised bad news for the CP predicate hypothesis: *lo+de+CP* clauses can refer to things with propositional content, i.e., are not factive (20a), but *el+CP* clauses do not refer to such things (20b). (This could be either because *el+CP* clauses must be factive or because they do not denote things with propositional content. Teasing these apart is harder than you might think.)

(20) a. [Lo de que María compró una casa   nueva] es una mentira.
          The of that Maria bought a   house new   is a   lie
          'That Maria has bought a new house is a lie.'
      b. *[El que María haya   comprado/compró   una casa   nueva] es
          The that Maria has.SUBJ bought/bought.INDIC a   house new   is
          una mentira.
          a   lie
          'That Maria has bought a new house is a lie.'
                                                      (P. Menéndez-Benito, p.c.)

Furthermore, *lo+de+CP* clauses can complement the canonical propositional attitudes (21a) but *el+CP* cannot (21b). (*El+CP* cannot even complement factive *sabe* 'know'.)

(21)   a.   No me creo   lo de que María compró una casa   nueva.
                  Not me believe.1SG the of that Maria bought a   house new
                  'I don't believe that Maria bought a new house'.

        b. *Dijo/pensa/sabe   el que María estaba en la   tienda.
                  said/thought/knew.3SG the that Maria was   in the store
                  'He/she said/thought/knew that Maria was in the store.'

                                        (P. Menéndez-Benito, p.c.)

El+CP clauses typically combine with fact-selecting predicates, like those listed below:

(22)   Predicates that combine with *el+que* in Spanish:
        pleases someone, is surprising/important/irrelevant/amazing, lacks logic,
        shows, makes, triggers

(Again, whether *el+CP* clauses are themselves 'factive' in some way, I do not know yet, but the only predicates I have found them with are factive or fact-selecting in some sense.) These contrasts suggest that *el+CP* does not denote things with propositional content, but that *lo+de+CP* does. But this means that it takes a noun to let a DP denote propositional entities. This is not what we would expect on the CP predicate hypothesis.

3 Null content nouns

Roussou (1991) rejected the idea of a null noun in Greek *to+oti* clauses. One of her objections was that such a noun would have to have a very wide range of selectional options that no one overt noun has. But a number of languages have semantically light, all-purpose content nouns that introduce a variety propositional complements. Korean *kes* 'thing' is one such element that introduces a variety of clauses (Kim 2009), including factive (23a) and non-factive complements (23b). *Kes*-clauses are not necessarily factive either as (24) shows. The predicate here is literally 'is not a fact' (the declarative marker *-ta* is needed though to obviate factivity; see Bogal-Allbritten & Moulton 2017).

(23)   a.   Mary-nun [John-i   sihem-ey hapkyekha-n] **-kes**-ul
              Mary-TOP John-NOM exam-in pass-ADN.PAST KES-ACC
              al-ass-ta.
              know-PAST-DECL
              'Mary learned that John passed the exam.'

b. Mary-nun [John-i   sihem-ey hapkyekha-l] **-kes**-ul
   Mary-TOP John-NOM exam-in pass-ADN.FUT KES-ACC
   pala-n-ta.
   hope-PRES-DECL
   'Mary hopes that John will pass the exam.'   (Horie 2000: (11))

(24) [Toli-ka cip-ul   sa-ss-ta-nun   **kes**-un] sasil-i
      Toli-NOM house-ACC buy-PAST-DECL-ADN KES-TOP fact-NOM
      an-i-ta.
      not-COP-DECL
      'The claim that Toli bought a house is not a fact.'   (C.-h. Han, p.c.)

Hindi has the light noun *yeh* 'thing' that can introduce CPs under propositonal attitudes.

(25) Raam-ne (**yeh**)   socaa hi mohan cor   hE
      Raam-ERG thing/this thought M.   theif is.
      'Ram thought that Mohan is a thief'   (R. Bhatt, p.c.)

Baker (1996) reported on a noun in Mohawk that not only serves as a general all-purpose content noun 'matter', but incorporates into non-CP selecting verbs such as 'like' (27a) to building propositional attitudes such as 'agree' (27b).

(26) **o-rihw-a'** : *'matter', 'affair', 'fact', 'news'*
      "A very general word referring to a kind of proposition"   (Baker 1996)

(27) a. Sak rake   **-nuhwe'** -s
         Sak MsS/1sO -**like**   -HAB
         'Sak likes me.'
      b. Sak ro- **-rihw**   -a -**nuhwé'** -u
         Sak MsO -**matter** -∅ -**like**   -STAT
         a-ha-'sere-ht-óhare-'
         OPT-MsS-car-NOM-wash-PUNC
         'Sak has agreed to wash the car'   (Baker 1996: (23))

More such combinations are given in (28) from Baker 1996: 462.

(28)

CP-taking verb	Literal gloss	Free gloss
rihw-a-nuhwe'	matter-like	'to agree to S'
rihw-a-tshuri	matter-find	'to find out that S'
rihw-a-yuta's	matter-acquire	'to decided to S'
rihw-isak	matter-seek	'to investigate S'

Since all-purpose, semantically light content nouns have overt form in these languages, it is not surprising that in some languages this light noun is null. (See also Hartman 2012 for an argument for null N in similar constructions in Uygher.) The idea would be then that Greek *to+oti* clauses and Spanish *lo+de+CP* clauses have a null content noun (which is apparently neuter):

(29)   [Lo $\emptyset_{Content}$ de que María compró una casa   nueva] es una mentira.
         The N   of that Maria bought a   house new   is a   lie
         'That Maria has bought a new house is a lie.'

4   English

There's a long tradition, one that gets revived every few years, suggesting that in English sentential subjects are actually headed by null D (see Davies & Dubinsky 2010 and references therein). Some of these authors suggest that this null D selects the CP directly, without a null N (Takahashi 2010). I won't rehearse the reasons for treating sentential subjects as DPs (and the pitfalls of that move), but one recurring question in this area is whether the clause is truly in subject position or some satellite, topicalized position. Koster (1978) argues for the latter based on the apparent fact that CPs can't be trapped by subject-auxiliary inversion:

(30)   a. *?To what extent is [CP that the moon is made of cheese] a theory worth
            considering?
        b.   To what extent is [DP the theory that the moon is made of cheese]
            worth considering?

Others point out that extra-grammatical pressures may account for the judgments in (30), obscuring the positions in which the grammar places clauses (Delahunty 1983, Davies & Dubinsky 2010).

(31)   a.   Who does [CP that Fred left early] bother so greatly that he refuses to
            visit us any more?
        b.   Who does [CP that the world is ending] upset so terribly that they have
            decided to abandon the planet?   (Delahunty 1983: 384–385)

There is a subtle difference, I think, that emerges when the matrix predicate distinguishes between the kinds of things that *lo+de+CP* clauses refer to (things with propositional content) (32a) and the kinds of things that *el+CP* clauses refer to — maybe facts (32b).

(32)   a. ??Is that John is a millionaire a lie?
        b.   Is that John is a millionaire a surprise?

Another spot reserved for true (embedded) subjects is the ECM position. Again, robustly proposition-denoting CPs are odder here than the CPs that correspond to Spanish *el+CP* clauses.

(33)   a. ??I consider that John is a millionaire a real lie.
        b.   I consider that John is a millionaire a real surprise.

What do these data, if they pan out, mean? They suggest something close to the popular Kiparskyian idea that fact-denoting clauses are DPs and that subject positions must be occupied by DPs. English, like Spanish, has a D+CP construction like *el+CP* (with a null D) but not one like *lo+de+CP*. I guess English just does not have a null content noun like Greek and Spanish. Why that should be the case is a mystery.

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Extraposition, polarity, and Late Merge[*]

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1 Introduction

Extraposition from NP (EXNP) can refer to discontinuous constituencies like (1). A relative clause (RC) in this example has been displaced rightward out of its host DP *every bakery*. Such configurations were discussed originally by Ross (1967).

(1)   Beth visited [DP every bakery] last month [CP that was on the local news]

One influential analysis of EXNP asserts that the extraposed RC is Late Merged into a higher, silent copy of the host DP (Fox & Nissenbaum 1999). The component pieces of this analysis have played a significant role in the development of grammatical models. For example, quantification, *wh*-in-situ, and focus association have all been modeled with covert movement. Late Merge has been employed to understand anti-reconstruction effects and other discontinuous constituencies.

This model of EXNP has been criticized, however, both for its lack of empirical adequacy and for its reliance on the mechanisms of covert movement and Late Merge. This paper builds on previous work in Overfelt 2015a,b in support of this particular treatment of EXNP. I will adapt the NPI-licensing diagnostic proposed in those works for the purpose of investigating the possible points of interpretation of the extraposed RC. As predicted by Fox & Nissenbaum (1999) on the basis of a generalization credited to Edwin Williams (1974), experimental evidence suggests that an extraposed RC and its host DP are interpreted together higher than the base-position of the host DP. This is not expected from base-generation approaches to EXNP or approaches that reject Late Merge.

2 A Model of EXNP

The literature has seen several analyses for EXNP configurations. (See Webelhuth et al. 2013 and Overfelt 2015a,b for recent overviews.) Similar to Guéron & May

(1984), Fox & Nissenbaum (1999) argue that EXNP involves a mixture of operations. Quantifier Raising (QR) of the host DP precedes base-generation via Late Merge of the displaced RC in the higher, unspoken copy. The LF-interpreted representation for (1), then, is closer to (2).

(2)   Beth visited [every bakery] last month

        ⌞······· QR ···········▶ [every bakery [that was on the local news]]

Perhaps the strongest argument for Late Merge, and thus QR, in EXNP comes from what Fox & Nissenbaum (1999) call *Williams's Generalization (WSG)*, which originates in Williams 1974. We will state the generalization as in (3).

(3)   The scope of the host DP for some extraposed RC is at least as high as the attachment site of the RC.

Support for WSG comes from the claim that EXNP in (4) forces the existential host DP *a bag* to be interpreted above the intensional predicate *look for*.

(4)   Fred looked for [a bag] yesterday [a bag [that has a picture of a cat]].
        a.   *look for > ∃ : 'Fred looked for any bag *x* that has a picture of a cat.'
        b.   ∃ > look for : 'There is a certain bag *x* that has a picture of a cat and Fred looked for *x*.'

This disambiguation under extraposition is expected if the RC is Late Merged into a higher copy of the host. As the only instance of the RC, it is only in this higher position that both the RC and its host DP can be compositionally interpreted together.

This model of EXNP is critiqued primarily on the basis of its mechanics. Webelhuth et al. (2013: 23–25) argue that QR "creates great problems" since it is possible to extrapose from elements that otherwise cannot move rightward. The relevant positions include subjects, the first object of double-object constructions, and prepositional objects. I argue in Overfelt 2015b that this is not a puzzle created by the QR-based analysis of EXNP. It is shown that quantified DPs in the positions listed here independently have the ability to QR. Thus, we are already faced with the puzzle of why certain types of movement out of certain positions must be covert. The puzzle, which is illuminated by this analysis of EXNP, is that attempting to linearize this movement requires rightward alignment.

Sportiche (2016) appeals to arguments that Late Merge is intractable and unmotivated in a proposal for an alternative theory: *Neglect*. Space prohibits giving due justice to the proposal. The empirical contention, however, is that WSG is too strong. For example, subjunctive RCs in French are only licensed in intensional environments. It is surprising from the view of WSG, then, that the subjunctive RC in

(5) can be extraposed. WSG predicts that the subjunctive RC and its host DP should be interpreted above the intensional *cherche* and, therefore, unlicensed.

(5)   Jean cherche [un cuisinier] depuis hier [qui puisse l'aider].
        'Jean has been looking for a cook since yesterday that could-SUBJ help him.'

                                        (adapted from Sportiche 2016: 36, (93b.))

Sportiche (2016: 37) concludes that "total reconstruction of adjuncts is possible." Minding the need to compose a RC with its host DP, (5) must have an LF where both are interpreted within the scope of *cherche*, which undermines an analysis of EXNP that must employ Late Merge. While I have no account of (5), I demonstrate below that Neglect continues to overgenerate with respect to English EXNP.

The Late Merge model of EXNP also faces an apparent empirical paradox. To see this, consider the eliminative puzzle of EXNP that Rochemont & Culicover (1990: 63) present with examples such as (6). While, the non-EXNP variant can pick out a doctor who is alleged to be a doctor that forges prescriptions, the EXNP variant must pick out a individual who forges prescriptions and is alleged only to be a doctor. That is, an extraposed RC is interpreted outside the scope of *alleged*.

(6)   I met [an alleged doctor] this morning
                                [an [alleged doctor] who forges prescriptions].
        a.   *alleged > RC : 'a doctor alleged to forge prescriptions'
        b.   RC > alleged : 'an individual who forges prescriptions and is alleged to be a doctor'

One way to capture (6) is to restrict Late Merge from targeting embedded positions in its host.[1] Although, this might make it puzzling to observe that superlatives manage to license Negative Polarity Items in extraposed RCs; see (7). Supposedly, the extraposed RC must be interpreted in its host and within the scope of *longest*.[2]

(7)   Kim wrote [the longest abstract] yesterday [that I have *ever* had to read].

Moreover, Müller (2004) and Strunk & Snider (2013) present intuitive, corpus, and experimental evidence from English and German demonstrating that an extraposed RC can find a host DP that is embedded in another DP. The particularly dramatic German example in (8) comes from Müller (2004: 10, (3)).

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1 A similar constraint is proposed by Landau (2007: sec.7.2) in the domain of VP fronting.
2 Of course, one might suggest the superlative independently achieves scope over the extraposed RC.

(8)   Karl hat mir [eine Kopie [einer Fälschung [des Bilder [eine Frau]]]]

gegeben [die schon lange tot ist]

'Karl gave me a copy of a forgery of a picture of a woman who has been dead for a long time.'

Thus, Late Merge into embedded positions may be necessary after all.

3   Williams's Generalization and inverse linking.

I designed an experiment that extends the utility of Polarity Items as a connectivity diagnostic for the representation of EXNP configurations (Overfelt 2015a,b). The goal is to provide a new means of testing WSG and, in this way, to investigate the supposed Late Merge mechanic. We will make also make use of the observation that a quantificational DP embedded in a larger DP, as shown in (9), might receive an inversely linked interpretation.

(9)   some country [$_{DP}$ No representative of [$_{DP}$ some country]] attended.

'For some country x, there is no representative of x that attended.'

I will assume with May (1977) and Sauerland (2005) that inverse linking arises through QR of the embedded DP out of its containing DP.

Our interest will be in the interaction of inverse linking and EXNP particularly in structures like (10) below, which is adapted from Strunk & Snider 2013.

(10)   Margaret will interview

[$_{DP_1}$ no representative of [$_{DP_2}$ *any*/*some* country]] tomorrow

[that has *ever* had its borders unexpectedly closed].

If EXNP from the embedded DP in (10) is possible and requires QR plus Late Merge, we could postulate one or both of the structures in (11) and (12):

(11)   *Shallow Late Merge*   (12)   *Deep Late Merge*

Considering (11), EXNP from the embedded DP$_2$ could involve inverse linking and shallow Late Merge of the RC within a single DP. As shown, this means extracting DP$_2$ and adjoining it to VP. Alternatively, the entire DP$_1$ containing DP$_2$ could

undergo QR, as shown in (12). This derivation would require deep Late Merge of the RC within an embedded DP.

Note that the embedding DP_1 in (10) is headed by *no*. This means that, by varying the head D_2 of the embedded DP_2, we can actually influence the need to postulate one of the two structures above. The Positive Polarity Item (PPI) *some*, which resists being interpreted under negation, is expected to force the inverse linking configuration in (11). On the other hand, the Negative Polarity Item (NPI) *any*, which requires being interpreted under negation, will force the configuration in (12). It is therefore possible to state predictions about the availability these representations and their derivations on the basis of the quantifier *some* or *any*.

Let us first consider the predictions about the version of (10) with the NPI *any*. If EXNP allows only QR and shallow Late Merge in (11), WSG leads us to expect that *any* as the head of DP_2 cannot be licensed. EXNP will effectively bleed NPI licensing since DP_2 and the RC must be interpreted together outside the scope of *no*. If QR and deep Late Merge in (12) are available, we predict that it will be possible for *any* to be licensed as the head of DP_2.

Next, so long as inverse linking and shallow Late Merge in (11) are in principle available (see section 4), it should be possible to licensed *some* in D_2. However, if the extraposed RC can in fact only be interpreted in the higher copy of its host DP_2, the additional NPI *ever* in the extraposed RC will block the structure in (11). As per WSG, there is nowhere to interpret the PPI *some* and the NPI-containing RC together and simultaneously license both. Thus, Late Merge predicts *some* cannot be licensed in (10). In Sportiche's (2016) *Neglect*, where an extraposed RC can be interpreted in the tail of its host, *some* and *ever* are expected to be licensed in (10).

4   A quantitative investigation

Design   These predictions were tested in a pilot acceptability judgment study. 18 native English speakers (9 female) were recruited from Amazon's Mechanical Turk and sent to Alex Drummond's Ibex Farm for the experiment. Participants ranged in age from 21 to 60 with a mean age of 33.39.

18 experimental items like (13) — which is based on (10) — were arranged in a fully-crossed 2×3 repeated-measures design.

(13)   (Tomorrow) Margaret will interview

no representative of a/any/some country (tomorrow)
that has *ever* had its borders unexpectedly closed.

The factor QUANTIFIER had three levels varying D_2 between *any* and *some* in the way discussed above. The polarity insensitive *a* was also included, though no spe-

cific predictions were made regarding its behavior. The two levels of the factor SITU varied the position of a temporal adverb and, in this way, extraposition of the RC. If an extraposed RC is interpreted in a QR'ed copy of its host, EXNP is not expected to affect the judgments (Overfelt 2015a,b). The experimental items were presented randomly with 38 filler items that were intended to have similar complexity.

Results   The raw experimental means are presented in Table 1.

	A	**Any**	**Some**
In-situ	3.46 (0.23)	3.78 (0.25)	2.89 (0.21)
Ex-situ	3.28 (0.21)	3.65 (0.25)	3.00 (0.23)

Table 1   Mean acceptability rating by condition with standard error.

The data were analyzed in a linear mixed-effects regression model.[3] The most complex model justified by the data included the fixed effects and their interaction, centered around 0, and treated both subjects and items as random effects. The model revealed a significant main effect of the quantifier SOME ($\hat{\beta} = 0.37, \text{SE} = 0.08$, $|t| = 4.44$). Planned post-hoc comparisons of the raw subject means found a significant difference between *any* and *some* in-situ ($\Delta_{\hat{\mu}} = 0.89$, 95% CI $[0.41, 1.37]$; $t(17) = 3.89, p < 0.01$) and ex-situ ($\Delta_{\hat{\mu}} = 0.65$, 95% CI $[0.25, 1.04]; t(17) = 3.45$, $p < 0.01$).

Discussion   Even in these very complex sentences, participants considered *some* to be significantly degraded relative to *any*. This contrast suggests that participants perceived *any*, but not *some*, to be licensed in structures like (10).[4] This is consistent with the two predictions made by a model of EXNP that employs QR and Late Merge. The fact that *any* and the NPI *ever* in the extraposed RC can simultaneously be licensed in EXNP configurations suggest that both are interpreted in the scope of *no*. This is precisely what an LF employing QR like in (12) provides. The inability to license *some* in constructions like (10) is expected if EXNP is parasitic on QR and an extraposed RC must be interpreted in the higher copy of the host (WSG; contra Sportiche 2016). This is expected if only the LFs in (11) and (12) are available for (10): neither structure allows *some* and *ever* to be licensed simultaneously. A model of EXNP that employs QR and Late Merge delivers this directly.

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3 The analysis was carried out in the R statistical computing environment (R Core Team 2017) using the lme4 package (Bates et al. 2016).

4 See Parker & Phillips 2016 to assuage fears of illusory NPI-licensing.

Among the things that this experiment did not do is provide direct evidence that structures similar to (11) with inverse linking and shallow Late Merge are generally available. The concern, then, may be that we have not actually seen that Late Merge is responsible for the ungrammaticality of *some* in (10). In support of configurations like (11), Sauerland (2005: 307, (14)) presents the Antecedent-Contained Deletion construction provided in (14).

(14)   Mary is $[_{VP}$ planning to discover $[_{DP_1}$ a planet in x_2 $]]$
$[_{DP_2}$ every galaxy John is Δ $]$
$(\forall > plan > \exists)$: 'For every galaxy such that John is planning to discover a planet in it, Mary is planning to discover a planet in it.'

Licensing ellipsis with the intended meaning in this sentence requires interpreting the ellipsis site outside the antecedent VP headed by *plan*. This can be achieved by QR'ing DP_2 (or something containing it). The intended meaning also relies on being able to interpret the head of the embedding DP_1 inside this same VP. Inverse linking structures with shallow Late Merge like (11) satisfy both requirements.

5   Conclusion

This paper extended the NPI-licensing diagnostic proposed in Overfelt 2015a,b to further investigate the mechanisms involved in the derivation of EXNP configurations. The interpretation of Polarity Items in inverse linking environments provided further support for Williams's Generalization, the idea that an extraposed RC and its host are interpreted together at the extraposition site. This is an expected consequence of a model of EXNP that employs both QR and Late Merge (Fox & Nissenbaum 1999). We also saw evidence that Late Merge is able to target positions relatively deep within in a DP. If this is possible, we will require an alternative analysis for Rochemont & Culicover's (1990) eliminative puzzle in (6). One possibility that makes use of embedded Late Merge is sketched in Fox 2014.

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Multiple case assignment and the English pseudo-passive[*]

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Previous literature on pseudo-passives (see van Riemsdijk 1978, Chomsky 1981, Hornstein & Weinberg 1981, Baker et al. 1989, Baltin & Postal 1996, Bruening 2011, Drummond & Kush 2015, and much other work) often notes that English pseudo-passives typically require the verb and the stranded preposition to be adjacent:[1]

(1)   a.   The movie was talked (***today**) about.
        b.   This bed was slept (***recently**) in.

In this squib I will offer an account of this constraint. The account will rest mainly on two ideas: first, that nominals may receive Case arbitrarily many times, and second, that pseudo-passives involve functionally impoverished PPs, in which the usual machinery responsible for assigning Case to the object of P is missing.

1   Case stacking and passive

Some work on Case assignment (for example, Babby 1984, McCreight 1988, Bejar & Massam 1999, Yoon 2004, Merchant 2006, Richards 2012, Pesetsky 2013, Levin 2017) explores the possibility that Case may be assigned to a nominal more than once. There may be variation, both across languages and within a given language, in how multiple Case assignment is realized morphologically. We find instances of 'Case stacking', in which each assigned Case is apparently realized as a Case morpheme, and other examples in which only one of the Cases assigned is morphologically expressed. To be more specific, we find languages in which, when a Case is assigned to a nominal that already bears a Case, the new Case typically 'overwrites' the existing one.

An approach of this kind makes available a new picture of the syntax of passives. We can think of the passive as only affecting the expression of the subject's theta-role. The object of a passive, on this view, can get Accusative case as usual, and

[1] Exceptions to this generally involve idioms (e.g., *John was taken advantage of*), though see Mills (2008) for discussion of a more general class of exceptions that appear for some English speakers.

then subsequently receive Nominative case, which replaces the previously assigned Accusative.

This idea would predict, for English, that the sentence in (2) should be represented as in (2a), rather than (2b).

(2)   a.   The cookies were eaten __ **quickly**.
        b.   The cookies were eaten **quickly** __.

That is, if *the cookies* in (2) is to receive Accusative case as well as Nominative, then it must satisfy the conditions on assignment of Accusative case — which include, in English, a requirement that the object be roughly adjacent to the verb:

(3)   a.   We ate the cookies **quickly**.
        b.   *We ate **quickly** the cookies.

However the contrast in (3) is to be accounted for, we expect (2) to have to satisfy the same condition; *the cookies* must move to subject position from a position adjacent to the verb, where it can receive Accusative case before finally becoming Nominative.

In (2), of course, it is difficult to determine whether (2a) or (2b) is the correct representation. I now turn to an area where the facts are clearer.

2   Pseudo-passives

Consider English pseudo-passives:

(4)   a.   The movie was talked about.
        b.   This bed was slept in.

A reasonable approach to the syntax of pseudo-passives, it seems to me,[2] would treat them like long passives in German:

(5)   . . . dass der   Traktor zu reparieren versucht wurde
        . . . that the.NOM tractor to repair   tried   was
        '. . . that they tried to reponair the tractor'

Wurmbrand (2001, and following), in her work on restructuring, presents long passives as a piece of evidence in favor of approaches in which the object gets its theta-role from one head (V), and its case from a different head (*v*); we can contrast these with the classic GB-era approaches in which the verb is responsible for both

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2 I have not yet seen this idea in print, but I'm sure it's not mine. Other people I have heard expressing this idea include Jason Merchant and David Pesetsky (p.c.).

of these kinds of licensing. In long passives, the account goes, we can see objects getting theta-roles from an embedded verb, but having case licensed by the higher verb (so that passive morphology on the higher verb affects the morphology and syntax of the object of the lower verb).

Similarly, the existence of pseudo-passives in English might make us suspect that the object of a preposition receives its theta-role and its Case from different sources; a PP is generally dominated by the projection of a functional head p which is responsible for assigning Case to the object. In English, moreover, we can posit something equivalent to restructuring of the Wurmbrand 2001 type; a PP may be functionally impoverished, lacking its pP, in which case the object of the preposition receives Case from a higher v.

On this view, a sentence like (6a) is structurally ambiguous, potentially containing either of the partial structures in (6b-c):

(6)   a.   They are talking about the movie.

        b.

c.

```
          vP
         /  \
       DP    v′
       |    /  \
      they  v   VP
                / \
               V   PP
               |   / \
             talk P   DP
                  |   / \
               about D  NP
                     |   /\
                   the  movie
```
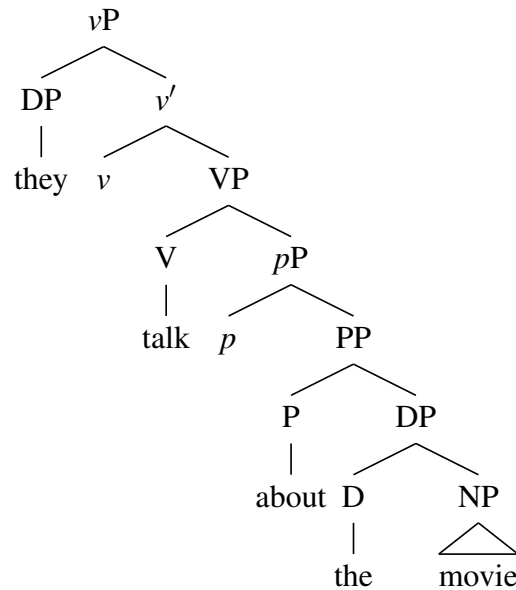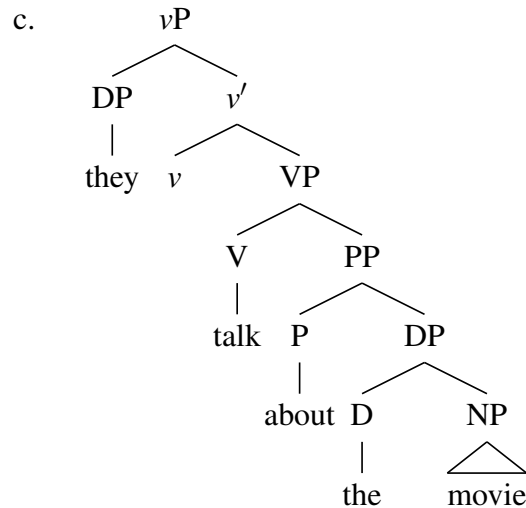
The two potential trees in (6b)–(6c) differ in whether the PP equivalent of restructuring has taken place; just in (6c), the PP is missing its *p*P, and Case for the object of about comes from *v*. Our understanding of Case Adjacency must be liberal enough to allow structures like (6c) to satisfy it, which is presumably necessary anyway in light of the possibility of placing particles between the object and the verb:

(7)   a.   She turned the machine **on**.
        b.   She turned **on** the machine.

On the other hand, we should expect Case Adjacency to ban restructuring in (8):

(8)   They are talking **today** about the movie.

The example in (8) should only have a structure like the one in (6b), and not the restructuring structure in (6c); *v* should be blocked from licensing Case on the object past the intervening adverb, thanks to Case Adjacency.[3]

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3 Note that we cannot account for the ill-formedness of (9a) below simply by positing PP restructuring; restructuring does not, in general, require the heads involved to be adjacent, a point made by Rizzi (1982: 38):

(i)   Maria è dovuta   **immediatamente** tornare   a casa.
        Maria is must.FEM.SG immediately   return.INF to home
        'Maria had to come back home immediately.'

In (i), the use of the 'be' auxiliary shows that restructuring has taken place, but an adverb intervenes between the two participating verbs.

3 Case Adjacency in Pseudo-passives

The reasoning above can account for the contrast in (9):

(9)   a.   *The movie is being talked **today** about.
          b.   The movie is being talked about **today**.

In Section 1, I proposed that subjects of passives receive Case twice: first they receive Accusative case, as usual, and then are assigned a Nominative Case that overwrites the previous Accusative. If this is correct, then the subjects of the passives in (9) must be in the right configurations to receive, not only Nominative case, but also Accusative. In Section 2, I proposed that pseudo-passives involve a kind of restructuring applied to PP: the object of a preposition in English may receive Case from v, and passivizing this v has the same effect on objects of Restructured prepositions that it would have on an object.

    Taking these two ideas together, we arrive at an account of the facts in (9). In (9a), the adverb *today* blocks Case Adjacency for assignment of Accusative Case to the DP *the movie*. If, as I proposed above, this DP must in fact get Accusative Case before moving up to receive Nominative Case, then we can appeal to the condition of Case Adjacency to rule the example out. We must also crucially assume that failure to assign Accusative Case correctly is fatal, even in derivations in which Accusative is later overwritten by Nominative.

    This last assumption will need to be stated carefully, in order to avoid ruling out examples like (10):

(10)   They are talking.

Assuming that v in (10) has the same properties as v in (9), we will need to make sure that failure of v to assign Accusative in (10) does not lead to ungrammaticality. Alternatively, of course, we could posit a kind of v which does not need to assign Accusative case at all, but having posited such a v for (10), it will be difficult to avoid using in (9). A more promising alternative, I think, will be to distinguish between instances of v which have no DPs in their search domain (like the one in (10)) from instances of v which do have potential targets for Accusative case, but are blocked from assigning Accusative to them by the adjacency requirement on case assignment in English. See Preminger 2014 for discussion of similar issues.

    Another potential derivation of the string in (9a) must also be ruled out. Suppose *the movie* were to receive its first Case, not from v, but from p? That is, suppose we simply refrained from performing restructuring of PP? Since the proposal of Section 1 has been that nominals may receive Case multiple times, such a derivation could not simply be ruled out by a ban on assigning Nominative to an object which

had previously received Case from *p*. An alternative would be to appeal to locality conditions on Case assignment; if *p*P is a phase, for example, then we could perhaps rely on it, together with the *v*P phase, to make the object inaccessible to further Case assignment by T.

4 Conclusions

In this squib I have attempted to account for contrasts like the one in (11):

(11)   a.   The movie is being talked about **today**.
       b.   *The movie is being talked **today** about.

Classic accounts of (11) have sometimes posited a notion of 'reanalysis', which allows the creation of a single predicate *talk about* in (11a), but not in (11b). Baltin & Postal (1996) offer arguments, which seem to me to be compelling, against theories which literally create a single word out of the verb and the preposition in (11a). For example, they note that prepositions which participate in pseudo-passives can be coordinated with other prepositions:

(12)   The bridge was flown **over**, and then, but only then, **under**.

In place of reanalysis, I have proposed that the prepositions participating in pseudo-passive have undergone a kind of prepositional equivalent of restructuring, which strips them of the functional material necessary to license case on their objects; the object is licensed by *v*, and is therefore compelled to be adjacent to the verb (modulo the preposition). If we also assume, as I have, that the object of a passive must get both Accusative and Nominative case, then the facts in (11) follow, given the general English requirement that Accusative case be assigned under adjacency.

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On some languages lacking V-to-I movement

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1   Introduction

The goal of this short paper (which is part of a much larger work; Roberts in progress) is to look again at the well-known facts concerning the apparent absence of verb-movement in English and various other languages in the light of Cinque's (1999) proposals for the structure of IP. In this connection, Johnson 1991 is an enduringly important contribution, some of whose results are reconsidered below. The conclusion is that Pollock's (1989) observations essentially stand, although the apparent lack of verb-movement in languages like English must be reconsidered in the light of the richer structures which emerge from Cinque's work and the empirical observations in Johnson 1991.

2   English

Pollock's (1989) classic study of verb-positions in English and French showed that V does not raise to I (or, in more recent terms, T) in Modern English (this is not true for some earlier stages of English; see Roberts 1985). Well-known examples of the following kind illustrate this:

(1)   a.   John (*eats) often/always/already eats apples.
       b.   John does/will/must (*speak) not speak French.
       c.   The kids (*speak) all speak French.

Here we see that the finite lexical verb cannot precede low adverbs of the *often/always/already* type, cannot precede the clausal negator *not* and cannot precede a floating quantifier. Since Pollock 1989, this kind of evidence has been taken to show that the finite lexical verb does not raise to T. Furthermore, the verb and the direct object must always be adjacent, as these examples show. Auxiliaries behave differently, as has been known since at least Emonds 1978; I will leave auxiliaries aside here.

Schifano (2015: 132), citing Cinque (1999: fn. 7, 214) and Tescari-Neto (2012: 57), points out that finite lexical verbs in English do appear to precede certain adverbs which are very low in the Cinque hierarchy, such as *well*:

(2)   John sings well (*sings).

Cinque (1999: 106) places *well* in SpecVoice, outside *v*P.[1]

However, no adverb can intervene between the verb and the direct object in English. This prohibition includes *well*, as (3) shows:

(3)   John (*well) sang (*well) the song (well).

The fact that *well* can only appear following the direct object may suggest that there is *v*P-fronting of some kind at work here, rather than head-movement of the finite lexical verb (see footnote 1 on other very low adverbs in English). The relevant part of the structure of the grammatical version of (3), with well in final position, would thus be as in (4): [2]

(4)   [TP John ... [VoiceP [vP sang the song] [well [Voice ... (vP) ...]]]]

The ungrammatical preverbal position of *well* in (3) is simply an excessively high position for this adverb, as it must be higher than SpecVoiceP, while the position intervening between the verb and the direct object is too low, being *v*P-internal. Roberts 2010: 175–180, following and adapting Collins 1997, argues for this kind of low *v*P-movement in English for Quotative Inversion as in *"Who's there?" called out John/*called John out*; this cannot be verb-second because particles are always stranded under verb second, while here we see that particle-stranding leads to un-grammaticality.[3]

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1 And above low positions for *fast/early*, *again*, *often* and *completely*, the last three of which have higher positions too. As Cinque (1999: 103–104) points out, *fast* and *early* behave like *well* in being unable to precede the finite lexical verb. They also behave like *well* in being unable to appear between the verb and the direct object:

(i)   John (*early/fast) finished (*early/fast) his dinner early/fast.

All of *again*, *often* and *completely* are able to appear following both the verb and the direct object, but can also precede them:

(ii)   John again/often/completely finished his dinner again/often/completely.

These facts are compatible with the *v*P-fronting proposal to be given directly, combined with Cinque's idea that *again*, *often* and *completely*, but not *well*, *fast* and *early* have the possibility of appearing in a higher position.

2 There is almost certainly more structure inside the *v*P *sang the song* here, but we leave that question aside for expository purposes.

3 See Roberts 2010: fn. 17, 248 for the suggestion that Locative Inversion (*Into the room ran John*) may also involve low *v*P-movement. See also Roberts 2010: fn. 18, 248 on the ungrammaticality of **"Brilliant!" told Harry Ron*, noted by Collins 1997.

Johnson (1991: 580ff.) points out a contrast between the order *V Adv DO*, which in English is always bad, as we have seen, and the order *V Adv PP*, where the PP is a complement of V, which is often much better:[4]

(5)   a.   Mikey (slowly/quickly) talked (slowly/quickly) to Gary (slowly/quickly).
        b.   Mikey (*well) talked (well) to Gary (well).
        c.   Mikey (*early) talked (early) to Gary (early).

In (5a), *slowly/quickly* can appear both in a high, preverbal Asp position (Cinque's $Asp_{Celerative(I)}$) and a lower, postverbal one, $Asp_{Celerative(II)}$. Here we could assume that the *to*-PP raises out of *v*P to a low position within the *v*P-shells and the remnant *v*P moves on to SpecVoiceP. The apparently optional positions of the postverbal adverbs are due to the optionality of PP-raising.[5] (5b) confirms the observation in (3) concerning the unavailability of *well* in preverbal position; the two postverbal positions can be accounted for as for (5a). (5c) confirms Cinque's (1999: 104) observation that *early* can only appear in the low $SpecAsp_{Celerative}P$.

A similar pattern emerges with *to*-datives (here we leave aside the preverbal positions, where the adverbs consistently pattern as in (3) and (5)):

(6)   a.   John sent the money (quickly/early) to the tax authorities (quickly/early).
        b.   John taught French (early/well) to his children (early/well).
        c.   John gave the money (quickly/slowly) to the robber (quickly/slowly).

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4 Regarding (5a), the adverb *fast*, although very close in meaning to *quickly*, shows a much more restricted distribution:

(i)   Mikey (*fast) talked (?fast) to Gary (fast).

Like *early*, it seems unable to appear in the high $Asp_{Celerative}$ position, but it also appears unable to occur in the medial position. Also, there are differences in judgements regarding (i), where the judgement reported is my own, and those of some other native speakers of English concerning in particular the string-final position of *fast*, with some speakers rejecting *fast* in this position. *Fast* appears to be a highly idiosyncratic adverb (see Cinque 1999: 103, fn. 73, 212 on non-*ly* adverbs).

5 Adding an *about*-PP to (5) gives rise to the following, changing the verb to *speak* as this is more natural with both a *to*-PP and an *about*-PP:

(i)   a.   Mikey spoke (slowly) to Gary (slowly) about the problem (slowly).
        b.   Mikey spoke (??fast) to Gary (*fast) about the problem (?fast).
        c.   Mikey spoke (well) to Gary (?*well) about the problem (well).

(ia) seems to indicate that either PP can move out of *v*P or not; (ib) shows the idiosyncratic nature of *fast* once again, while (ic) seems to indicate a possible restriction on movement of the *about*-PP alone.

By contrast, in true ditransitive constructions there is no possibility of an adverb appearing in a medial position:

(7) a. John sent the tax authorities (*quickly/early) the money (quickly/early).
     b. John taught his children (*early/well) French (early/well).
     c. John gave the robber (*quickly/slowly) the money (quickly/slowly).

We can account for this by assuming the following structure for the lower part of the *v*P in dative constructions (below the level of Voice and the *v* which introduces the external argument; as (8) shows, I assume that each argument is introduced in its own *v*P-shell):

(8) [$_{YP}$ [$_{ApplP}$ [Appl [$_{v GoalP}$ Goal [v_{Goal} [$_{vP}$ V Theme [(Root)]]]]]]]

The innermost argument merges as the complement of V, which I take to be the combination of the categorizing *v* and the Root. As is standard, I take this argument to be the Theme. In the *to*-dative, the Goal is realized as the *to*-PP and *v*P raises to SpecApplP, giving the order *V > Theme > Goal*. ApplP then raises to SpecVoiceP (which is higher than YP, and so not shown in (8)), allowing the entire *V > Theme > Goal* sequence to precede adverbs like *well* and *early*, as in the adverb-final versions of (6). The target of optional raising of the Goal PP is SpecYP; this option gives rise to the adverb-medial orders of (6).

In ditransitives, *v* raises to Appl. This gives rise to the order *V > Goal > Theme*. ApplP raises to SpecVoiceP, yielding the grammatical adverb-final orders of (7). Since there are no adverb-positions inside ApplP (a subcase of the general assumption that the argument-licensing domain, i.e. the lower clausal phase *v*P/VoiceP, does not contain any adverb-licensing heads; see Schifano 2015: fn. 34, 130.[6] In this way we account for the ungrammaticality of the medial adverbs in (7).

This analysis has two interesting consequences. First, it provides novel confirmation for the idea that the *V > Goal >Theme* sequence in ditransitives is a "*v*P-shell" constituent, in that it can be fronted and adverbs cannot be interpolated. Second, the "dative alternation", i.e. the alternation of *to*-datives and ditransitives, reduces to the option of head-movement to Appl (ditransitives) or pied-piping of *v*P to SpecApplP.[7]

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6 Except for a series of very low Asp heads, which, according to Cinque (1999: 106) are Asp$_{Celerative(II)}$, Asp$_{Repetitive(II)}$, Asp$_{Frequentative(II)}$ and Asp$_{SgCompletive(II)}$. It may not be accidental that these are iterations of higher heads in the TMA domain (Cinque 1999: 103–104, citing Travis 1988; Cinque 2006: fn. 1, 94). I will refer to these categories collectively as "inner aspect."

7 The analysis is in line with Barss & Lasnik's (1986) observations regarding binding, scope and NPI-licensing facts in ditransitives, summarized in (i), which indicate that the Goal asymmetrically c-commands the Theme:

Verb-particle constructions resemble datives in that there is the well-known word-order alternation between $V > DP > Prt$ and $V > Prt > DP$, as in (examples from Johnson 1991: 593):

(9)   a.   Mikey looked the reference up/looked up the reference.
      b.   Betsy threw the bicycle out/threw out the bicycle.
      c.   Brent dusted the counter off/dusted off the counter.

No medial adverb position is available with either order, while the "low" adverbs in question can follow the entire string and, as usual, celerative adverbs like *quickly* can precede the verb:[8],[9]

(i)   a.   I showed John himself/*himself John in the mirror.   (Principle A)
      b.   I denied each worker$_i$ his$_i$ paycheck/its$_i$ owner each paycheck$_i$.
           (bound-variable reading for *his*, but not *its*)
      c.   Which worker$_i$ did you deny his$_i$ paycheck?   (weak crossover)
           *Which paycheck$_i$ did you deny its$_i$ owner?
      d.   I gave no one anything/*anything no one.   (NPI licensing).

The evidence for inverse asymmetric c-command relations in the *to*-dative construction is a problem on the present approach, however (see Larson 1988: 338):

(ii) a.   I showed John to himself/*himself to John in the mirror.   (Principle A)
      b.   I sent every paycheck$_i$ to its$_i$ owner/??his$_i$ paycheck to every worker$_i$.
           (bound-variable reading for *its*, but not readily for *his*)
      c.   Which paycheck$_i$ did you send to its$_i$ owner?
           *Which worker$_i$ did you send his$_i$ paycheck to?   (weak crossover)
      d.   I gave no presents to any children/*any presents to no children.   (NPI licensing).

The Theme argument in the raised vP does not c-command the Goal at any point in the derivation proposed in the text. See Collins 2005: 116 for comparable data in relation to the smuggling analysis of passives, which this analysis of datives resembles, and a tentative solution.

8 Adpositional modifiers such as *straight* and *right* can appear before the particle in the $V > DP > Prt$ order, but not in the other one:

(i)   a.   Mikey looked the reference straight/right up.
      b.   *Mikey looked straight/right up the reference.

Interestingly, a similar contrast is found between *to*-datives and ditransitives:

(ii) a.   John sent the letter straight/right to Mary.
      b.   John sent (*straight/right) Mary (*straight/right) the letter.

This supports the idea that there is a parallel between verb-particle constructions and datives, and poses a potential problem for analyses of ditransitives which posit an empty preposition, e.g. Kayne 1984.

9 David Pesetsky (p.c.) points out that more compositional verb-particle combinations tolerate a medial adverb somewhat more readily than (10b,d,f):

(10) a. John (quickly) looked (*quickly) up (*quickly/*well/*early) the ref-
          erence (quickly/well/early).
      b. John (quickly) looked the reference (*quickly/*well/*early) up
          (quickly/well/early).
      c. Betsy (quickly) threw (*quickly/*early) out (*quickly/*early) the bi-
          cycle (quickly/early).
      d. Betsy (quickly) threw the bicycle (*quickly/*early) out (quickly/early).
      e. Brent (quickly) dusted (*quickly/*early) off (*quickly/*early) the cou-
          nter (quickly/early).
      f. Brent (quickly) dusted the counter (*quickly/*early) off (quickly/early).

We can adapt the analysis of dative constructions given above, so that the structure
of verb-particle constructions is as follows:

(11)   [$_{YP}$ [$_{ApplP}$ [$_{Appl}$ Prt] [$_{vP}$ [v [$_{VP}$ Theme V]]]]]

Here, if v moves to Appl, the order $V > Prt > DP$ ensues, while if vP moves to
SpecApplP the order $V > DP > Prt$ is the result. Movement of ApplP to SpecVoiceP
creates the adverb-final orders, as elsewhere. There is no position inside ApplP for
an adverb, hence the ungrammaticality of medial adverbs seen in (10).

    Finally, we should consider the well-known contrast in (12), which Johnson
(1991: 613) accounts for in terms of object shift and the assumption that weak
pronouns such as *it* must be "as close to the verb as possible":

(12) a. John looked it up.
      b. *John looked up it.

We can simply adopt Johnson's assumption that the pronoun has to be as close to
the verb as possible, i.e. string-adjacent to it, without assuming object shift. Thus,
where the Theme in (12) is the weak pronoun *it*, v-movement stranding it in the
remnant vP is not allowed, so the only option is vP-fronting to SpecApplP, giving
the order $V > pronoun > Prt$.

    Further evidence for low vP-movement comes from Cinque's (1999: 28–30)
discussion of circumstantial adverbs in examples such as the following:

(i)   ?John called the elevator quickly up/pushed the button quickly down, etc.

It is possible that the particle is somewhat more "prepositional" in this case, although then the $V >$
$DP > PP$ order needs to be explained. Adverbs of this class are fully grammatical between the verb
and what is unambiguously a PP:

(ii)   John ran quickly up the hill.

(13) a. He attended classes every day of the week at a different university.
      b. He attended classes in each university on a different day of the week.

Adverbials of this kind vary in order, can be in one another's scope, are typically PPs, cannot appear to the left of VP (unless they are topicalized) and are predicated of the event. Cinque (1999: 30) suggests that such adverbials are merged in *v*P-shells, as shown in (14), and that leftward movement of the "main" *v*P can give rise to the various surface orders:

(14) [$_{vP}$ [every day] *v* [$_{vP}$ [at the university] *v* [$_{vP}$ he attended classes]]].

I conclude from the above discussion that in English, *v*P moves to SpecVoiceP, which, aside from the "inner-aspect" heads, is the lowest position in the TMA system. There is no verb-movement to a higher position in the TMA hierarchy; this is the content of Pollock's original observation regarding the difference between English and French. This is not to imply that there are no TMA heads in English; the presence of both TMA adverbs and auxiliaries indicates that there are. But these heads do not have the capacity to attract finite lexical verbs.

3   Mainland Scandinavian

Aside from English, other languages lacking V-movement into the T field include Mainland Scandinavian (MSc), and various creoles, notably Haitian. The Mainland Scandinavian languages are all verb-second, and so to control for the effects of verb-movement to second position we must look at the position of the finite verb in subordinate clauses where V2 is blocked. Here the Pollockian diagnostics regarding the position of the finite verb in relation to negation and "low" adverbs like *often* and floated quantifiers clearly show that the verb does not raise into the T field in subordinate clauses, as was established by Holmberg & Platzack (1995) and Vikner (1995). The Danish examples in (15), from (Vikner 1995: 144 and p.c.; glosses and translations mine), illustrate:

(15) a. Jeg tror   at   Johan ikke købte   bogen.
          I   believe that John   not   bought book-the
          'I believe that John didn't buy the book.'
      b. Jeg tror   at   Johan ofte   købte   boger.
          I   believe that John   often bought books.
          'I believe that John often bought books.'
      c. Jeg tror   at   børnene   alle købte boger.
          I   believe that children- the all   bought books.
          'I believe that John often bought books.'

Both Holmberg & Platzack (1995: 75) and Vikner (1995: 41ff.) assume that the finite verb transits through T in V2 clauses in MSc. But, as pointed out by Roberts (2010: 169), building on earlier work by Zwart (1997), Biberauer (2003), Biberauer & Roberts (2005) and Richards & Biberauer (2005), if we do not adopt a rigid Head Movement Constraint there is no reason to assume that the verb does not move directly from *v* (or Voice, if this is the head of the lower clausal phase) to the left periphery. In fact, there is little evidence from the verb/auxiliary system for Tense, Mood or Aspect heads at all: modals are raising verbs (this is argued for Danish in Thráinsson & Vikner 1995: 63), there is no progressive periphrasis and the equivalent of *have* in the perfect periphrasis behaves like a main verb, as the following Danish example (from Vikner 1995: 145, gloss and translation are mine) shows:

(16)   Jeg spurgte hvorfor Peter ikke havde læst den.
        I   asked   why   Peter not   had   read it.
        'I asked why Peter hadn't read it.'

On the other hand, see Cinque (1999: 34–36) for evidence that Norwegian has a full range of aspectual adverbials. Roberts (2010: 175–183) gives some evidence, from earlier work by Wiklund et al. (2007) and Bentzen (2007, 2009), that Norwegian has low *v*P-movement of a kind somewhat similar to English.[10]

4 Creoles

Haitian Creole (HC) is a French-lexifier creole. Unlike French, though, finite lexical verbs in HC do not raise over the clausal negator *pa*, as (17), from Aboh & DeGraff 2017: 445 shows:

(17)   a.   Jinyò pa   pale Kreyòl.
              Jinyò NEG speak Creole
              'Jinyò doesn't speak Creole.'

        b.   *Jinyò pale pa   Kreyòl.
              Jinyò speak NEG Creole

(See the references given in Aboh & DeGraff 2017, in particular DeGraff 1994, where the Pollockian diagnostics are systematically applied to HC.) Aboh & De-

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10 This proposal has implications for adverb-placement in dative and verb-particle constructions in MSc embedded clauses. Pursuing this here would take us too far afield, but the predictions can be readily extrapolated from the discussion of English above.

Graff also show that *pa* precedes the negative adverb *janm* "never," and both of these negative elements precede the verb:

(18) Jinyò pa   janm pale   kreyòl.
      Jinyò NEG never speak Creole
      'Jinyò never speaks Creole.'

However, *pa* seems to occupy quite a high structural position[11] in that it precedes all TMA elements, which in turn precede the verb (see also DeGraff 1993: 63):

(19) a. Jan pa   t-   av- ale nan mache.
          John NEG ANT IRR go in market
          ?John would not have gone to the market.'
      b. *Jan te- pa   (av-) ale nan mache.
          John ANT NEG IRR   go in market

DeGraff (1993) suggests that HC *pa* heads a high NegP, above the entire TMA field. However, it is clear from the fact that the verb does not structurally interact with the TMA field, and the fact that the verb must follow "already", that the verb is in a low position:

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11 In MSc, aspectual and passive auxiliaries always follow negation in non-V2 environments (thanks to Sten Vikner for help with the Danish data):

(i)   Jeg tror ad   Peter ikke er blevet arresteret.
      I   think that Peter not is been   arrested
      'I don't think that Peter has been arrested.'

This suggests that here too negation precedes some of the TMA field, but not the position to which the finite verb moves in French and in non-V2 environments in Icelandic; cf. the contrast between (i) and Icelandic examples such as the following (translation added):

(ii) það var Hrafnkelssaga sem einhver hafði   ekki lesið.
      It was Hrafnkel's   saga that   somebody had not read
      'It was Hrafnkel's saga that somebody had not read.'   (Thráinsson 2007: 63)

(On the need for an indefinite subject in the embedded clause in order to show finite V-movement to T, see Thráinsson's discussion of this example). In English, too, non-constituent negation precedes all aspectual and passive auxiliaries except for the highest one, which undergoes *have/be*-raising:

(iii) John must not have been being properly attended to.

This indicates that negation in English, MSc and HC must occupy a position in between finite T and the remainder of the TMA field, i.e. somewhat higher than has usually been thought since Pollock 1989.

(20)   a.   Bouki deja   pase rad   yo.
              B.   already iron cloth the
              'Bouki has already ironed their clothes.'
        b.   *Bouki pase deja   rad   yo.
              B.   iron already cloth the
              (Roberts 1999: 304, citing DeGraff (1994))

Cinque (1999: 61–63) provides evidence that the TMA markers are consistent with the order of functional heads he independently proposes for the TMA field, illustrating with examples such as the following (Cinque 1999: 63, citing Leblanc 1989):

(21)   Jan te   toujour te   ap   rakonte yon istwa.
        J.   PAST always ANT PROG tell   a   story
        'Jan had always been telling a story.'

It seems clear, then, that HC lacks lexical verb movement (out of the lower clausal phase), with TMA particles interacting in complex ways and in a fairly rigid sequence expressing TMA semantics.

Concerning the expression of tense in HC, Aboh & DeGraff (2017: 448) say:

> "[T]he absence of V-to-T movement in HC means that the verb itself does not bear temporal specifications. Instead, these specifications are deduced from the combination of TMA markers and the lexical aspect of the verb. Put differently, temporal specification is computed based on TMA markers and *Aktionsart*. HC, like many Creoles and Niger-Congo languages…displays an asymmetry between eventive/dynamic verbs and stative verbs: when they occur without any TMA marker, eventive/dynamic verbs are interpreted as perfective, while stative verbs are interpreted as present."

The following examples illustrate this (the French translation of (22a) is omitted here; emphasis in the translations in original):

(22)   a.   Prèske pèsonn pa   vote pou Manigat.
              almost nobody NEG vote for Manigat
              'Almost nobody voted for Manigat.'
        b.   Mwen pa   kwè   pèsonn ap   vini.
              1SG   NEG believe nobody FUT come
              'I don't believe that anybody will come.'

Furthermore, "a bare noun phrase with non-individuated generic reference allows a habitual reading while a determined noun phrase triggers a perfective reading"

(Aboh & DeGraff 2017: 448–449):

(23) a. Jinyò vann chat.
    Jinyò sell cat
    'Jinyò **sells** cats.'
  b. Jinyò vann chat la.
    Jinyò sell cat DET
    'Jinyò **sold** the cat.'

So in HC it seems fairly clear that lexical verbs remain in a low position, and don't inflect at all.[12] Another French-lexifier creole, Mauritian, seems to behave like HC, while Réunionnais has what appears to be V-to-T movement and Mesolec-

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12 There is some evidence that HC has low *v*P-movement of the kind described for English above (thanks to Michel DeGraff for examples and discussion):

(i) a. Jan (byen) chante (*byen) chante a (byen).
    John (well) sang (well) song the (well)
    'John sang the song well.'
  b. Jan (byen) pale (byen) ak Mari (byen).
    John (well) spoke (well) with Mary (well).
    'John spoke to Mary well.'

(ia) shows that, as in English, "well" cannot intervene between the verb and a nominal direct object, but that it can follow the whole *v*P, also as in English. This is the basic motivation for low *v*P-fronting. On the other hand, "well" can also precede the verb, unlike in English. It seems, then, that low *v*P-fronting may be optional in HC.

  The equivalents of ditransitives involve serial verbs in HC:

(ii) Jan (byen) anseye franse (*?byen) bay timoun yo (byen).
   John (well) teach French (well) give children the (well)
   'John taught French to his children well.'

If we place the serial verb *bay* in Appl, the word order here is consistent with our analysis of English *to*-datives above: the lower *v*P, *anseye franse*, raises to SpecApplP and ApplP can raise to SpecVoiceP, giving adverb-final order. There is no adverb-merge site inside ApplP and so the medial occurrence of *byen* is impossible. As in (i), the possibility of preverbal *byen* implies that Appl-raising to SpecVoiceP is optional. The same conclusion is suggested by examples with a benefactive PP:

(iii) Jan (byen) ekri lèt   la (byen) pou timoun yo (byen)
   John (well) write letter the (well) for children the (well)
   'John wrote the letter well for the children.'

Here the possibility of the medial adverb reflects optional raising of the PP *pou timoun yo* out of *v*P before *v*P-fronting. The contrast with (ii) shows that this is impossible for *bay timoun yo*, which follows if *bay* is in Appl, since then this string is not a constituent.

tal Louisiana Creole shows optionality related to whether the verb has a "short" or "long" form; see the data and references in Roberts (1999: 306).

In Cape Verdean Creole (CVC), a Portuguese-lexifier creole studied in depth by Baptista (2002), the finite verb follows the negator *ka*, which, like its HC counterpart, precedes the TMA markers:

(24) a. Anos nu   ka   fronta-l.
          1PL 1PL.SCL NEG attack-him
          'We did not attack him." (Baptista 2002:184; gloss slightly modified)
      b. Azagua   ka   sta   ta   daba.
          Rainy-period NEG TMA TMA give+ANT
          'The rainy period was not yielding much."
      c. *Azagua   sta   ta   ka   daba.
          Rainy-period TMA TMA NEG give+ANT
          (Baptista 2002: 117)

However, the verb must precede "well", as in Spanish and Portuguese (where in general lexical verbs, although they move into the TMA system, do not move as high as in French; see Schifano 2015):[13]

(25) a. João prende ben se lison.
          J.   learn   well his lesson
          'J. learnt his lesson well.'
      b. *João ben prende se lison.
          J.   well learn   his lesson
          (Baptista 2002: 186)

This suggests that there is some verb-movement into the TMA field, which is confirmed by the ability of the verb to precede floated quantifiers and to precede the TMA marker *ba*:

(26) a. Es   txiga tudu na mismu tenpu.
          They arrive all   at same   time
          'They all arrive at the same time.'   (Baptista 2002: fn. 18, 194)

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13 "Well" can follow the verb and the object:

(i)   João prende se lison   ben.
      J.   learn   his lesson well
      'J. learnt his lesson well.'

According to Baptista (2002: 186), there is dialect or register version regarding this possibility. It appears that these dialects/registers allowing (i) have English-like low *v*P-fronting to SpecVoiceP.

     b.   João ta   staba   ta   kumeba.
          J.   TMA be+ANT TMA eat+ANT
          'J. would have been eating.'   (Baptista 2002: 199)

Baptista suggests that the TMA suffix *-ba* triggers V-movement into the TMA field. We could treat this as a case of a T_{ANT} head bearing an uninterpretable feature and a V-feature, thereby attracting the verb (which must bear an interpretable T-feature). Thus CVC appears to differ minimally from HC (and Mauritian Creole) in having a very restricted case of verb-movement, in the sense that a low Tense head attracts the verb.

5   Conclusion

In this paper we have seen several examples of systems where lexical verbs do not raise into the TMA system (which appears to be the appropriate "cartographic reformulation" of Pollock's original observations regarding the differences between English and French): English, MSc embedded clauses and HC. We also briefly saw that CVC allows just the particle *-ba* to attract the verb (there may be a loose parallel between this and the fact that English allows just two auxiliaries, *have* and *be*, to raise). Such systems do not lack TMA positions, as HC abundantly shows; what they lack is the features capable of attracting V (putting it rather mechanically, these could be uninterpretable V-features which probe V).

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Coordination and scope in Japanese:
an argument for verb movement with the verb phrase[*]

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Suppose Kyle has very little money on him when he runs into Kylie and Kai. Both Kylie and Kai are hungry, but Kyle can only buy an apple or a banana, not both. Kylie loves apples, but hates bananas. Kai eats bananas, but has an allergy to apples. So Kyle could satify Kylie's hunger by buying an apple for her and alternatively he could buy a banana for Kai, but he couldn't buy something for both of them. In Japanese, Kyle's dilemma can be reported by the following sentence.

(1) Kyle-wa Kylie-ni ringo-o kau-koto-mo dekiru-shi Kai-ni
     Kyle-TOP Kylie-DAT apple-ACC buy-fact-CONJ possible-CONJ Kai-DAT
     banana-o kau-koto-mo dekiru
     banana-ACC buy-fact-CONJ possible

     'There's a possibility for Kyle to buy an apple for Kylie and there's also a possibility for Kyle to buy a banana for Kai.'

As in English, (1) isn't the most natural description of Kyle's predicament. That would involve disjunction, possibly with something akin to *or else* (Meyer 2016). But the acceptability of (1) is clear and we focus on that in the following.

What we find most surprising about (1) is that the coordinator *mo* seems to appear in the syntactic c-domain of the possibility modal *dekiru*. But the situation clearly excludes a $\Diamond(A \wedge B)$ interpretation for (1) and the weaker $\Diamond A \wedge \Diamond B$ interpretation must therefore be available for (1). We think that (1) argues that the Japanese modal *dekiru* must move from a position below *mo* to one above it similar to the type of movement suggested by Koizumi (1995) and Koisumi (2000) for Japanese and for Germanic languages by Johnson (2002, 2009) (see also Fukui & Sakai 2003, Vermeulen 2008, and others). To derive the $\Diamond A \wedge \Diamond B$ reading attested in (1), the movement of the modal then must undergo reconstruction.

We now sketch a more complete account of (1). Sentence (1) contains three morphemes related to coordination, two occurrences of *mo* and one of *shi*. Both are generally taken to mark conjunction; iterated *mo* in (2) expresses conjunction of nominals and untensed clauses, but not tensed clauses, while *shi* in (3) can mark conjunction of two tensed clauses, but not of smaller constituents.

(2) a. Kyle-wa natto-mo   anko-mo   tabe-ta
         Kyle-TOP savory soy bean-ACC-CONJ sweet soy bean-CONJ eat-PAST
     b. Kyle-wa natto-o   tabe-mo sake-o   nomi-mo
         Kyle-TOP savory soy bean-ACC eat-CONJ rice wine-ACC drink-CONJ
         shi-ta
         do-PAST
     c. *Satoshi-wa natto-o   tabet-ta-mo sake-o
         Satoshi-TOP savory soy bean-ACC eat-CONJ   rice wine-ACC
         non-da-mo
         drink-CONJ do-PAST

(3) a. *Satoshi-wa natto-shi   anko-o
         Satoshi-TOP savory soy bean-ACC-CONJ sweet soy bean-ACC
         tabet-ta
         eat-PAST
     b. *Satoshi-wa natto-o   tabe-shi sake-o
         Satoshi-TOP savory soy bean-ACC eat-CONJ rice wine-ACC
         nomi   shi-ta
         drink-CONJ do-PAST
     c. Kyle-wa natto-o   tabe-ta-shi sake-o   non-da
         Kyle-TOP savory soy bean-ACC eat-CONJ   rice wine-ACC drink-PAST

We take the cooccurence of the two coordinators in (1) to support the claim coordination is decomposed and *mo* and *shi* correspond to different pieces of a decomposed coordination as Mitrović & Sauerland (2016) propose. On this analysis, *mo* can only combine with a complement of the type of an individual or situation while *shi* would be interpreted as logical conjunction or intersection of sets. We assume that the nominalized clauses like *Kyle-wa Kylie-ni ringo-o kau-koto* denote entities of type *e*, e.g. the fact of Kyle buying an apple for Kylie. After reconstruction of the modal *dekiru* below *mo*, the modal must apply to these type *e* entities resulting in further entities of type *e*, to which *mo* can then apply. Though much more needs to be said about this, we assume that *dekiru* can map a situation *s* to the minimal situation s' where *s* is possible. The composition is sketched in (4):

(4)   a.   ⟦*Kyle-wa Kylie-ni ringo-o kau-koto dekiru*⟧ = the minimal situation a where it is possible that Kyle buys an apple for Kylie

        b.   ⟦*Kyle-wa Kylie-ni ringo-o kau-koto dekiru + mo*⟧ = $\{X \subset D_e \mid a \in X\}$

        c.   ⟦*Kyle-wa Kai-ni banana-o kau-koto dekiru*⟧ = a situation b where it is possible that Kyle buys an apple for Kylie

        d.   ⟦*Kyle-wa Kai-ni banana-o kau-koto dekiru + mo*⟧ = $\{X \subset D_e \mid b \in X\}$

The two sets resulting in (4b) and (4d) could be combined by intersection, but then subsequently we would still need to map sets of situation to propositions. Since *shi* generally doesn't combine subclausal constituents, it is more plausible to proceed the other way round — first apply the mapping P from situation sets to propositions, and then apply logical conjunction. The mapping P is defined in (5):

(5) $P : \mathscr{P}(D_e) \longrightarrow D_{st}; \quad P(S)(w) = 1$ iff. $\forall s \, [S(s) = 1 \rightarrow s \sqsubseteq w]$

As a result, we correctly derive for (1) the proposition true of those possible worlds that contain a situation where it's possible that Kyle buys an apple for Kylie and also a situation where it's possible that Kyle buys a banana for Kai. Note that the account as sketched would furthermore predict that reconstruction must be obligatory because applying the modal after *mo* would result in a type mismatch. At this point, we haven't thought about how to test this prediction.

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Fewer adjuncts: more relatives[*]

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1 Introduction

Substantially agreeing with Hornstein (2009: 81), "it is fair to say that what adjuncts are and how they function grammatically is not well understood". I refer the reader to, e.g., Hornstein 2009: chapter 4, Hornstein & Nunes 2008, Hunter 2010 or most recently Hunter 2015 for a catalog of properties and problems adjuncts raise in general, and in particular for all previous proposals including the one in terms of *set merge* vs *pair merge* explored in Chomsky 2000 (hardly compatible, as noted in Hornstein 2009: p. 81 with the Bare Phrase Structure assumptions defended in Chomsky 1995). These authors, with whose criticisms of previous proposals I agree, defend their own proposals, which try to deal with the properties adjuncts display while maintaining parsimonious assumptions about syntactic theory.

In this short note, I will simply put forth a different proposal, without discussion of these authors's proposals. In a nutshell, the general, programmatic, idea is this:[1]

(1)   There are no adjuncts, there is no adjunction.

Here I will only examine only phrasal PP adjuncts. In principle, this includes manner, location and temporals PPs, etc., as well as adjunct clauses introducing subordinating conjunctions.[2] The central ideas behind how the guideline (1) is implemented are the following:

(2)   Adjunction involves a form of relativization.

(3)   Relativization does not involve adjunction.

[1] A similar idea was presented at the LSRL 24 conference (cf. Sportiche 1994). It was also presented at Cornell University in 1993. Thanks to these audiences for their comments.

[2] I leave aside various kinds of adverbs, some of which can be treated the same way (e.g., predicative adverbs such as manner adverbials), while others (e.g., quantificational adverbs) require a different treatment, compatible I believe with the program in (1).

2 Fewer adjuncts

2.1 Introduction

Consider a phrase such as *in the barn* in (4). It denotes a property, that of being in the barn, holding of some entity.

(4) a. I want this cow in the barn.
     b. John was [$_{VP}$ [$_{VP}$ sleeping] [$_{PP}$ in the barn]]

In (4a), this entity is this cow. Underlyingly *this cow* is the subject of a small clause headed by *in*. Syntactically this is a subject predicate relation. Semantically, *this cow* locally saturates the predicate *in*, a simple case of Functional Application. Typically, the syntax of such a phrase is treated differently in a sentence like (4b). In (4b), it is treated as an adjunct, as shown, a PP underlyingly forming a VP constituent with a VP (sometimes a PP constituent forming a V′ with a V′). As semantic counterpart, it is an unsaturated predicate composing with the predicate *sleeping* to yield (via Predicate Modification) a complex predicate *sleeping in the barn* holding of *John*.

Nothing a priori requires such a treatment (as noted in Heim & Kratzer 1998: 68). I would like to suggest that both of these cases should be treated in the same way. If they are, *in the barn* in (4b) has a subject with which it underlyingly forms a constituent. The next section provide an argument that it should.

2.2 Adjunct PPs have subjects

The argument is based on the fact that preposed PPs behave like preposed VPs or APs: they must totally reconstruct. An explanation of this observation can be constructed if all these constituents have a local subject (the Huang/Takano explanation).

2.2.1 VPs or APs reconstruction

I will rely here on the discussion of predicate preposing found in Sportiche 2017a, sections 4.2.3, 5.3.2 and 5.3.3, the (fairly uncontroversial) conclusion of which I will adopt here. The basic observation is that predicate preposing, unlike argument preposing, does not increase the set of possible antecedents for a pied-pied anaphor. Thus a contrast is reported between the two sentences in (5) but not in (6):

(5) a. They think that you like [these pictures of Bill / *each other].
     b. [These pictures of Bill / ✓each other], they think that you like *t*.

(6)   a.   They think that you will [visit Bill / *each other].

          b.   [Visit Bill / *each other], they think that you will t.

To better control further data I will illustrate this contrast in French, with the anaphor *son propre*, 'its own', in its inanimate version, which is strictly subject to Condition A of the Binding Theory (see Charnavel & Sportiche 2016). In (7a), this anaphor is too far from its antecedent (the local antecedent would be fine). DP Preposing via Clitic Left Dislocation, as in (7b) overcomes this distance.[3]

(7)   a.   *Le champ magnétique$_m$ empêche les électrons d'augmenter la
             the field   magnetic$_m$ prevents the electrons from raising the
             valeur de sa$_m$ propre intensité.
             value of its$_m$ own   intensity
             'The magnetic field$_m$ prevents the electrons from raising the value of its$_m$ own intensity.'

          b.   [La valeur de sa$_m$ propre/ intensité]$_k$, le champ magnétique$_m$
             [The value of its$_m$ own   intensity]$_k$, the field   magnetic$_m$
             empêche les électrons de   l'$_k$augmenter.
             prevents the electrons from it$_m$ raising
             'The value of its$_m$ own intensity, the magnetic field$_m$ prevents the electrons from raising.'

Clitic Left Dislocating an AP however, does not help:

(8)   a.   *Les fluctuations du   champ magnétique$_m$ empêchent celles du
             the fluctuations of the field   magnetic$_m$ prevent   those of the
             champ électrique d'être   égales à leurs$_m$ propre valeurs
             field   electric   from being equal to their$_m$ own   values
             maximales.
             maximal
             'The fluctuations of the magnetic field$_m$ prevent those of the electric field to be equal to their$_m$ own maximal values.'

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3 Clitic Left Dislocation is movement from the embedded clause; see Angelopoulos & Sportiche 2016. This allows reconstruction of the preposed phrase to some intermediate, high enough position to satisfy Condition A.

b. *[Égales à leurs$_m$ propre valeurs maximales]$_k$, les fluctuations du
    [Equal to their$_m$ own   values maximal],   the fluctuations of the
    champ magnétique$_m$ empêchent celles du   champ électrique de
    field   magnetic$_m$ prevent   those of the field   electric   from
    l'être.
    it being
    'Equal to their$_m$ own maximal values, the fluctuations of the magnetic
    field$_m$ prevent those of the electric field from being'

The main treatment of this asymmetry is due to Heycock (1995) who argues that
preposed predicates must always reconstruct for scope reasons. Granting that pred-
icates must always reconstruct, for scope reasons, the question is why. If somehow,
the semantic properties of predicates precluded them from being interpreted with
wide scope, we would have such an explanation, but there do not seem to be reasons
why failure to reconstruct a predicate should lead to semantic ill-formedness. Thus,
a priori, there is nothing wrong with an example representation of the meaning of
(9a) as (9b) with wide scope of the predicate:

(9)   a. Sleep, John will. (Or John will sleep).
        b. There is a property P of sleeping, will (P (John)).

The Huang-Takano proposal answers the question why as follows:

  i. Subjects are generated predicate internally (Koopman & Sportiche 1991).

 ii. Predicate preposing a constituent without its subject moves a constituent
     containing the trace subject of this predicate (Huang 1993).

iii. A trace must be semantically bound by its antecedent (see, e.g., Fox 2003
     for how this is done in terms of Trace Conversion).

 iv. There being a moved subject trace in preposed predicates, this binding re-
     quires total reconstruction of the moved predicate phrase to get this subject
     trace bound (Takano 1995). The LF of (10b) must be (10a), deriving the star
     in (6b), or (10a) and (10b):

  v. As a result, while (6a) and (6b) behave alike at LF, (5a) and (5b) (lacking
     such an internal trace) need not.

(10)   a. *They$_k$ think that John$_m$ will [t_m visit each other$_k$]
        b.   [t_m Visit each other$_k$]$_p$, they$_k$ think that John$_m$ will t_p

2.2.2 Adjunct PP reconstruction

Adjunct PP preposing behaves like predicate preposing: Clitic left dislocating the adjunct locative PP does not increase the anaphor binding options. Thus (11b) behaves like (6b) or (10b). Again, controlling for potential confounds by using French inanimate anaphors, consider:[4]

(11)   a.   *Le   courant électrique$_m$ force les réactions chimiques à
             The current electric   forces the reactions chemical   to
             ralentir   dans son$_m$ propre champ magnétique.
             slow down in   its   own   field   magnetic
             'The electric current forces the chemical reactions to slow down in its
             magnetic field.'
       b.   *[Dans son$_m$ propre champ magnétique]$_k$, le   courant électrique$_m$
             [In   its   own   field   magnetic],   the current electric
             force   les réactions chimiques d'y$_k$ ralentir.
             forces the reactions chemical   to there slow down
             'In its magnetic field, the electric current forces the chemical reactions
             to slow down.'
       c.   [t_{sub} [in its own magnetic field]], the electric current allows the chem-
             ical reactions to slow down t.

This is not surprising: A PP lacking a subject is a predicate and must totally reconstruct. Granting the Huang/Takano explanation of this fact, this means that the structure of (11b) must be as in (11c), where the PP contains a trace of its subject t_{sub}, where the subject is not *the chemical reactions*. In other words, PP adjuncts are in fact small clauses. This conclusion raises a number of questions we now turn to.[5]

3   More relatives

The conclusions of the previous sections raise the following questions, which we address in turn.

   i. What is the subject SUB of the adjunct PP in (4b)?

   ii. What are the properties of PP adjuncts captured by the standard syntax given them?

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4 An electric current in a wire creates a magnetic field around it.

5 To assess the same facts in English, compare: (i) *The electric currents$_m$ forced [the chemical reactions$_k$ to slow down near each other$_{k,*m}$]*, and (ii) *[Near each other $_{k,*m}$]$_p$, the electric currents$_m$ forced [the chemical reactions$_k$ to slow down t_p]*.

iii. What is the structure of the sentence (4b)?

iv. How does this structure explain the properties of (some) phrasal adjuncts in these structures?

3.1 The subject of a PP adjunct

Under the standard syntax of PP adjuncts, a PP adjunct syntactically combines with a VP to form a VP. The semantic counterpart of this analysis is the rule of Predicate Modification (Heim & Kratzer 1998, section 4.3). Thus in:

(12)   John was [$_{VP}$ [$_{VP}$ sleeping] [$_{PP}$ in the barn]].

sleep and *in the barn* combine to form a complex predicate holding of *John*. In other words (because this adjunct is an intersective modifier), the meaning is that John was sleeping and John was in the barn: The subject of the PP is understood to be *John*. But consider:

(13)   A cow is missing in the barn

This does not mean that a cow is missing and is in the barn. Alternatively, total reconstruction of *a cow* inside the scope of the verb *miss*, a conceivable and plausible option, congruent with *miss* being unaccusative, would leave the VP without a subject, hence the PP unsaturated. So this is not viable either.

Rather, (13) means that the barn is missing a cow or to put it more closely to the surface syntax, a "missing" is occurring in the barn, which is a missing of a cow. I will take this to mean that the subject is the expression denoting the missing (of a cow). More concretely, I will take it that the underlying VP [$_{VP}$ *a cow miss*] denotes the definite or indefinite "event" "the missing of a cow" or the indefinite "event" "a missing of a cow". I will also take it that this VP is the subject of the PP *in the barn*.

(14)   [$_{PP}$ [$_{VP}$ a cow miss] [in [the barn]]

In particular, no argument of the verb need meet the locative property denoted by the adjunct. Only the event denoted by the VP does.

3.2 Properties of adjuncts

The standard syntax of PP adjuncts as in (15) is meant to encode and allow a number of properties these adjuncts have.

(15)   a.   [$_{XP}$ [$_{XP}$ [$_{XP}$ [$_{XP}$ ... X^0 ...] adjunct] adjunct] adjunct]

b. [$_{VP}$ [$_{VP}$ [$_{VP}$ [$_{VP}$ ... [$_{V^0}$ sleep] ...] [like a log]] [in the barn] [in the afternoon]]

c. [$_{NP}$ [$_{NP}$ [$_{NP}$ [$_{NP}$ ... [$_{N^0}$ student] ...] [in a red shirt]] [with long hair]] [from Namibia]]

(16) a. Adjunction conserves the identity of the adjunction site: Adjunction to an X^n (n perhaps limited to max) returns (or perhaps more precisely can return) an n level projection, of the same category X with the same (token) head as X^n.

b. Adjuncts to an X^n are (or can be) selected by X^0 (as in, e.g., duration PP adjuncts only compatible with non telic predicates).

c. Adjunction is optional.[6]

d. (Some but not all) adjuncts (unlike arguments) can be unboundedly iterated (e.g., the *with* phrase in (15c) (the lack of iterability very possibly due to semantic incoherence rather than selectional constraints).

The main effect of the first property is that, an XP, seen from the outside of this XP, behaves like an XP whether or not this XP has adjuncts or not. Thus, assuming (a harmless oversimplification) that syntactically, T selects a VP, T will see this VP whether or not the VP is modified. Taking into account these properties as well as the conclusion of Section 3.1, we reach a seeming contradiction. For the sentence (4b), we simultaneously want the two structures:

(17) a. [$_{VP}$ [$_{VP}$ sleep] [$_{PP}$ in the barn]]
b. [$_{PP}$ [$_{VP}$ sleep] [in [the barn]]]

3.3 The structure of adjunction

To solve this contradiction, it suffices to merge the two structures by allowing the VP to occur twice, once as subject of the PP and one outside of it:[7]

(18) [$_{VP}$ [$_{VP^1_k}$ sleep] [$_{PP}$ [$_{VP^2_k}$ sleep] [in the barn]]]

But what kind of structure is this? It is the syntactic structure created by the device that allows a constituent—here the PP—to be seen from its outside as one of its

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6 This does not mean that the property type of the adjunct is optional. Thus sleeping does take place at some time or in some place, e.g., regardless of the presence of a temporal or locative adjunct. This suggests that an event introduces time and place variables existentially closed without restriction (other than pragmatic domain restriction). Adjuncts provide explicit restrictions.

7 Throughout, I will represent these relative structures as "externally" headed (by which I do **not** mean not derived by promotion), although nothing here precludes treating some of them as internally headed.

subconstituents—here the VP subject of PP. This device is of course relativization, the syntactic counterpart of a semantic operation shifting the type of a constituent to one of its subconstituents. In the standard case of a relative clause, a relative clause is seen from the outside as one of the NPs it contains. Accordingly the structure in (18) involves VP relativization with VP_k^2 controlled by or trace of VP_k^1, and thus silent.

It should be clear that adjunction as relativization can derive all the properties listed in (16):

i. Adjunction conserves the identity of the adjunction site because a relative clause headed by an XP behaves like that XP.

ii. Selection is of the VP, hence of the V by the prepositional head of the PP adjunct.

iii. A VP, e.g., can appear as a bare complement of T or as the head of a VP relative, optionally, hence the optionality of adjuncts.

iv. Iterability comes from the fact that relatives clauses can be stacked. Thus, the derivation of (19a) involves the stacking derivational steps in (19b) and (19c) as in Kayne 1994, much as in (19d):

(19) a. [sleep in the barn in the afternoon]
      b. [sleep$_m$ [t_m in the barn]]
      c. [[sleep$_m$ [t_m in the barn]]$_k$ [t_k [in the afternoon]]]
      d. [[man$_m$ [you saw t_m]]$_k$ [that I knew t_k]]

The type of relative clause involved is what is sometimes called a reduced relative as the italicized strings in:

(20) a. The *people arrived at the station* are ready.
      b. I met a *man happy to sing*.
      c. Here is a *student from Namibia*.
      d. *A sleeping in the barn.*

DP relativization and what it can pied pipe (DPs, PPs, or even VPs as in Italian) or degree relativization (aka comparatives) which pied pipes DPs, are in principle unbounded. Relativization in reduced relatives is strictly bounded and limited to the relativization of the highest subject (or highest argument) of the relative constituent, a general fact that remains unexplained.

4 Relatives

We reanalyzed (some) adjunction structures in terms of relativization. But if relatives are themselves adjunction structures, we have not eliminated adjunction structures. Whether they are depends on how relatives are structurally analyzed. There are two classes of a priori viable analyses.

In promotion analyses of relative clauses (RC), the peripheral head of the RC originates inside the RC. It is clear that promotion analyses do not need adjunction; rather, they need double movement, first of a *wh*-DP to the periphery of the RC, followed by subextraction of the head NP of this DP further up (see, e.g., Kayne 1994, Bianchi 1999, or de Vries 2002). These movements take place all within a constituent, e.g., a CP, complement of a D:

(21) $D [_{CP} [NP_m \ldots [D \, t_m]_k [\ldots t_k \ldots]]]$

In matching analyses of RCs on the other hand, the external head of the relative is first merged outside of the RC with the RC adjoined to it in one way or another. If adjunction is to be eliminated, matching should not be available. This is what I argue in Sportiche 2017b to which I refer the reader.[8]

5 Concluding remarks

The approach presented here exemplified by structures such as (18) syntactically encodes rather transparently one aspect of Davidsonian event semantics, namely that the locative PP is predicated of the event denoted by the VP. This approach is outlined rather than explored in depth and thus leaves open many questions. One such question is that of adjunct order and hierarchy: adjunct PPs typically display a neutral order (e.g. in a sentence with broad focus responding of a general out of the blue question of the type *So what's new?*). Following Cinque (1999), we take this to reflect the fact that different adjuncts are predicated of different constituents in far more finely articulated structures. This extends to adjunct clauses, e.g. *because* or *since* introduced clauses, see Charnavel to appear.

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8 Rules of interpretation should of course be provided for these non adjunction structures. A revised version of Predicate Modification could be used, but it is also possible to devise rules relying only on Functional Application, I think.

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A new form of sideward movement

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1 The puzzle: Lack of island effects with multiple clefts

Since Hoji's (1987) important work on Japanese clefts, it has been well known that they show effects of syntactic movement. One such effect is sensitivity to islands. Thus, if there is an island between the focus element and its original position, the sentence is degraded. This is shown in (1b), where the bold-faced phrase is a focus and the underline shows its original position, and they are separated by a complex NP. The sentence in (1b) is degraded, as compared with the fully acceptable sentence in (1a), where there is no island between the focus and its original position.

(1)   a.   Ken-ga   [Mari-ga __ hon-o   ageta to] omotteriu no-wa
               Ken-NOM Mari-NOM   book-ACC gave C think   C-TOP
               Masao-ni   da.
               Masao-DAT COP
               'It is to Masao that Ken thinks that Mari gave a book.'
      b. ??Ken-ga   [Mari-ga __ hon-o   ageta toyuu uwasa]-o
               Ken-NOM Mari-NOM   book-ACC gave C   rumor-ACC
               sinziteiru no-wa **Masao-ni**   da.
               believe   C-TOP Masao-DAT COP
               'It is to Masao that Ken believes the rumor that Mari gave a book.'

In (1) the focus position has one phrase (a single cleft). However, Japanese also allows the focus position of the cleft to have more than one phrase (multiple clefts). Interestingly, multiple clefts behave differently from single clefts with respect to island effects. Compare (1b) with (2).

(2)   a.   Ken-ga   [Mari-ga ageta toyuu uwasa]-o   sinziteiru no-wa
               Ken-NOM Mari-NOM gave C   rumor-ACC believe   C-TOP
               Masao-ni **hon-o**   da.
               Masao-DAT book-ACC COP
               'It is to Masao a book that Ken believes the rumor that Mari gave.'

b. Ken-ga   [Mari-ga   ageta toyuu uwasa]-o   sinziteiru no-wa
    Ken-NOM Mari-NOM gave C   rumor-ACC believe C-TOP
    hon-o   Masao-ni da.
    book-ACC Masao-DAT COP
    'It is a book to Masao that Ken believes the rumor that Mari gave.'

The examples in (2) are fairly acceptable, in contrast to the example in (1b).

   We see the same effects with adjunct islands. The example in (3) is degraded, as expected, but those in (4) improve significantly.

(3)   ?*Ken-ga   [Mari-ga   hon-o   watasu maeni] kaetta no-wa **Masao-ni**
      Ken-NOM Mari-NOM book-ACC hand   before left   C-TOP Masao-DAT
      da.
      COP
      'It is to Masao that Ken left before Mari handed a book.'

(4)   a. Ken-ga   [Mari-ga   watasu maeni] kaetta no-wa **Masao-ni**
          Ken-NOM Mari-NOM hand   before left   C-TOP Masao-DAT
          hon-o   da.
          book-ACC COP
          'It is to Masao a book that Ken left before Mari handed.'
      b. Ken-ga   [Mari-ga   watasu maeni] kaetta no-wa **hon-o**
          Ken-NOM Mari-NOM hand   before left   C-TOP book-ACC
          Masao-ni da.
          Masao-DAT COP
          'It is a book to Masao that Ken left before Mari handed.'

   These facts show that multiple clefts, unlike single clefts, do not show island effects. This property of Japanese multiple clefts has been unnoticed and none of the previous analyses can account for it. There are two major approaches to Japanese multiple clefts. One approach claims that multiple clefts involve multiple movement (Cho et al. 2010, Hiraiwa & Ishihara 2012). Thus, in this approach the example in (2a), for instance, involves two movements, movement of one object and movement of the other object. It is mysterious, however, that whereas movement of a single element shows island effects, movement of multiple elements does not.

   The other approach argues that what moves to the focus position of multiple clefts is actually a single constituent (Koizumi 2000, Kuwabara 1996, Takano 2002). There are two varieties of this approach. Koizumi (2000) and Kuwabara (1996) propose that what appears in the focus position is a verb phrase (or a higher projection) out of which the verb has raised. In this analysis, what undergoes move-

ment is a verb phrase, but movement of verb phrases is known to show island effects:

(5)   John said he'd win the race and…
       a. ??win the race I believed the claim that he did.
       b. ?*win the race he went to London after he did.   (Roberts 1990)

Thus, this analysis cannot capture the lack of island effects with multiple clefts.

The other variety of the single constituent approach to multiple clefts has been proposed by Takano (2002). Takano claims that what occurs in the focus position is a constituent made up of the focus elements themselves. Specifically, Takano proposes that the focus position in (2a) has a constituent formed in the course of the derivation by adjoining one object to the other. Takano calls such unusual constituents "surprising constituents" and claims that surprising constituents, just like standard constituents, undergo movement in multiple clefts. If so, however, there is no reason to believe that surprising constituents behave differently from standard constituents in terms of the effects of movement.[1]

Thus, the existing analyses cannot explain why multiple clefts, unlike single clefts, do not show island effects.

2   Surprising constituents formed by sideward movement

I will propose a new analysis of multiple clefts that accounts for the lack of island effects. To do so, I will first adopt an analysis of single clefts proposed originally by Hasegawa (1997) and developed by Hiraiwa & Ishihara (2012). This analysis connects the single cleft sentence in (6) with the noncleft sentence in (7).

(6)   Ken-ga   hon-o   ageta no-wa **Mari-ni**   da.
       Ken-NOM book-ACC gave C-TOP Mari-DAT COP
       'It is Mari that Ken gave a book to.'

(7)   Ken-ga   Mari-ni   hon-o   ageta no da.
       Ken-NOM Mari-DAT book-ACC gave C COP
       'It is that Ken gave a book to Mari.'

---

1 Agbayani et al. (2015) propose that multiple scrambling in Japanese occurs in the phonological component. One consequence of this analysis is that it accounts for the lack of island effects with multiple scrambling. However, their analysis is crucially based on the claim that multiple scrambling does not affect semantic interpretation. Thus, their analysis of multiple scrambling cannot be extended to the issue here since multiple clefts, being a focus construction, do have interpretive effects.

Specifically, this analysis derives (6) from the base form of (7) in the following way (the material surrounded by angled brackets indicates unpronounced copies):

(8) a. Ken-ga Mari-ni hon-o ageta no da → focus movement of *Mari-ni*
     b. **Mari-ni** [ₓ Ken-ga ⟨Mari-ni⟩ hon-o ageta no] da → topicalization of X
     c. [ₓ Ken-ga ⟨Mari-ni⟩ hon-o ageta no-wa] [**Mari-ni** ⟨X⟩ da]

The surface form of (8c) corresponds to the cleft sentence in (6). The details of the structure of the cleft in this analysis do not concern us (see the above-cited references for possible structures). Crucial for our present purposes is step (8b), where *Mari-ni* moves to the focus position, which I assume to be $SpecC_{Foc}$. This movement is sensitive to syntactic islands and if it crosses an island, the cleft sentence is degraded.

How do multiple clefts arise? Here I pursue Takano's (2002) idea that multiple elements in the focus position form a single constituent made up of those elements (a surprising constituent), but implement it in a different way. I propose that surprising constituents are formed by sideward movement (Hornstein 2001, Nunes 2004). Hornstein (2001) analyzes the relation between the matrix subject and the underlined position of the adjunct clause in (9) in terms of sideward movement, as shown in (10).

(9) John heard Mary [without __ entering the room].

(10) a. [heard Mary]
         [without John entering the room]
         → Merger of *John* and the matrix clause (sideward movement of *John*)
     b. [John heard Mary]
         [without ⟨John⟩ entering the room]
         → Merger of the adjunct clause and the matrix clause
     c. [[John heard Mary] [without ⟨John⟩ entering the room]]
         → Derivation proceeds to construct the rest of the matrix clause

Sideward movement, like standard movement, is carried out by Merge. However, unlike standard movement, which involves internal Merge (IM), sideward movement involves external Merge (EM). EM is merger of two independent syntactic objects (SOs), whereas IM is merger of two SOs one of which comes from inside the other. Now notice that sideward movement is merger of two SOs one of which comes from inside another SO. Thus, in (10) merger of *John* with the matrix clause, forming (10b), is an instance of sideward movement and is carried out by EM. *John*

moves from the adjunct clause to the matrix clause that exists independently of the adjunct clause.

Recall that sideward movement involves EM merging two SOs one of which comes from inside another SO. Suppose we generalize this property so that EM can merge two SOs *both of which* come from inside another SO. This is a new form of sideward movement and I propose that this form of sideward movement derives surprising constituents. To see how this proposal works, consider (11).

(11)   Ken-ga   ageta no-wa hon-o   Mari-ni   da.
       Ken-NOM gave C-TOP book-ACC Mari-DAT COP
       'It is a book to Mari that Ken gave.'

This cleft sentence has *hon-o* 'book-ACC' and *Mari-ni* 'Mari-DAT' in the focus position. Under my proposal, the two elements form a constituent and this constituent is created by the new form of sideward movement in the following way:

(12)   a.   [$_\alpha$ book-ACC Mari-DAT gave]
            → Merger (EM) of *book*-ACC and *Mari*-DAT, forming {*book*-ACC, *Mari*-DAT} outside α
       b.   [$_\alpha$ ⟨book-ACC⟩ ⟨Mari-DAT⟩ gave]
            {book-ACC, Mari-DAT}
            → construction of the structure up to FP
       c.   [$_{FP}$ [Ken-NOM [$_\alpha$ ⟨book-ACC⟩ ⟨Mari-DAT⟩ gave] C] C$_{Foc}$]
            {book-ACC, Mari-DAT}
            → Merger (EM) of {*book*-ACC, *Mari*-DAT} and FP
       d.   [{**book-ACC, Mari-DAT**}] [$_{FP}$ [Ken-NOM [$_\alpha$ ⟨book-ACC⟩ ⟨Mari-DAT⟩ gave] C] C$_{Foc}$]]

In (12a) α corresponds to a verb phrase. Now Merge applies to *book*-ACC and *Mari*-DAT. This means that Merge takes the two elements and combines them into the single constituent {*book*-ACC, *Mari*-DAT}. Crucially this new constituent is formed outside α, leaving copies of *book*-ACC and *Mari*-DAT inside α (if {*book*-ACC, *Mari*-DAT} were formed inside α, the result would violate the No-Tampering Condition proposed by Chomsky (2008). As a result, in (12b) {*book*-ACC, *Mari*-DAT} exists independently of α in the workspace. The constituent {*book*-ACC, *Mari*-DAT} eventually merges with FP, giving rise to (12d), where {*book*-ACC, *Mari*-DAT} appears in SpecC$_{Foc}$ and receives focus interpretation.

3   Getting around islands

Now we are in a position to solve the puzzle under consideration, namely, the lack of island effects with multiple clefts. The derivation of the multiple cleft shown in (12) corresponds to focus movement in the single cleft shown in (8b). In both cases, the focus elements end up appearing in SpecC$_{Foc}$. However, there is a crucial difference between the two regarding how they reach there. In the case of the single cleft, the focus element moves to SpecC$_{Foc}$ by means of IM (standard movement). In contrast, in the case of the multiple cleft, the single constituent made up of the multiple elements reaches SpecC$_{Foc}$ by way of EM (sideward movement).

This derivational property allows multiple clefts to evade islands. Let us consider (13), which shows a partial derivation of (2a).

(13)   a.   [$_{FP}$ Ken-NOM [$_{CNP}$ Mari-NOM ⟨Masao-DAT⟩ ⟨book-ACC⟩ gave C rumor-ACC] ... C$_{Foc}$]
{Masao-DAT, book-ACC}
→ Merger of {*Masao*-DAT, *book*-ACC} and FP

   b.   [{**Masao-DAT, book-ACC**} [$_{FP}$ ... [$_{CNP}$ ... ⟨Masao-DAT⟩ ⟨book-ACC⟩ ...] ... C$_{Foc}$]]

(13a) results from applying Merge to *Masao*-DAT and *book*-ACC, forming {*Masao*-DAT, *book*-ACC} independent of FP. Then (13b) results after Merge applies to {*Masao*-DAT, *book*-ACC} and FP. Note that in this derivation, neither *Masao*-DAT nor *book*-ACC crosses the Complex NP (CNP). They are originally contained in the CNP, but they undergo sideward movement, as a result of which they become a structure independent of the CNP in (13a). When they merge with FP in (13b), they are no longer contained in the CNP. The situation is parallel to that in (10), where *John* is originally contained in the adjunct and undergoes sideward movement, ending up in a position of the matrix clause that is no longer contained in the adjunct. The sentence in (9), even though the surface position of *John* and its original position in the adjunct clause are separated by the adjunct island, does not show island effects because of this derivation involving sideward movement. Island effects are induced by IM. However, sideward movement is carried out by EM. Due to this property, sideward movement has the effect of getting around islands. In the analysis proposed here, multiple clefts are formed by a new type of sideward movement carried out by EM, and therefore do not show island effects.

4   Conclusion

Multiple clefts in Japanese, unlike single clefts, have the curious property of not showing island effects. I have shown that this property falls into place if multiple

clefts are derived by a new form of sideward movement. Given that the lack of island effects is left unaccounted for and remains mysterious under the previous approaches, the new form of sideward movement proposed here deserves pursuing seriously.

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Scope of focused scalar items and embedded implicatures

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1 Embedded Implicature

The aim of this short paper is to evaluate the proposal to deal with embedded scalar implicatures by Geurts (2010), who is one of the most vocal advocates for the traditional 'Globalist' approach to scalar implicatures. The issue of local/embedded scalar implicatures has been a polarizing topic in recent years. Under the traditional view that was originally conceived by Grice, the generation of a conversational implicature is a post-semantic process, and it has been the most widely accepted view. There is now a competitor to the globalist approach: the localist/grammaticist thoery, represented by Chierchia (2004, 2006), Fox (2007, 2009), and Chierchia et al. (2012), and central to the debate between the two approaches are embedded/local implicature phenomena. The promotors of localism argue that scalar implicatures are generated grammatically via the presence of a implicature-inducing operator. It is a radical departure from the traditional understanding of what implicatures are, and it is not surprising that the localist/grammaticist doctrine is not universally embraced.

The presence of some phenomena relevant to embedded implicatures was noted fairly early on (e.g., the well known *Hurford's Constraint* in Hurford 1974), but their theoretical importance has increased dramatically as they began to be examined much more rigorously and systematically (cf. Chierchia 2004, van Rooij & Schulz 2004, Sauerland 2004, among others). The following are a couple of examples of embedded implicatures.

(1) a. Andy believes that some of his colleagues are crooks. ⤳ Andy believes that not all of his colleagues are crooks.

b. Every student solved some of the problems. ⤳ Every student solved some but not all problems.

The implicatures in (1) are stronger than what the Globalist approach predicts. (1a) should implicate that Andy has no firm beliefs concerning whether all of his colleagues are crooks, while the implicature in (1b) should be that not every student solved all of the problems. The Chierchia/Fox/Chierchia-et-al theory proposes that there is a sentential operator *Exh* (the term used in Fox 2007), which operates on

the set of scalar alternatives of its prejacent and negates the non-weaker alternatives in the set that are compatible with the prejacent. (2) illustrates the steps, using the sentence (1b). Here I take the liberty to simplify the proposals found in the papers listed above, as the exact technical execution of the idea is not crucial for our purpose.

(2) Every student solved some of the problems.
   a. LF: [[Every student]$_1$ *Exh* [t$_1$ solved some of the problems]
   b. Set of Alternatives under *g*: {g(1) solved none of the problems, g(1) solved some of the problems, g(1) solved all of the problems}
   c. With *Exh*: not true that g(1) solved all of the problems
   d. The end result: Every student solved some but not all problems.

2 Globalists battle back

There have been a variety of counter-proposals from the Globalist camp (e.g., Russell 2006, Geurts 2009, 2010, Geurts & Pouscoulous 2009), but I would like to focus on the analysis proposed by Geurts (2010, chapter 8). Geurts maintains that the majority of embedded can be accommodated within the Globalist framework: "…they can be accounted for in a principled way as Q-implicatures, or at any rate, as essentially involving Q-implicatures. True, we had to assume that additional factors were involved in each case, but such auxiliary assumptions as had to be made could always be motivated on independent grounds" (Geurts 2010: 181). At the same time, he acknowledges that there are some fairly clear cases of what appear to be embedded implicatures when the relevant scale-inducing items are contrastively focused. For instance, focus seems necessary to generate the Horn-scale implicatures in the following examples.

(3) a. Around here, we don't LIKE coffee, we LOVE it.
   b. I'd rather have a WARM bath than a HOT one.
                                                    (Geurts 2010: 181, (36a,b))

Geurts argues that contrastive focus is not merely an auxiliary factor but an essential ingredient for 'embedded' implicatures.

(4) a. For 'an embedded implicature' to arise (consistently), the relevant scalar item must be contrastively focused.
   b. A contrastively focused scalar item undergoes *semantic narrowing*, which makes its meaning stronger than its original meaning.

c. Thus, the strengthening with focus is a semantic phenomenon. It is not an implicature (hence, the quotation marks around embedded implicatures)

Typically, loving something entails liking something (but not vice versa). Contrasting 'like' with 'love', however, the meaning of the former undergoes semantic narrowing — it narrows down to 'like but not love'. Going back to one of the previous examples, it is indeed true that focusing helps the embedded implicature become prominent (although my informants are unsure if focus is absolutely necessary).

(5) Every student solved SOME of the problems.

In this example, there is no overt 'antecedent' with which *some* contrasts, but with heavy stress on it, it is fairly clear that the speaker intends to contrast it with another quantifier, most likely with *every* or *all*. Then, the focused quantifier is assumed to acquire the strengthened meaning: *some but not all*.

3 Intermediate scope and intermediate implicature

Let us now examine what is predicted by Geurts' proposal. Since the relevant 'embedded implicatures' are tied to the semantically narrowed lexical meanings of focused scalar items, the scope of implicatures are tied to the scope taking possibilities of the scalar items (although the matrix implicatures are predicted to be available all the time, regardless of the scope of the scalar item). In this regard, we will examine of the status of intermediate implicatures.

When a scalar item is doubly embedded, there are potentially three different implicatures depending on where the computing of implicatures takes place. Consider the following example, where a focused *some* is embedded deeply.

(6) In City A, every school requires that the students read SOME of the *Harry Potter* books. In City B, on the other hand, every school requires that the students read ALL of them.

a. Global: Not every school requires that the students are required to read all the textbooks.

b. Intermediate: Every school allows the students to read all the *Harry Potter* books (i.e., the students who read all of them should not be penalized).

c. Local: Every school requires the students not to read all the *Harry Potter* books (i.e., reading of all of them is not a good thing to do).

It is not clear, as far as my consultants' judgments are concerned, whether all the three readings are equally available, but importantly, the intermediate reading seems

to be the most easily detected. The situation becomes rather different if the presumed semantic meaning of the focused *SOME* is explicitly stated:

(7)   a.   Every school requires that the students read some but not all of the *Harry Potter* books.

       b.   Every school requires that the students read only some of the *Harry Potter* books.

In these sentences, the most salient reading (and the only available reading for many) is the local interpretation: The students should not be allowed to read all of the *Harry Potter* books. The difference between (6) and (7) is not expected under Geurts' semantic narrowing account. With all things being equal, the two quantifiers, the focused *some* and the fully spelled out versions *some but not all, only some*, should behave the same.

(6) also contrasts quite sharply with the following sentences where the relevant 'intermediate' readings are available with the *some but not all* and *only some*.

(8)   a.   Every school requires the students to read some but not all of the *Harry Potter* books.

       b.   Every school requires the students to read only some of the *Harry Potter* books.

The differences between (7) and (8) are easily explained by the general fact about quantifier scope: clause-boundedness. A quantifier does not (easily) scope out of a finite clause while it can escape an infinitival clause. In order to generate the intermediate reading with *some but not all / only some*, the quantifiers must move out of finite clauses in (7), but a long-distance QR of that sort is not allowed. Therefore, the intermediate implicatures are not generated. In (8), the intermediate implicatures require QR out of infinitive clauses, which is known to be possible. The presence of the relevant implicatures is correctly predicted. The only pattern unaccounted for is (6). The intermediate reading should be absent, but it is indeed available.

There may be an objection to this characterization, however, based on the following assumption. A focused *some* may have the semantics of *some but not all* but retains the privilege of the simple *some* in that it can take exceptionally high scope, possibly due to the availability of the choice function strategy (Reinhart 1997, Matthewson 2001, among others). Let us check, therefore, with *most*, a quantifier that does not have the choice function strategy as an option but still generates the relevant implicature.

(9)   In City A, every school requires that the students read MOST of the *Harry Potter* books. In City B, on the other hand, every school requires that the students read ALL of them.

The result is the same. The intermediate implicature is available and seems to be the most salient reading of the three. The explicitly spelled version of this focused *most*, shown below, does not have the relevant intermediate reading.

(10)   Every school requires that the students read most but not all of the *Harry Potter* books.

The data examined above show that (i) a focused scalar quantifier can induce not only the most local implicature but also the intermediate implicature, but that (ii) the explicitly strengthened version of the same quantifier does not generate the intermediate reading unless the intermediate scope is independently available for the quantifier, and that (iii) a strategy for exceptional high scope, such as the choice function strategy, is not responsible for the presence of an intermediate implicature. Therefore, Geurt's (2010) analysis based on semantic narrowing cannot account for the intermediate implicatures generated by embedded focused scalar items.

4   Conclusion

One of the main objections to the Localist/Grammaticist approach to scalar implicatures is that it over-generates. The criticism of the Globalist approach is the opposite: it under-generates. Geurt's proposal of focused scalar items is designed to solve this under-generation problem. The data examined in this paper suggest, however, that it does not solve the problem, as it fails to guarantee intermediate implicatures that are present even when the focused scalar items cannot take the corresponding intermediate scope.

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The day the data went south: object adjacency in Malagasy[*]

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1 Introduction

There is a nice Malagasy fact reported in the literature (e.g., Rackowski 1998, Pearson 1998). Indefinite objects must occur adjacent to the verb, as in (1a), while definite objects allow adverbs to intervene between themselves and the verb, as in (1b).[1]

(1)   a.   <u>Manasa</u>   (*matetika) **lamba** (matetika) Rakoto.
           PRES.AT.wash (*always) cloth   (always)   Rakoto
           'Rakoto is always washing clothes.'
      b.   <u>Manasa</u>   (matetika) **ny   lamba** (matetika) Rakoto.
           PRES.AT.wash (always) DET cloth   (always)   Rakoto
           'Rakoto is always washing clothes.'

In this paper I explore this observation, show that a wider range of data suggests that there are problems with analysis (oh no!) but end on the positive note of 'we still have what we need' (whew!).

There is also a bigger issue to address — what happens when one hits a counter-example or a set of counter-examples. There are two ways to go. We can reconstruct the theoretical tools so that the counter-examples now are generated by the grammatical system. Or we can relegate these counter-examples to another mechanism that lies outside the original generative system. In the first scenario, the grammatical system is changed so that it now includes as unexceptional a larger set of data. Here the question is, in some cases, whether this larger dataset is well exemplified or if the system has been changed to accommodate a few rare examples. In the second scenario, the grammatical system remains more restrictive and the excep-

tions remain just that, exceptions. Here the question is why these exceptions exist. In the present case, I hope to show that the grammatical system itself should not be changed but rather an extra-grammatical explanation should be found for the counter-examples.

2 Why we care

Since Johnson 1991, the reason behind the adjacency of objects has been seen to be structural, not an issue of some licensing effect of a case adjacency (though see Levin 2015 for an alternative view). More specifically, adjacency is simply the effect of head movement of the verb around an object in a Spec position (and not allowing anything to adjoin to VP).

(2)   Adapted from Johnson (1991)
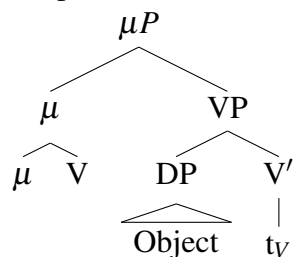
Adjacency then can be used to tell us something about structure. There is a particular contribution that this adjacency makes in understanding the syntax of Malagasy and more specifically the inventory of movements in Malagasy.

Malagasy has been argued to have roll-up (XP) movement within the predicate to account for the order of various predicate internal elements such as adverbs and direct vs. indirect objects. Both Rackowski (1998) and Pearson (1998) propose that the inverse order of predicate internal adverbs (the inverse order from, say, English) and, more relevant to this paper, the fact that definite objects appear to move rightward over adverbs in Malagasy (as opposed to leftwards over adverbs in languages such as Icelandic) can be traced to this predicate internal roll-up movement. The way that this goes is the following. Definite objects may move leftward out of the VP. The remnant VP now moves higher in the structure, perhaps over an adverb, now stranding the definite object below (and to the right of) the adverb. So it is leftward movement of the definite object out of the VP (not unlike Icelandic), followed by the leftward movement of the VP (very unlike Icelandic), which gives the appearance of rightward movement of the definite object.[2]

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2 Notice that I am waving my hands a bit here having the indefinite object as sister to the V. There are many reasons why this is probably not the way to go. One is that, given a Larsonian structure, the

(3) a.   [$_{VP}$ V Obj$_{def}$]   START
   b.   Obj$_{def}$ [$_{VP}$ V t$_{obj}$]   OBJ SHIFT
   c.   Adv Obj$_{def}$ [$_{VP}$ V t$_{obj}$]   MERGE Adverb
   d. [$_{VP}$ **V** t$_{obj}$] **Adv Obj**$_{def}$ t$_{VP}$ REMNANT MOVE VP

If the object is indefinite, as in (1a), however, the object must remain in-situ. After the adverb is merged, the VP still moves to the left (because Malagasy is a roll-up language), so now the V and the indefinite object will move to the left of the adverb.

(4) a.   [$_{VP}$ V Obj$_{indef}$]   START
   b.   ——————————   NO OBJECT SHIFT
   c.   Adv [$_{VP}$ V Obj$_{indef}$]   MERGE Adverb
   d. [$_{VP}$ **V Obj**$_{indef}$] **Adv**   t$_{VP}$ MOVE VP

   The story, not to mention the syntax of Malagasy, becomes more interesting when some other constructions are added to the mix. Malagasy has a verbal system that allows various arguments and adjuncts appear in the sentence final position, which I will call subject.[3] The examples we saw above had the Actor Topic (AT) form of the verb signalling that the Actor/Agent/highest argument was sentence-final. Below we see a Theme Topic (TT) form and a Circumstantial Topic (CT) form. The former is used to designate that the (non-highest argument) Theme is in the sentence-final position, and the latter that something other than the Actor or Theme (this can be an argument or an adjunct) is in this position.[4]

(5) a. Sasan-dRakoto ny   lamba.
     TT.wash-Rakoto DET cloth
     'Rakoto is washing the clothes.'
   b. Anasan-dRakoto ny   lamba ny   savony.
     CT.wash-Rakoto DET cloth   DET soap
     'Rakoto is washing the clothes with the soap.'

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object may well be in the Spec of a lower projection. Another reason truer to Johnson 1991 is that even indefinites might move to a position for some sort of (case?) licensing. I'm pushing both of these issues aside with the hope that adding details would not create problems for my account. The main thing to note is that definites can move to a position outside of the remnant that rolls up while indefinite objects cannot.

3 There is much debate around the appropriate analysis of this position. Traditionally grammarians have called this 'subject' making Malagasy a VOS language. This is the label that is easiest for the purpose of this paper. Others label this Topic (see e.g. Pearson 2005). Others might see this position as being Absolutive in an Ergative system (see Paul & Travis 2005 for a discussion).

4 I do not change what the subject is in the translations because some of the constructions, such as (5b), do not have easy English equivalents.

Now watch this. The indefinite object that was hell-bent on being adjacent to the verb in the AT construction, and would not let an adverb intervene, will, in the CT construction, allow a full DP Agent to come between it and the verb.[5]

(6)   Anasan-dRakoto lamba ny   savony.
       CT.wash-Rakoto cloth   DET soap
       'Rakoto is washing clothes with the soap.'

The conclusion that has been drawn from this (see e.g. Pearson 2005) is that here the verb moves to the left of the Agent not via roll-up (even though Malagasy is generally a roll-up language) but by head movement. What now has to be adjacent to the verb is the Agent, much in the same way that the object has to be adjacent to the verb in the structures in Johnson 1991. The Agent is in Spec*v*P and the verbal head moves over this Spec into some higher head. Here I show a somewhat simplified, nevertheless very complicated, structure. Presumably, this head movement will be preceded by some form of roll-up movement that has just been argued for. I give the simplest form of it where the VP has moved to Spec of some category (here XP). It is in the Spec just below the Spec where the Agent is (presumably Spec*v*P). The V must move out of VP to *v* then to T.[6]

(7)   Head movement and the order: V Agent Obj$_{indef}$
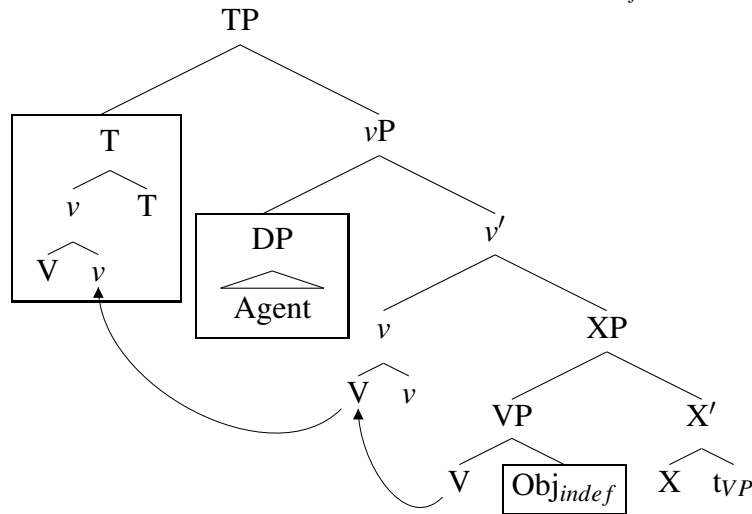
The take-home message here is that if there is roll-up (XP movement), the V and the indefinite object will necessarily be adjacent. The only type of movement that can

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5 This Agent can be very long and include large modifying elements such as Relative Clauses.

6 Note here that to preserve the previous facts about adjacency between the verb and the indefinite objects, no adverb adjunction to XP or *v*P would be allowed.

separate the V from the indefinite object is head movement. The beauty of these data is that we have an argument that we need both roll-up movement and head movement in Malagasy, and we have a way to know which one is happening where.

3   When the data went south

The type of argumentation came in handy recently in doing work on the morphology of Malagasy. For reasons too long to go into here (see Piggott & deMena Travis 2017 for details), it was important to show that verbs that express productive causatives clearly undergo syntactic head movement. Having a handy test to show this, we gave the baseline examples like (1a), (1b) and (5b) above showing (a) that XP movement cannot strand indefinite objects (see (1a)) while head movement can (see (5b)). With that background, all we have to do is to show that the productive causative form can, in the CT construction, move across the Agent undergoing a process already argued to be head movement. Below we see that exactly this can happen.[7]

(8)   Ampamaran-dRakoto   mpivarotra ny   menaka
       CT.make.measure-Rakoto seller   DET oil
       'Rakoto makes sellers measure the oil.'

Indeed, the morphologically complex verb (*an-f-an-fatra-an* → *ampamaran*) which encodes the productive causative (it's a long story) does appear to undergo head movement around the Causer, *Rakoto*, leaving behind the indefinite Causee, *mpivarotra* 'sellers'. All is good except that we decided it would be nice to have a baseline example to show that in the AT form of the complex verb, the indefinite object would have to be adjacent to the verb. The example in (9) would be appropriate example where there is an adverb between the verb and the causee. And this example should be, to make the ta-dah moment complete, ungrammatical.[8]

(9)   Mampamatra   **foana** mpivarotra ny   menaka Rakoto
       AT.make.measure always seller   DET oil   Rakoto
       'Rakoto always makes sellers measure the oil.'

However my local (Montreal) consultant found this grammatical, to our dismay. This example was left out of the paper, the paper was sent out, only missing the

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7 Here the CT construction indicates that the embedded Theme, here *ny menaka*, 'the oil', is the subject.

8 While my consultant accepted this, the preferred order is Theme > Causee. See Pearson 2000 for a reason why. As a side point, more that one of the more conservative speakers consulted subsequently has found this sentence to be ungrammatical with this positioning of the adverb. The less conservative consultants find it grammatical. For more on this, see below.

deadline by a linguist-honourable amount of time. Knowing that the baseline had been set with the less complex examples and that it was unlikely that what was head-movement for the simpler cases would stop being head-movement for the complex cases, we felt safe in that decision.

But now that the paper has been published, the question remains — what *is* this surprising response all about? A possible idea is that the adjacency requirement can be loosened across phases, and there are arguably two phases in a productive causative (see Marantz 2007) but as the following examples were tried in the order represented below, every hypothesis fell apart.

HYPOTHESIS 1: Adjacency does not hold across phases, but ... below we arguably have only one phase.

(10)   Manome   **foana** boky ny   ankizy Rakoto.
        PRES.AT.give always book DET child   Rakoto
        'Rakoto always gives books to the children.'

HYPOTHESIS 2: Adjacency does not hold when there is a lower VP (think Larson 1988), but…we can see that the adjacency relaxed even when the object is followed by an adjunct.[9]

(11)   Mamaky   **foana** boky ao   an-trano   Rakoto.
        PRES.AT.read always book there ACC-house Rakoto
        'Rakoto always reads books in the house.'

HYPOTHESIS 3: Adjacency need not hold when the object is followed by another constituent, but it turns out that, for this consultant, even if there is more material *within* the object, adjacency is relaxed.

(12)   a.   Mamaky   **foana** boky momba ny   matematika Rakoto.
             PRES.AT.read always book about   DET math   Rakoto
             'Rakoto always reads books about math.'
        b.   Mamaky   **foana** boky sy gazety   Rakoto.
             PRES.AT.read always book and newspaper Rakoto
             'Rakoto always reads books and newspapers.'

HYPOTHESIS 4: Adjacency need not hold when the object is syntactically complex, but a long object, here a compound, seems to be sufficient to turn off the adjacency requirement.

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9 Yes, there is an issue on how to deal with adjuncts in Larson, but I would have expected adjuncts to behave differently.

(13) Mahita   **foana** mpivaro-kena Rakoto.
      PRES.AT.see always seller-meat   Rakoto
      'Rakoto always sees meat sellers.'

In the end, it seems that the generalization is that short indefinite objects that were VP final had to be adjacent to the verb. This was not a particularly satisfying result.

4 Where this leaves us

With this discovery, the question becomes whether or not there is anything left. In other words, have we lost all support for the existence of head movement in Malagasy. The good news is that the baseline data holds very firm. The examples given in (1a), (1b), and (5b) continue to elicit clear judgements across speakers and across meetings. We could see signs of XP movement in (1a), (1b), and signs of head movement in (5b). Certainly strange things are happening with more complicated examples, but the simple sentences had a simple solution.

5 The lesson

There are several lessons to be taken away from this.

1. *Don't panic*: The first impression was that the original data that everyone was using, the data that we were all was passing back and forth to one another, and the data which did important heavy lifting in our understanding of Malagasy syntax was actually not based on reality. In fact, those data proved to be robust and only the extensions and complications of this data set became, well, complicated.

2. *Weak effects may become strong effects with time, distance, and language interference*: More recent discussions with linguists in Madagascar and other consultants in Montreal have clarified the issue considerably. The original observation is seen to hold (indefinite objects must be adjacent to the AT form of the verb) but as the object and the verb phrase become more complex, this restriction can be relaxed sometimes for some people. Further, the restriction becomes more relaxed the longer one is away from Madagascar (say in Montreal) and in contact with other languages (say, English and French). Linguists in Madagascar have fairly strong judgements that most of the examples in (9) to (13) are quite bad. But even they could be pushed to accept some of the longer examples.

3. *Trust the structure*: In the end, the structure wins (and Kyle was right in 1991). Structure provides the baseline and a model of competence. Performance can be

sensitive to other aspects of language such as length, but rather than throwing the baby out with the bath water, or the structural explanation out with the variable judgements, we should learn to distinguish what system our grammar machine produces and what complications are added through external interface pressures.

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Double objects again…but in Icelandic

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1 Introduction

The purpose of this paper is to illustrate the ways in which Icelandic might inform the larger debate about the nature and structure of ditransitives. The discussion in the literature on ditransitives generally has two veins — one centered around argument structure and word order and the other centered around the Person Case Constraint, the restriction on first and second person (in)direct objects that many languages display. I focus on the former and have the following three goals:[1] (1) outline the facts with respect to the allowable word orders in Icelandic ditransitives; (2) summarize the debate about the structure of English ditransitives and highlight the ways in which the analysis for English proposed in Harley 2002 aligns with the analysis for Icelandic proposed in Collins & Thráinsson 1996; and (3) illustrate how parallels between the word order in Icelandic ditransitives and the word order in other constructions in Icelandic suggest a unified analysis. I ultimately propose that the analysis in Collins & Thráinsson 1996 be amended to account for these parallels. Throughout this brief paper, I ask more questions than I answer. What is written here is not intended to be a definitive analysis in any way. Rather, this paper is a short collection of intriguing facts that have theoretical import.

The remainder of this paper is organized as follows. Section 2 provides an overview of the debate surrounding ditransitives in English. Section 3 outlines the range of complement frames and word order options in Icelandic and explores whether Harley's (2002) analysis of English plausibly extends to Icelandic. Section 4 illustrates the ways in which Collins & Thráinsson's (1996) analysis of Icelandic parallels that in Harley 2002, even though Collins & Thráinsson (1996) are attempting to account for a different set of facts. I argue against drawing this parallel. Section 5 concludes.

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[1] Collins & Thráinsson (1996) propose a variation of the PCC based on the feature composition of various heads in order to account for the allowable word orders with object shift in ditransitives. Also, some research links PCC effects in other languages with the restriction on first and second person nominative objects in Icelandic transitive constructions. (See, for instance, Rezac 2007 and Boeckx 2008 for discussion.)

2 Overview of approaches to English ditransitives

English allows both the DP–DP and DP–PP variants shown in (1) and there has been a great deal of debate about the interpretation and structure of these two complement frames.

(1)   a.   The announcer presented the wrong actor the Oscar.   DP–DP
         b.   The announcer presented the Oscar to the wrong actor.   DP–PP

In the syntax literature, this debate has been waging in earnest since Larson 1988, where it is argued that the DP–PP structure is basic and the DP–DP variant is derived via passive-like movement of the indirect object. Much subsequent work has taken issue with this approach and argues that the interpretation of these two structures is fundamentally different, and consequently, neither is derived from the other.[2] Given this general consensus, the debate now largely centers around the degree to which the interpretation of each frame is encoded in the syntactic structure.

As articulated in Rappaport Hovav & Levin 2008, there are two general approaches, the "unified multiple meaning" approach and the "verb sensitive" approach. On the unified multiple meaning approach, the DP–DP variant necessarily encodes a transfer of possession while the DP–PP variant necessarily encodes motion. This approach builds on some initial observations put forth in Green 1974 and Oehrle 1976, which propose an asymmetry in the interpretation of the two different frames. The guiding intuition, then, is that in sentences such as (1a), the wrong actor necessarily has the Oscar (even momentarily), while in (1b), the wrong actor is the intended endpoint of the Oscar, but the actor need not actually ever possess the Oscar. Crucially, on the unified multiple meaning approach, the meaning of each complement frame is the same irrespective of the individual verb. There are numerous proposals which adopt some form of the unified multiple meaning approach,[3] though the technical implementation varies and we will see that the analyses articulated in Harley 2002 and in Collins & Thráinsson 1996 follow this line of thinking.

Unlike the unified multiple meaning approach, on the verb sensitive approach there is not a one-to-one mapping between structure and meaning. Rather, the interpretation of the complement frame depends on the meaning of the verb. This approach is argued for in Rappaport Hovav & Levin 2008, some elements of which are extended in Hallman 2015. Proponents of both the multiple meaning and the verb sensitive approaches agree that there is always a possession interpretation associated with the DP–DP frame. The issue, though, lies with the DP–PP frame, which the verb sensitive approach argues has ether a possession interpretation or

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2 Though see Hallman 2015 for a derivational approach which argues that the DP–DP frame is basic and that the DP–PP frame can either be base generated or derived from the DP–DP frame.

3 Including Beck & Johnson 2004.

a motion interpretation, depending on the verb. Rappaport Hovav & Levin (2008) propose that *throw* is such a verb in English. Just as with English, we will see that Icelandic does not conclusively decide between the two approaches.

3 Overview of Icelandic ditransitives: case, meaning, and word order

The situation in Icelandic is more complex than the one in English due to a variety of factors. As is well known, Icelandic has a rich morphological case system. While the subject in a ditransitive is always nominative, the indirect and direct objects can appear in several different case combinations, as shown in (2).[4]

(2)   a.   Ég sagði þér   söguna.
             I   told you.DAT a story.ACC
             'I told you a story.'   Dat–Acc

        b.   Þeir leyndu   Ólaf   sannleikanum.
             they concealed Olaf.ACC the truth.DAT
             'They concealed the truth from Olaf.'   Acc–Dat

        c.   María óskaði Ólafi   alls   goðs.
             Maria wished Olaf.DAT everything good.GEN
             'Mary wished Olaf everything good.'   Dat–Gen

        d.   Ólafur lofaði   Maríu   þessum hring.
             Olaf   promised Mary.DAT this   ring.DAT
             'Olaf promised Mary this ring.'   Dat–Dat

        e.   Jón bað mig   bónar.
             Jon asked me.ACC a favor.GEN
             'Jon asked me a favor.'   Acc–Gen
                                          (Zaenen et al. 1985: (37))

The cross-linguistically canonical dative-accusative pattern is shown in (2a), and the overwhelming majority of ditransitives in Icelandic exhibit this pattern.[5]

    Interestingly, only some of the above case patterns allow for the DP–PP variant, and there are additional restrictions. Within the Dat–Acc case frame, DP–PP is only allowed with verbs that express physical movement of the direct object, the accusative argument (Thráinsson 2007: 174). For instance, while *gefa* 'give,' *sýna*

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4 Thráinsson (2007) also lists the two verbs for which both objects are accusative — *kosta* 'cost' and *taka* 'take.' As discussed in Zaenen et al. 1985, these might be instances of cognate object constructions as opposed to true ditransitives. Thráinsson (2007: 178) states that the second object is a measure phrase.

5 As reported in Thráinsson 2007: 173 (among others), the number of verbs exhibiting each case pattern is: Dat–Acc (at least 220); Acc–Dat (40); Dat–Gen (30); Dat–Dat (30); Acc–Gen (20).

'show,' *senda* 'send', and *fax* 'fax' all have the Dat–Acc frame, only 'send' and 'fax' allow for the DP–PP variant, as shown in (3)–(6).

(3)   a.   Haraldur   sendi mér   ost.
                Harold.NOM sent   me.DAT cheese.ACC
                'Harold sent me (some) cheese.'

        b.   Haraldur   sendi ost   til mín.
                Harold.NOM sent   cheese.ACC to me.GEN
                'Harold sent (some) cheese to me.'

(4)   a.   Þeir   föxuðu mér   samninginn.
                they.NOM faxed   me.DAT the contract.ACC
                'They faxed me the contract.'

        b.   Þeir   föxuðu samninginn   til mín.
                they.NOM faxed   the contract.ACC to me.GEN
                'They faxed the contract to me.'

(5)   a.   María gaf Haraldi   bókina.
                Mary gave Harold.DAT the book.ACC
                'Mary gave Harold the book.'

        b. *María gaf bókina   til Haraldar.
                Mary gave the book.ACC to Harold.GEN

(6)   a.   Hann   sýndi   strákunum   bátinn.
                he.NOM showed the boys.DAT the boat.ACC
                'He showed the boys the boat.'

        b. *Hann   sýndi   bátinn   til strákanna.
                he.NOM showed the boat.ACC to the boys.GEN

                                      (Thráinsson 2007: 173–174)

These facts can be taken as supporting a unified multiple meaning approach for Icelandic, since there is a clear correspondence between the complement frame and meaning: the DP–PP variants in (3) and (4) necessarily encode movement along a path. One analysis that might be extended to Icelandic is found in Harley 2002, with some aspects further defended in Harley & Jung 2015.[6] This proposal argues for a small clause approach to both DP–DP and DP–PP variants. In both frames, a causative *v* head selects for a PP complement headed by a null P. The difference lies in the semantics of this head. As schematized in (7), in the DP–DP variant, the head encodes possession and selects for a DP, while in the DP–PP variant, the null P encodes a path and selects for a PP.

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6 Responding to the proposal in Bruening 2010, Harley & Jung (2015) reject the analysis in (7b) and defend the analysis in (7a). Even still, the structure in (7b) makes for a useful comparison with Collins & Thráinsson's (1996) analysis for Icelandic.

(7)   a.

```
            vP
           /  \
              v′
             /  \
            v    PP
          CAUSE  / \
               DP   P′
               △   / \
               IO PHAVE DP
                         △
                         DO
```

b.

```
            vP
           /  \
              v′
             /  \
            v    PP
          CAUSE  / \
               DP   P′
               △   / \
               DO PLOC DP
                         △
                         IO
```

(Harley 2002: (3))
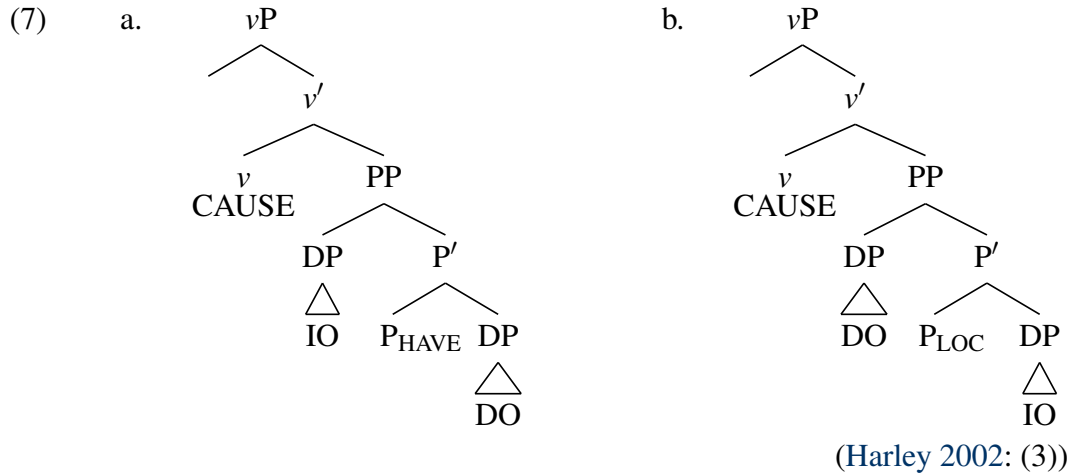
The derivation in (7a) would, therefore, be available for the (a) examples in (3)-(6), while the derivation in (7b) would only be available for (3b) and (4b). The question, then, is whether the semantics of the two structures in (7) actually extend across the range of ditransitives in Icelandic. An initial look proves inconclusive.

Pylkkänen (2002, 2008),[7] among others, challenges analyses such as the one above for English, with one argument being that the DP–DP frame need not entail possession. For instance, the possession interpretation ostensibly inherent in (1a) can be cancelled, as shown in (8a).

(8)   a.   The announcer presented the wrong actor the Oscar, but she didn't actually accept it.
      b.   The announcer presented the Oscar to the wrong actor, but she didn't actually accept it.

Harley & Jung (2015) adopt an analysis proposed in Beavers 2011, which argues that there need only be "prospective possession" in the DP–DP variant. As such, the classic contrast (discussed in early work such as Green 1974 and Oehrle 1976) between examples such as (9b) and (9d) arises because Philadelphia cannot possess the article in any possible world, unless Philadelphia is animate because it is representative of a group of people.[8]

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7 Pylkkänen (2002, 2008) argues that both objects in the DP–DP frame are merged inside of a low Applicative Phrase. Pylkkänen (2002, 2008) also contrasts the behavior of depictives in other small clauses with the behavior of depictives in DP–DP constructions to argue against the small clause analysis for ditransitives. Wood (2015) also assumes an Applicative Phrase approach for the DP–DP frame in Icelandic.

8 To be clear, Harley & Jung (2015) do not discuss these particular examples. They appear in the earlier Harley 2002.

(9)   a.   The editor sent the article to Sue.

          b.   The editor sent the article to Philadelphia.

          c.   The editor sent Sue the article.

          d. ??The editor sent Philadelphia the article.

(Harley 2002: (7))

Many of the examples that appear in the literature suggest that Icelandic imposes the same animacy restrictions on the indirect object in the Dat–Acc case pattern, and if we assume that the possession can be real or prospective, it seems as if the analysis in (7) could be extended.[9,10] The proposal gains further traction when we look at other case frames. For instance, Dat–Dat verbs also allow the DP–PP variant when there is motion, as shown in the contrast between (10b) and (11b).

(10)   a.   Ég   lofaði   henni   því
                 I.NOM promised her.DAT it.DAT
                 'I promised her it.'

          b. *Ég   lofaði   því til hennar.
                 I.NOM promised it   to her.GEN
                 'I promised it to her.'   (Thráinsson 2007: 177–178)

(11)   a.   Hún   skilaði mér   bókinni.
                 she.NOM returned me.DAT the book.DAT

          b.   Hún   skilaði bókinni   til mín.
                 she.NOM returned the book.DAT to me.GEN
                 'She returned the book to me.'   (Thráinsson 2007: 177–178)

We run into problems, however, with the Acc–Dat case pattern.[11] The DP–PP variant is allowed with some verbs even when there is not a locative interpretation, as shown in (12b).

(12)   a.   Þeir   leyndu   hana   sannleikanum.
                 they.NOM concealed her.ACC the truth.DAT

          b.   Þeir   leyndu   sannleikanum fyrir henni.
                 they.NOM concealed the truth.DAT from her.DAT
                 'They concealed the truth from her.'   (Thráinsson 2007: 174)

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9 Exploring whether the possession presupposition is defeasible in Icelandic as it is in English is an issue for future research.

10 See Maling 2002 for a detailed discussion of verbs that have dative objects.

11 Thráinsson (2007) reports that some verbs that have the Acc–Gen pattern allow the DP–PP variant, but this sometimes changes the meaning. The Dat–Gen pattern is very restricted and sometimes only used with fixed expressions (p. 176–178).

(12a) could be accommodated if we allow for the P in (7a) to encode HAVE or NOT-HAVE (an idea briefly mentioned in Beck & Johnson 2004, fn. 4). However, we are left with the problem that *leyna* 'conceal' does not signify physical movement, yet (7b) is allowed. What we see, then, is that *leyna* patterns like *skila* 'return' not like *lofa* 'promise.' It is likely not insignificant that the preposition 'from' is used instead of 'to.' Rappaport Hovav & Levin (2008) discuss the ways in which prepositions interact with verbs in the DP–PP variant in English. Recall that on the verb sensitive approach, the meaning of the DP–PP variant can vary according to the verb, and the pattern above provides some basis for this approach to Icelandic. Additionally, some Icelandic examples might challenge the idea that the DP–DP variant necessarily has a (not) possession meaning, as evidenced by the animacy restriction in English. The sentence in (13) has an Acc–Dat case frame and the indirect object has conditional animacy in the same way that 'Philadelphia' does in (9).

(13)   Meiriihlutinn   varði   stjórnina   falli.
        the majority.NOM protected the government.ACC fall.DAT
        'The majority protected the government from falling.'

                                                (Thráinsson 2007: 174)

More research is needed in order to determine when seemingly inanimate indirect objects are allowed and to determine if the DP–DP variant always encodes (not) possession.

    Some answers may be found in the observations discussed in Jónsson 2000. This work explores the relationship between case and theta roles in Icelandic ditransitives, focusing mostly on the DP–DP variant. Jónsson (2000) proposes a three-way distinction between the theta roles that indirect objects can bear. Recipient and benefactive indirect objects have dative case, while indirect objects that are targets can have either dative or accusative case. Though a target is only defined as a DP which is neither a recipient nor a benefactive, Jónsson (2000) states that targets may be abstract entities. While *stjórnina* 'the government' in (13) is a target, the question remains as to whether abstract entities can be possessors.

    We see, then, that it is not clear if the unified multiple meaning approach, the verb sensitive approach, or some other approach is best for Icelandic. Perhaps the unified multiple meaning approach applies to verbs that have either the Dat–Acc or the Dat–Dat case frame, while another approach is needed for the Acc–Dat case frame. In the next section, we explore a conundrum which has less to do with argument structure than with word order.

4 Object inversion

The facts in Icelandic are further complicated by the phenomenon of object inversion, in which the direct object precedes the indirect object and yields an Acc–Dat surface pattern. This is a marked order that is only allowed with verbs that normally have a Dat–Acc case pattern.[12] Interestingly, some verbs which do not allow the DP–PP variant do allow the inverted order. Even though we saw in (6b) that *sýna* 'show' bans the DP–PP variant, both the Dat–Acc and the Acc–Dat orders are allowed in (14).

(14) a. Þau sýndu foreldrunum   krakkana.
          they showed the parents.DAT the kids.ACC
          'They showed the parents the kids.'
      b. Þau sýndu krakkana   foreldrunum.
          they showed the kids.ACC the parents.DAT
          'They showed the kids to the parents.'

<div align="right">(Collins & Thráinsson 1996: (44))</div>

Crucially, the interpretation of the inverted order is the same as the interpretation if there were a DP–PP variant, even though there is no preposition in (14b).

Collins & Thráinsson's (1996) analysis of constructions such as (14) predates the adoption of *v*P as a standard component of syntactic derivations, but the fundamental principles are the same as those in Harley (2002). Building on Falk 1990, Collins & Thráinsson (1996) argue that the inverted order is not derived by movement. Rather, the two structures are base generated. As in the analysis in (7), for Collins & Thráinsson (1996), ditransitives have a causative interpretation. A null causative verb selects for a small clause — in their analysis, a TP. That TP contains a VP whose head decomposes into the ditransitive verb plus either HAVE or BE.[13] HAVE selects for a DP and BE selects for a PP, as shown in (15).

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12 Other salient properties of inversion are that it isn't rightward extraposition of the indirect object and the indirect object bears some stress (Collins & Thráinsson 1996: 416–418).

13 See the discussion in Section 5 of Collins & Thráinsson (1996) for a detailed explanation of the nature of the lexical decomposition of the verb.

(15)   a.

```
              VP
             /  \
               V′
             /    \
           V        TP
         CAUSE    /    \
               T      AgrP
                     /    \
                  Agr      VP
                         /    \
                       DP      V′
                       /\     /  \
                      IO  V_HAVE  DP
                                  /\
                                 DO
```

b.

```
              VP
             /  \
               V′
             /    \
           V        TP
         CAUSE    /    \
               T      AgrP
                     /    \
                  Agr      VP
                         /    \
                       DP      V′
                       /\     /  \
                      DO  V_BE    PP
                                 /  \
                            (P_null)  IO
```
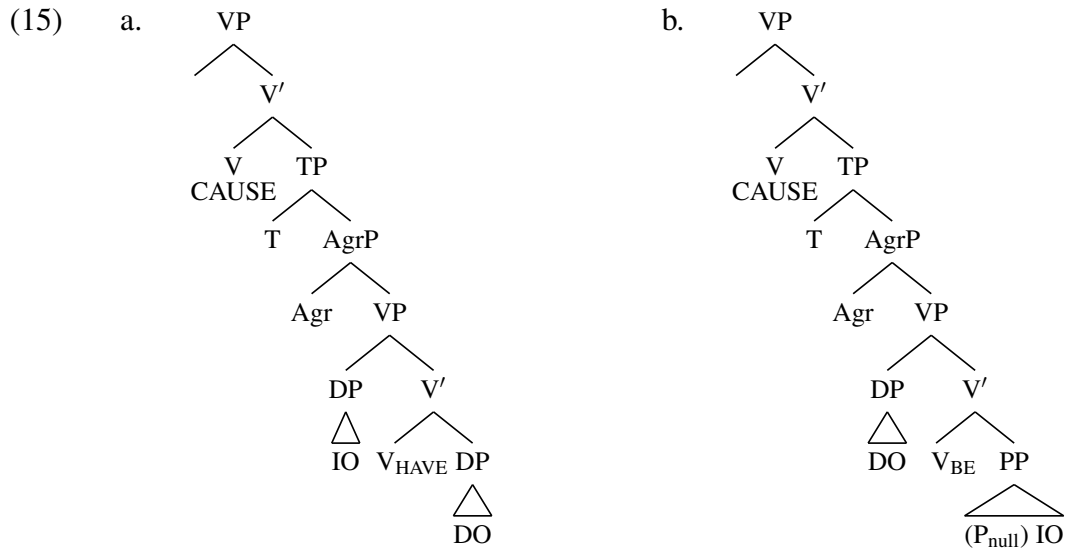
(based on Collins & Thráinsson 1996: (17) and (65))

While in (7) there is a null P head in both structures, only the inverted structure in (15b) has a null P head. Collins & Thráinsson (1996) do not explicitly address the DP–(overt) PP variant, but it seems as if (15b) would extend to some of these constructions, especially given the semantic restrictions of some DP–PP variants in Icelandic. V_{BE} can be seen as analogous to Harley's (2002) V_{LOC}. The crucial point, though, is that Collins & Thráinsson (1996: 420) assume that the DP–PP variant and inversion have the same structure.

Collins & Thráinsson's (1996) overall goal is to provide an account of object shift in Icelandic. In doing so, they illustrate that inversion of the sort shown in (14b) is not the same as object shift. Object shift in Icelandic generally obeys Holmberg's Generalization and requires verb movement to T, which occurs in both constructions in (16). In (16a), both the verb and the object shift over negation. In (16b), only the verb moves and the object remains in-situ. The pattern in (16) contrasts with that in (17), in which the auxiliary occupies T, thus preventing the verb from moving there. Consequently, object shift is blocked in (17a) and in the ditransitive constructions in (18b) and (18c).

(16)   a.   Jón   las bækurnar   ekki.
            John.NOM read the books.ACC not
            'John did not read the books.'
       b.   Jón   las ekki bækurnar.
            John.NOM read not   the books.ACC
            'John did not read the books.'

(Collins & Thráinsson 1996: (2))

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(17)   a.   *Jón   hefur lesið bækurnar   ekki.
              John.NOM has   read the books.ACC not

         b.   Jón   hefur ekki lesið bækurnar.
              John.NOM has   not read the books.ACC

<div align="right">(Collins & Thráinsson 1996: (5d,e))</div>

(18)   a.   Ég   hef ekki lánað Maríu   bækurnar.
              I.NOM have not lent   Maria.DAT the books.ACC

         b.   *Ég   hef Maríu   ekki lánað bækurnar.
              I.NOM have Maria.DAT not   lent   the books.ACC

         c.   *Ég   hef Maríu   bækurnar   ekki lánað.
              I.NOM have Maria.DAT the books.ACC not   lent

<div align="right">(Collins & Thráinsson 1996: (20) & (22))</div>

If the main verb does move to T in a ditransitive, then the indirect object can shift alone or it can shift with the direct object. In both situations, though, the indirect object precedes the direct object in the grammatical versions of (18b) and (18c) (which would not have the auxiliary).

By contrast, inversion does not obey Holmberg's Generalization. The direct object precedes the indirect object and this order is allowed irrespective of whether the main verb moves to T, which it does not do in (19). The binding facts in (19) provide additional evidence that the indirect object c-commands the direct object in the standard word order in (19a) and the direct object c-commands the indirect object in the inverted order in (19b).

(19)   a.   Ég   hafði gefið konunginum$_i$ ambáttina   sína$_i$.
              I.NOM had   given the king.DAT the maidservant.ACC his.REFL
              'I had given the king his maidservant.'

         b.   Ég   hafði gefið ambáttina$_i$ konungi sínum$_i$.
              I.NOM had   given the maidservant.ACC king.DAT her.REFL
              'I had given the maidservant to her king.'

<div align="right">(Collins & Thráinsson 1996: (50))</div>

Assuming that a more contemporary tree structure, which includes vP and does not include AgrP, is on the right track, we are left with the question of why inversion is sensitive to case frames, especially given current thinking that case need not be assigned in a strictly local configuration—if case is even assigned in the syntax at all. While the Dat–Dat and Acc–Dat frames allow the DP–PP variant, these frames do not allow inversion. It is also worth noting that with the Dat–Acc frame,

either object can passivize, as shown in (20),[14] whereas only the indirect object can passivize with the other case frames.

(20)   a.   Konunginum voru gefnar ambáttir.
              the king.DAT were given maidservants.NOM
              'The king was given maidservants.'
        b.   Ambáttir   voru gefnar konunginum.
              maidservants.NOM were given the king.DAT
              'Maidservants were given to the king.'

                              (Zaenen et al. 1985: 44, slightly modified)

What we see, then, is that only the Dat–Acc frame allows inversion and passivization of either object. Returning to the allowable case frames shown in (2) — Dat–Acc, Acc–Dat, Dat–Gen, Dat–Dat, Acc–Gen — the Dat–Acc frame is also the only pattern in which a non-structural case is followed by a structural case. A similar situation exists with transitive verbs that can have either a Dative subject and Nominative object or a Nominative subject and Dative object.

"Symmetric" verb constructions such as in (21) are discussed in detail in Wood & Sigurðsson 2014.[15]

(21)   a.   Mér   hafa alltaf nægt   tvennir skór.
              me.DAT have always sufficed two.pairs shoes.NOM
        b.   Tvennir skór   hafa alltaf nægt   mér.
              two.pairs shoes.NOM have always sufficed me.DAT
              'I have always made do with two pairs of shoes.'

                                    (Wood & Sigurðsson 2014: (2))

On their proposal, the Dat-Nom ordering is the underlying structure for both constructions in (21). The timing of various head movement operations either makes the Nominative equally distant from T or not. If the Nominative is equidistant, then either the Nominative or the Dative can raise to subject position.[16] Wood & Sigurðs-

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14 The auxiliary and the passive participle agree with the nominative, irrespective of whether it is the subject or object. See Sigurðsson & Holmberg 2008 and Ussery 2009, to appear for discussion of agreement with nominative objects in active sentences and Ussery 2015 for agreement with nominative objects in passives.

15 See also Barðdal et al. 2014 for an analysis couched within the Sign-Based Construction Grammar framework.

16 More technically, Wood & Sigurðsson (2014) propose that the Dative and Nominative are merged inside an Applicative Phrase which is complement to V. In symmetric constructions, the applicative head moves to V and the Appl-V complex moves to *v*. This movement causes the dative and the nominative to be equidistant from any c-commanding heads. As such, either the dative or the nominative can move to subject position. In asymmetric constructions, those in which only the structurally highest argument can move to subject position, the Appl head does not move to V, so the dative and the

son (2014) also discuss the inversion and passivization patterns illustrated above, and it seems like an approach which unifies these phenomena with symmetric verb constructions might be fruitful.

While it is clear that inversion should be treated separately from object shift, it is not clear that inversion should have the same analysis as the DP–PP variant. Collins & Thráinsson's (1996) motivation for the two structures in (15) is based in part on the binding facts in (19), but perhaps something akin to Wood & Sigurðsson's (2014) equidistance analysis could allow for the Acc–Dat structure to be derived from the Dat–Acc structure. This would mean that the binding relationship in (19a) is established before movement while the binding relationship in (19b) is established after movement and a fully-articulated analysis would have to explain this — but the Acc–Dat structure in (19b) is the marked option, after all. Dehé (2004) reports the results of studies which found that the Dat–Acc order is strongly preferred even when factors such as phonological heaviness and animacy have been controlled for.[17] Perhaps the undesirability of forcing a post-movement binding relationship contributes to the markedness of the Acc–Dat structure.

5 Conclusion and future directions

To summarize, I have illustrated that the argument structure and word order facts surrounding Icelandic ditransitives have theoretical import and should be further investigated. First, we have seen that while there are a variety of case combinations for direct and indirect objects, only some of these allow for the DP–PP variant. An initial evaluation suggests that a unified multiple meaning approach might capture the patterns for verbs that have either the Dat–Acc or Dat–Dat case frame, while another approach is needed for verbs that have the Acc–Dat case frame. The question remains, though, as to whether the DP–DP variant necessarily encodes possession. Second, I have shown that ditransitives which allow object inversion are similar to ditransitives that allow either object to passivize and similar to transitives that allow either argument to surface in subject position. In the underlying structure for all three of these constructions, a non-structurally case-marked argument is followed by a structurally case-marked argument. This suggests that movement operations are somehow sensitive to the structural/non-structural case distinction and challenges models in which syntactic operations do not make reference to case. I leave all of these questions for further research.

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nominative are not equidistant from T. Therefore, only the structurally higher dative can move to subject position.

17 Dehé (2004) provides an Optimality Theory-based account which contrasts the ordering in Icelandic with that in German.

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Sluicing as sharing*

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1 Introduction: ellipsis-antecedent mismatches vs. morphological case

One of the central questions in the literature on sluicing — and ellipsis in general — concerns the nature of the identity relation between an ellipsis site and its antecedent (Vicente to appear, Merchant to appear). Consider the example in (1).

(1)   Kyle insisted on eating nattō, and I couldn't understand why __.

It seem plausible that the sluicing site (indicated by the underscore) contains something like 'Kyle insisted on eating nattō' by virtue of being identical to the clause in the first conjunct, but what is less clear is whether this identity relation is a syntactic or a semantic one. One type of argument that is frequently used in this respect revolves around mismatches between the ellipsis site and its antecedent: if they can be shown to differ in form, but not in meaning, then this is an argument in favor of a semantic identity requirement, while if a change in form with no effect on the meaning results in ill-formedness, the identity relation is arguably formal-syntactic in nature. An area where such mismatches are readily detectable concerns (apparent) violations of the Preposition Stranding Generalization (PSG; Merchant 2001: 92):

(2)   A language *L* will allow preposition stranding under sluicing iff *L* allows preposition stranding under regular *wh*-movement.

The PSG states that there is a correlation between the optional or obligatory presence of prepositions in sluiced *wh*-phrases on the one hand and the possibility of preposition stranding in non-elliptical *wh*-questions on the other. While the PSG is cross-linguistically well supported, some of the judgments and footnotes in Merchant 2001: 94–100 already make clear that it is not always as well-behaved as one would like. Consider the Spanish data in (3) and (4).

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(3) *Qué chica rubia ha hablado Juan con?
     what girl   blonde has talked Juan with
     INTENDED: 'What blonde girl did Juan talk to?'

(4) Juan ha hablado con una chica rubia, pero no sé   cuál.
     Juan has talked with a   girl blonde but   not I.know which
     'Juan has talked to a blonde girl, but I don't know which.'

As discussed in detail by Vicente (2008) and Rodriguez et al. (2009), Spanish presents a *prima facie* challenge to the PSG: this language disallows preposition stranding in non-elliptical *wh*-questions (3), but does seem to allow it under sluicing (4). What Vicente and Rodriguez et al. argue, however, is that the problem is only apparent: the structure underlying the ellipsis site in (4) is not one that is structurally isomorphic to the antecedent — and in which a preposition has been illegitimately stranded — but rather a short cleft or copular clause, as represented in (5) (see the papers cited for extensive argumentation in support of this analysis).[1]

(5) Juan ha hablado con una chica, pero no sé   cuál   ~~es pro~~
     Juan has talked with a   girl but   not I.know which is it
     'Juan talked to a girl, but I don't know which girl it was.'

In short, there is good evidence to suggest that certain instances of sluicing contain a short cleft or copular clause in their ellipsis site, even if the antecedent clause does not contain such a structure; i.e., sluicing sites need not be structurally isomorphic to their antecedents. This raises an interesting prediction for languages with morphological case marking on their *wh*-phrases. Take Greek for example:

(6) Me pjon   milise?
     with who-ACC she.spoke
     'With whom did she speak?'

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1 In this paper, I remain agnostic about whether the structure underlying the sluice in (4)/(5) is a cleft or a copular clause. From the perspective of this paper it doesn't matter much, given that both options involve a mismatch between the ellipsis site and its antecedent.

(7)   Dhen ksero pjos   itan.
        not   I.know who-NOM it.was
        'I don't know who it was.'

The *wh*-phrase 'who' is marked accusative when it appears as the complement of
the preposition *me* 'with' (6), but nominative when it is the pivot of a short cleft
(7). If, as suggested by the Spanish data, short clefts can be used to circumvent
preposition stranding violations under sluicing, we would expect Greek to feature
the nominative form *pjos* 'who' in a PSG-violating context. As is shown in (8), this
prediction is not borne out (van Craenenbroeck 2010).[2]

(8)   *I   Anna milise me kapjon,   alla dhen ksero   pjos.
        the Anna spoke with someone, but not   I.know who-NOM
        INTENDED: 'Anna spoke with someone, but I don't know who.'

The ill-formedness of (8) is puzzling given that its non-elliptical counterpart, the
short cleft in (9), is perfectly well-formed. In other words, there is a perfectly ac-
ceptable underlying structure for the sluicing site in (8), and yet ellipsis is still
disallowed.

(9)   I   Anna milise me kapjon,   alla dhen ksero   pjos   itan.
        the Anna spoke with someone, but not   I.know who-NOM it.was
        'Anna spoke with someone, but I don't know who it was.'

The interaction of non-isomorphic ellipsis sites and morphological case thus presents
something of a puzzle: on the one hand there is good evidence suggesting that short
clefts and/or copular clauses can serve as the source for sluicing sites, but on the
other, whenever these non-isomorphic sites could be directly detected via the mor-
phological case marking on the *wh*-phrase, ellipsis is blocked. This puzzle has not
gone unnoticed in the literature, but has so far been dealt with via stipulation, in
particular by requiring that the *wh*-phrase have some special morphosyntactic re-
lationship with the antecedent clause (see for example Chung's (2013: 30) Case
condition or Abels' (2017) Fit condition). This paper wants to derive the facts laid
out in this section from the general analysis of sluicing. It will do so by adapting
Johnson's (2013) analysis of Andrews amalgams and extending it to all cases of
sluicing.

2   Johnson's (2013) analysis of Andrews amalgams

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2 Note that the variant of this example with the accusative form of the *wh*-pronoun is also ruled out,
  but unsurprisingly so, as it violates the PSG.

Johnson (2013) is concerned with the analysis of so-called Andrews amalgams (AAs), an example of which is given in (10).

(10)   Sally ate I don't know what.

Inspired by Guimarães (2004) and Kluck (2011), Johnson considers two possible multidominant analyses of AAs: either the sluiced *wh*-phrase is shared between two clauses, or the entire sluiced TP is. The structure in (11) represents the first option for the example in (10) (Johnson 2013: 75), and the structure in (12) the second one (Johnson 2013: 92).[3]

(11)

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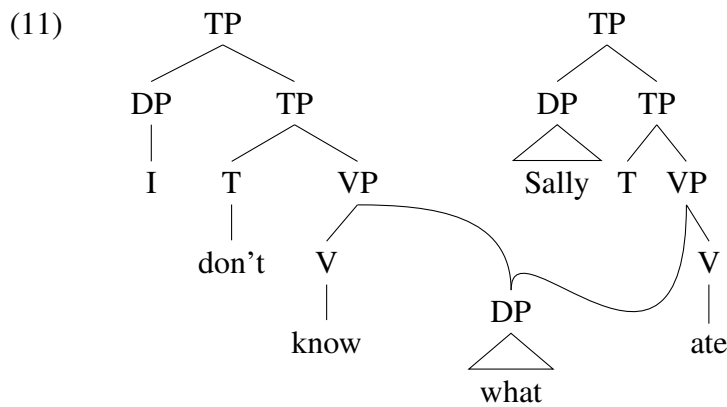
3 Note that the structure in (11) is "overly simplified" (Johnson 2013: 75) in that it doesn't acknowledge the fact that the verb *know* should have an interrogative clausal complement. For now, though, what I'm interested in is the contrast between DP-sharing as in (11) and TP-sharing as in (12).

(12)
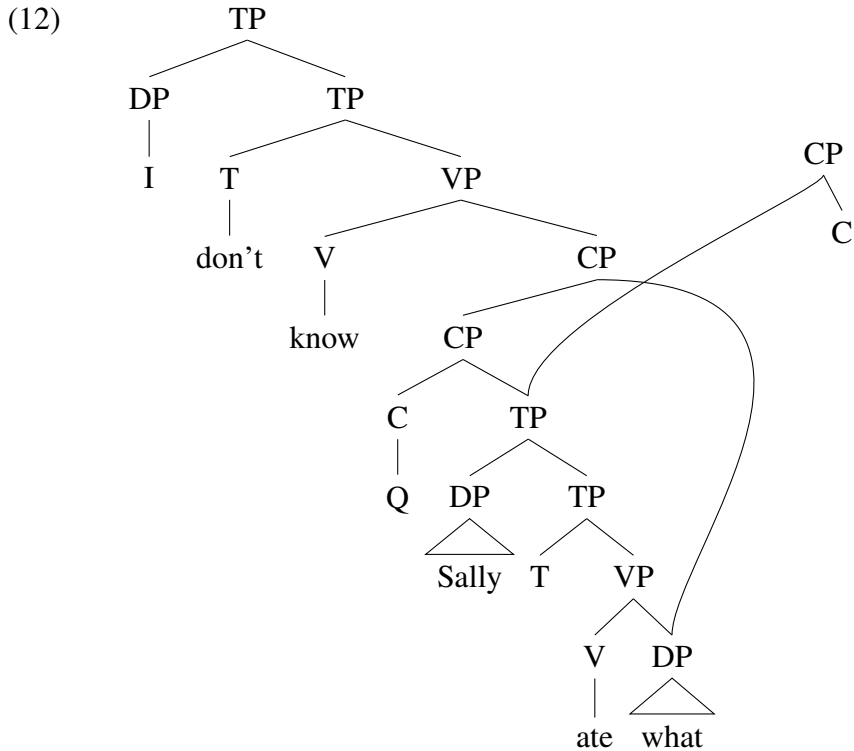
Johnson ends up choosing the second option.[4] A side-effect of that analysis, though, is that it predicts that the ellipsis site in AAs should always be structurally isomorphic to its antecedent:[5] given that there is only one TP, it is impossible for it to have multiple distinct morphosyntactic structures. As pointed out by Kluck (2011: 194), however, exactly the same (apparent) PSG-violations that are attested in non-AA-sluicing surface in AAs as well. Consider for example the following AA from Spanish:

(13) Juan estaba bailando con no te   vas a creer   quién.
      Juan was   dancing with not you.DAT go to believe who
      'Juan was dancing with you wouldn't believe who.'

Completely parallel to the 'regular' sluicing example in (4), the *wh*-phrase *quién* 'who' in (13) appears to have stranded its preposition inside the ellipsis site. If the

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4 His main reason for doing so is the fact that sluicing is obligatory in AAs: **Sally ate I don't know what Sally ate*. Under the approach developed here, the obligatory nature of that ellipsis process must have a different reason.

5 It should be clear that from the point of view of Johnson's analysis, the terms 'ellipsis site' and 'antecedent' are necessarily used metaphorically, given that AAs do not involve ellipsis in any strict sense.

Vicente/Rodriguez et al. analysis of the data in (4) is on the right track, this would suggest that in (13) too we are dealing with a non-isomorphic ellipsis site. That in turn would mean that the elided TP cannot be shared in this example, contrary to Johnson's proposal.[6]

Summing up, Johnson's (2013) intuition that a sluiced clause and its antecedent share a certain amount of structure is appealing, but wholesale sharing of the entire sluiced TP wrongly predicts that there should be no mismatches between a sluicing site and its antecedent.

3   The new analysis: sluicing as sharing

The analysis proposed in this paper is an expansion of Johnson's (2013) structure in (11): I want to pursue the idea that every instance of sluicing — rather than only AAs — involve shared structure between the ellipsis-containing clause and its antecedent. In order to see how this works, consider the analysis in (15) of the sprouting example in (14).

(14)   Sally ate, but I don't know what.

(15)
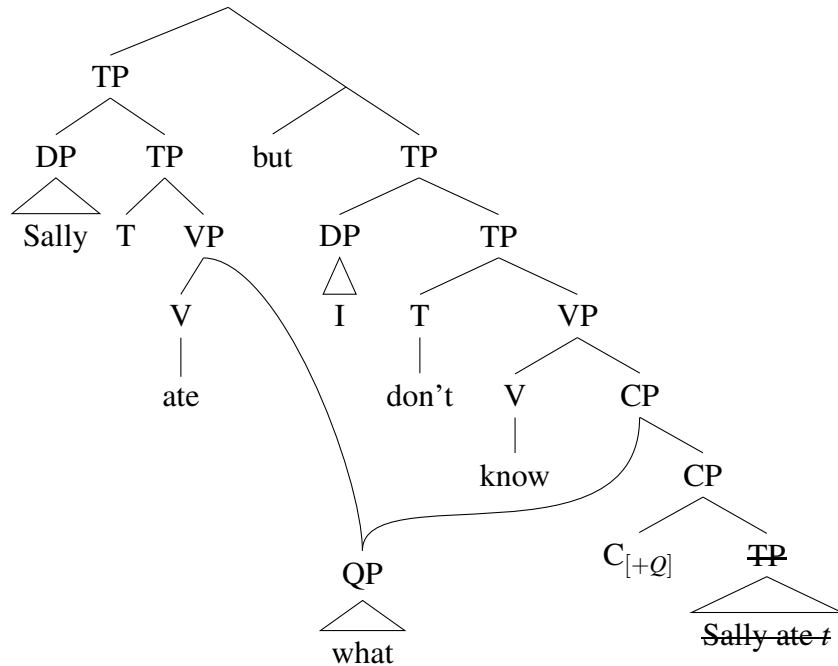
6 Further corroborating evidence for this conclusion comes from preposition stranding under sluicing in Dutch (Kluck 2011: 199–206) and the island-insensitivity of AAs (Kluck 2011: 174–179).

The sluiced *wh*-phrase is shared between the antecedent clause and the ellipsis-containing one: *what* is simultaneously the direct object of *ate* in the antecedent, and it occupies the specifier of the CP complement of *know*.[7] The rest of that complement clause is elided (indicated here by means of strikethrough). The *wh*-phrase *what* is linearized to the right of the entire coordination, and the resultant string is the one in (14).[8] Note that this analysis, while arguably unconventional, provides a straightforward account for what is informally known as Chung's puzzle, which concerns data such as those in (16) (first discussed in Chung 2006).

(16)   a.   John was jealous, but I don't know *(of) who.
        b.   John was jealous of someone, but I don't know (of) who.

While English generally allows preposition stranding under sluicing (16b) (in accordance with the PSG), it doesn't do so under sprouting (16a), i.e., when the sluiced *wh*-phrase has no overt correlate. These facts prompt Chung (2006: 83) to propose that there is an irreducible lexical component to ellipsis identity in that an ellipsis site cannot make use of lexical items that are not already in the antecedent. This principle not only adds an additional stipulation to the formulation of the principle regulating ellipsis identity, it also makes the wrong prediction for the type of data discussed earlier. For example, in the Spanish case in (5), the *es* 'is' that is contained in the ellipsis site has no corresponding lexical item in the antecedent clause, and yet this instance of ellipsis is perfectly legitimate. Under the account developed in this paper, however, Chung's puzzle falls out naturally: in the ungrammatical version of (16a), the *wh*-phrase *who* is shared between the ellipsis-containing clause and the antecedent. However, in the latter it fails to satisfy the formal selectional requirements of the adjective *jealous* and so the example is correctly ruled out.

Now let's turn to the merger type of sluicing (Chung et al. 1995), in which the sluiced *wh*-phrase has an overt correlate. Here it looks like the shared element has a double spell-out: once as the sluiced *wh*-phrase, and once as the correlate. What I want to propose is that merger sluicing differs from sprouting in the amount of structure that is shared: the entire QP in sprouting vs. the DP-complement of Q in sluicing. The DP is spelled out as the correlate in the antecedent clause, and the Q-head is spelled out as the sluiced *wh*-phrase. This is illustrated in (18) for the example in (17).

(17)   Sally ate something, but I don't know what.

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7 In addition, it has moved from the complement position of the to-be-elided verb *ate* in the ellipsis site. Arguably this step also involves sharing/multidominance (Johnson 2012). I gloss over it here for expository purposes.

8 In this paper I remain agnostic about how the linearization of multidominant tree structures proceeds. See Johnson 2012, 2013 and Citko 2011 for discussion.

(18)

```
                        TP
              ┌──────────┴──────────┐
            TP                      TP
       ┌────┴───┐          ┌────────┴────────┐
     DP    TP  but       TP
    ┌─┴─┐  │            ┌──┴──┐
  Sally  T  VP        DP      TP
           ┌┴┐        △   ┌───┴───┐
           V  VP      I   T       VP
           │          │  don't  ┌──┴──┐
          ate              V        CP
                          │      ┌──┴──┐
                        know    QP    CP
                               │   ┌──┴──┐
                         DP    Q  C[+Q]  TP
                          △    │        △
                      something what  Sally ate t
```

(Tree diagram (18): a multidominant structure with top node TP branching into [DP Sally T VP ate] TP, "but", and TP [DP — I don't T] VP [V know] CP [QP Q what] CP [C_{[+Q]}, TP Sally ate t]; the DP "something" is multiply dominated, connected both as object of "ate" and within QP.)
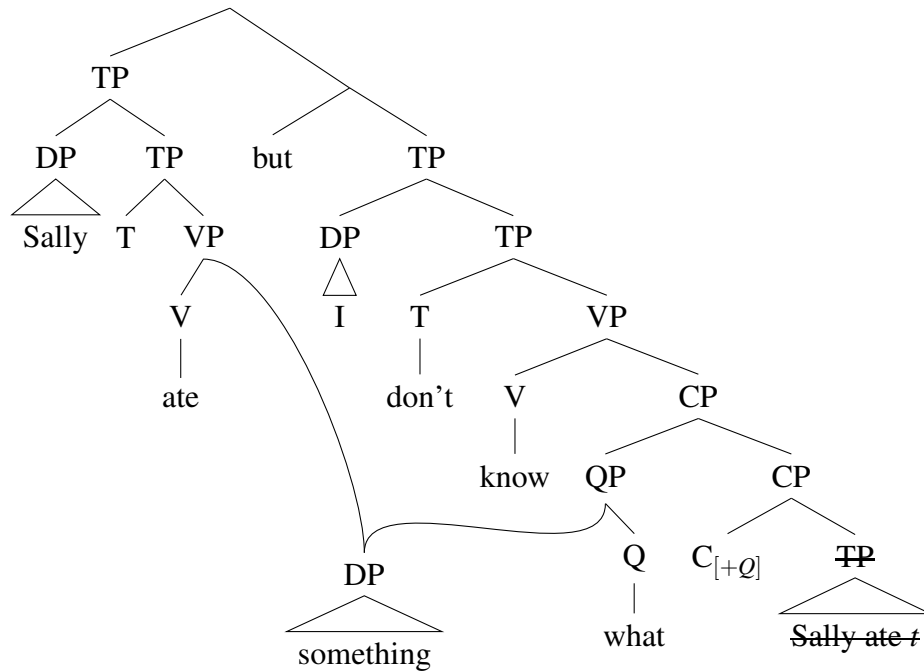
Interestingly, the structure in (18) solves the puzzle this paper started out with: given that the DP is multiply dominated, it needs to satisfy the morphosyntactic requirements of two clauses. As is well-known from the literature on multidominant structures (see, for example, Citko 2011 for an overview), this implies that it needs to bear a case form that simultaneously satisfies its two Merge positions. In the Spanish example in (4) the correlate *una chica rubia* 'a blonde girl' — and by extension the sluiced *wh*-phrase *cuál* 'which'[9] — can satisfy the case requirements of both clauses and the example is well-formed. In the Greek sluice in (8) on the other hand, the correlate has a form which is only compatible with the antecedent clause — and the *wh*-phrase one which is only compatible with the ellipsis-containing clause — and the result is ill-formed.

Analyzing sluicing on a par with bona fide multidominant structures such as ATB-movement or free relatives makes an additional prediction regarding case matching. As is well-known, the case identity required for multiply dominated DPs can also — at least for some speakers and in some contexts — be satisfied by syncretic case forms (see Citko 2011 for examples and references). If case matching in sluicing is indeed to be reduced to multidominance, then we expect the same effects to show up in this construction. As is illustrated in (19), this is indeed the case.

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9 I'm assuming there's case concord between Q and DP.

(19)   ?I   Anna milise me   kapja kopela, alla dhen ksero   pja.
        the Anna spoke with a   girl,   but not   I.know which-NOM/ACC
        'Anna spoke with a girl, but I don't know which.'

The feminine singular forms used in this example are syncretic between nominative and accusative and the result — i.e., the apparent case of preposition stranding under sluicing — is markedly better.[10] This example thus provides strong support for the approach adopted in this paper.

4   Summary and remaining elephants in the room

This paper has taken as a starting point one of the analyses proposed by Johnson (2013) for Andrews amalgams and has extended it to sluicing more generally. The central proposal is that sluicing involves structure sharing between the ellipsis-containing clause and its antecedent. While certainly non-standard as a general approach to sluicing, it straightforwardly resolves the tension between case matching on the one hand and lack of isomorphism between ellipsis site and antecedent on the other, and it provides a simple account for Chung's puzzle. In addition, it correctly predicts that case syncretism can have an ameliorating effect on (apparent) PSG-violations under sluicing.

Needless to say, many elephants remain in the room just created. One — raised by Kyle Johnson, unaware he was discussing a contribution to his own super-secret-don't-tell-anyone festschrift — concerns the existence of cross-speaker sluicing:

(20)   A: I saw someone.
        B: Who?

If this paper is on the right track, these two utterances should form a single syntactic structure, perhaps not unlike the inter-speaker *wh*-movement chain in (21). This, and many other elephants, will have to await another occasion.

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10 The ameliorating effects of case syncretism on (apparent) PSG-violations under sluicing can also be seen in Zurich German, German, and Russian. Many thanks to Artemis Alexiadou, Anastasia Giannakidou, Maria Gouskova, Vera Gribanova, Stella Gryllia, Timo Klein, Marika Lekakou, Lutz Marten, Ora Matushansky, Martin Salzmann, Arhonto Terzi, and Malte Zimmermann for kindly providing me with native speaker judgments. Note that a general caveat is in order. As pointed out by Pullum & Zwicky (1986: 759) and Ingria (1990: 203), judgments about syncretism and morphological case are notoriously subtle and subject to inter-speaker variation. While to a certain extent this is also the case for my data (see, for example, Abels 2017: (48) for a German example where syncretism does not have an effect), the general trend is clear: syncretic sluiced wh-phrases can be prepositionless more easily than their non-syncretic counterparts. The fact that for some speakers syncretism has no ameliorating effect might be due to variation in the way syncretism is represented in their mental grammar, i.e., variation as to which forms represent 'the same element'.

(21)   A: How many books did Ben say —
         B: He was going to take? Five.

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But write what?

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1   The background

One is sitting in one's office, contemplating the snowy fields outside, when an email drops into your inbox inquiring if you would be willing to write a squib for a festschrift for Kyle. 'Of course!' one thinks. Such invitations are easily, nay joyously, accepted, and the task added to one's to-do list with a comfortingly far-away date. But as the editors' deadline begins to loom, the realization sets in. *I have to write,* one thinks. *But write what?*

2   The problem

This squib, then, looks at constructions of the form in (1) (where the dash indicates a change of speaker).[1]

(1)   a.   The doctor told me to eat. — Eat what?
        b.   People keep saying Trump's tweets and outlandish statements are a distraction. But a distraction from what?[2]
        c.   I use a walkie-talkie. — To talk to whom?
        d.   They said that they'd made it for you. — That they'd made what for me?

These cases look like sluicing, in as much as their meaning appears to be that of a constituent question, but some of the material surrounding the *wh*-phrase appears to have 'gone missing'. However, if we assume a move-plus-delete analysis of sluicing (Merchant 2001), as in (2), these data look rather mysterious. They appear to involve pied-piping of constituents that are rather more 'massive' than English speakers are

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[1] I think this type of construction has only recently come under scrutiny. Ross (1969: 262ff.) discusses the *im*possibility of such structures in embedded cases; he notes the grammaticality of certain root cases like *He has a picture, but a picture of what I don't know* (fn. 10, the observation attributed to Joan Bresnan), but puts them aside as a mystery. Abe (2015) and Abels (2017) have recently discussed similar structures, but come to different conclusions than the ones I draw here.

[2] An attested example found on Al Jazeera's Facebook page, 15 March 2017.

usually comfortable pied-piping, even in matrix contexts which allow for greater freedom in this respect, as (3) shows.

(2)   a.   He ate something. — What?
          b.   [$_{CP}$ What ~~[$_{C'}$ did [$_{TP}$ he eat t]]~~]

(3)   a. ?*[$_{vP}$ Eat what] did the doctor tell you to t?
          b. ??[$_{DP}$ A distraction from what] are Trump's tweets t?
          c. ??[$_{TP}$ To talk to whom] do you use a walkie-talkie t?
          d. ?*[$_{CP}$ That they'd made what for me] did they say t?

Despite this, the 'remnant' in this sort of construction does seem to have undergone a step of A′-movement, in as much as it seems to respect at least some of the constraints on such movement (putting aside the vexed question of the interaction of ellipsis and islands). Consider the below:

(4)   A: They told John that they had checked every room.

        a.   In which building?
        b. *Room in which building?
        c.   Every room in which building?
        d.   Checked every room in which building?
        e. ??Had checked every room in which building?
        f. ?*They had checked every room in which building?
        g.   That they had checked every room in which building?
        h. *John that they had checked every room in which building?
        i. ??Told John that they had checked every room in which building?

This pattern of judgements is consistent with the phrase containing *which building* having undergone movement. Plausibly, on this view:

- the ungrammaticality of (4b) is due to the prohibition on moving a bare NP to the exclusion of its determiner;

- the ungrammaticality of (4e) and (4i) comes from the bar on moving verb phrases headed by finite verbs in English;[3]

- the ungrammaticality of (4f) comes from the ungrammaticality of moving finite TPs to the exclusion of their complementizer;

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3 The examples in (4e), (4i) are degraded, but better than the others. I don't know why, but will only note that I find fronting finite VPs in non-elliptical contexts to be similarly degraded-but-not-terrible: ??*Ate the natto, he certainly did* (and Scandinavian languages allow this unproblematically).

- and the ungrammaticality of (4h) is related to the fact that an indirect object–direct object complex cannot move in English (*Him the book, I gave*; Johnson 1991: section 6).

By contrast, apart from the simple case of PP-pied-piping in (4a), the other grammatical cases, (4c), (4d) and (4g), are cases where movement is otherwise *generally* possible. DPs, non-finite verb phrases, and CPs can of course be moved. The problem is that they can't normally be pied-piped by a *wh*-phrase which is deeply embedded within them ('massive' pied-piping), as (3) shows and as discussed by Heck (2008) and Cable (2010), among many others.

These cases also differ from canonical sluicing cases in that they cannot be embedded under question-embedding verbs like *wonder* or *know*.

(5)   a.   *The doctor told me to eat, but god knows eat what.
        b. ??The tweets are a distraction; I wonder a distraction from what.[4]
        c.   *They said they'd made something for me; I don't know that they'd made what for me.

This is a general trait of massive pied-piping, as Heck and Cable discuss: massive pied-piping is degraded in root contexts (6a), but completely out in embedded contexts (6b).

(6)   a. ??[$_{CP}$ A distraction from what [$_{C'}$ are [$_{TP}$ Trump's tweets t]]]?
        b.   *I wonder [$_{CP}$ a distraction from what [$_{TP}$ Trump's tweets are t]]

So the data in (1) clearly merit analysis. But an analysis of what kind?

3   *Wh*-movement, pied-piping, prosody, and ellipsis

The solution I will present for the above cases (or at least a subset of them; see Section 4 below) will build on the following ideas. Firstly, I will take as a given that there is some way of deriving the contrast between matrix and embedded 'massive pied-piping' ((6a), (6b)), and moreover, that this contrast should be derived in the syntax. I will remain neutral on how exactly this is done, but refer to Heck 2008 and Cable 2010 for suggestions. I will also assume that we have a syntactic theory that rules out moving certain constituents, ever, whether in matrix or embedded contexts. That is, we have some theory that forbids, for example, moving bare NPs to the exclusion of their determiner (as in (7)), in addition to the various other ungram-

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4 This is OK if a large pause is left after *wonder*, which presumably represents two root clauses in paratactic juxtaposition, i.e. *I wonder: a distraction from what?*

matical movements illustrated in (4).[5] Again, I remain agnostic on what that theory should be (indeed, the restrictions probably don't have a unitary explanation).

(7)   *[NP Book about ellipsis], I think you should read [DP every t].

These assumptions alone serve to derive most of the properties in (4) and (5), which on their own are not too surprising. The question I will focus on is why sluicing seems to alleviate the unnaturalness of massive pied-piping in cases like (1).

(8)   The tweets are a distraction.

    a.   A distraction from what?
    b. ??A distraction from what are the tweets?

A deeper question is why sentences like (8b) are degraded to start with. An even deeper question is why English speakers move *wh*-phrases to the left periphery in the first place (given that there are perfectly good semantic mechanisms for interpreting *in situ wh*-structures). The solution I would like to sketch to all of these questions draws on the proposal by Richards (2010: ch. 3) that the driver of *wh*-movement is in fact a condition on the syntax-prosody interface. Suppose, as Richards proposes, that there is a constraint on the syntax-prosody mapping roughly of the form in (9).

(9)   ALIGN(*wh*, C)
        There should be as few phonological phrase boundaries as possible between a *wh*-marked constituent and the complementizer.

One obvious way of satisfying (9) is to move the *wh*-item to SpecCP.[6]

(10)   a.   *You gave what to John?[7]
        b.   ($_\iota$ C you ($_\phi$ gave what) ($_\phi$ to John))[8]

(11)   a.   What did you give to John?

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5 This is what I referred to as movement unavailable 'even in principle' in Weir 2014a: ch. 4.

6 The prosodic rules available to a given language, as well as the position of complementizers (whether at the left or right edge of a clause), will influence what the preferred 'repair' is, as Richards discusses in detail. Here I focus on the solution that English generally chooses (on this analysis), which is (syntactic) movement. Richards also discusses the fact that syntactic movement here appears to be 'looking ahead' to the needs of phonology. I think independent facts about 'exceptional movement under ellipsis' force us to similar conclusions (Weir 2014a: ch. 4).

7 This is only grammatical on an echo-question reading. See Richards 2010: 198 for some interesting discussion of echo questions in the present system.

8 ι = Intonational Phrase, the prosodic domain which CPs are mapped onto; ϕ = Phonological Phrase, the prosodic domain which lexical XPs are mapped onto (see e.g. Selkirk 2011). The prosodic phrasing I show in (10b) and (11b) is very rough — it is simply meant to illustrate the general idea.

But write what?

      b.   ($_\iota$ what C+did you ($_\phi$ give) ($_\phi$ to John))

In (10b), the phonological phrase boundary to the left of *gave* intervenes between the *wh*-phrase and the complementizer; in (11), movement fixes this problem.

    On this view, the syntax might have no particular problem with a massive pied-piping movement like (8b); we can assume, perhaps, that such movements (at least in root clauses) are freely available in the syntax, modulo the 'hard' constraints on A′-movement discussed above (no separating NPs from their Ds, etc.). It is degraded, not because the syntax rules it out, but because — if we assume that the DP in which the *wh*-word is embedded will introduce its own phonological phrase boundary on its right edge — the movement doesn't get the *wh*-phrase very much closer to the C, in phonological terms (some prosodic structure abbreviated below).

(12)   a. ??A distraction from what are the tweets?
        b.   ($_\iota$ ($_\phi$ a distraction ($_\phi$ from what)) C+are the tweets)

But now suppose that sluicing involves A′-moving the 'remnant' to the left periphery (perhaps to evacuate it from the ellipsis site; Weir 2014a: ch. 4, among others) and the subsequent deletion at PF of all other material — including the C head.[9]

(13)   a.   [$_{CP}$ A distraction from what [$_{C'}$ ~~are the tweets t~~]]
        b.   ($_\iota$ ($_\phi$ a distraction ($_\phi$ from what)))

The constraint in (9) is satisfied **vacuously** in (13b). There is no C, so there are also no phonological phrase boundaries between the *wh*-word and the C. Sluicing, then, creates an environment in which 'massive pied-piping' is quite generally available — as long as the constituent which is pied-piped can independently undergo A′-movement. That's what leads to the constellation of judgments in (4).

4   The modal parse

A very similar-looking construction, but one that I believe to have a different etiology than the one discussed above, is exemplified below.

(14)   The trainer told me to run, but run where?

An example like (14) can be followed up with something like *The public parks aren't suitable and I can't afford the gym*; that is, the interpretation is something like 'Where should I run/where am I supposed to run?' A curiosity about this reading

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9 See Merchant (2001)'s Sluicing-COMP generalization. Interestingly Abels's (2017) proposal also hinges on the deletion of the complementizer, though with syntactic rather than prosodic ramifications.

is that it goes away if the 'massively pied-piped' *wh*-phrase is any 'bigger' than a bare *v*P, for example if it is a participle or non-finite TP.

(15)   The trainer told me to start running.

     a.   But run where?
     b. #But running where?
     c.   But start running where?
     d. #But to start running where?

Note that (15b) and (15d) are infelicitous rather than ungrammatical as such; they imply amnesia on the part of the speaker about what the trainer said. They become acceptable if uttered as information-seeking questions by another:

(16)   The trainer told me to start running. — (To start) running where?

If a bare *v*P containing a *wh*-phrase is generated as a fragment, then, it appears to have two readings. The first is paraphrasable as a simple constituent question (= 'Where did the trainer tell me/you to run?'), a reading which is shared with 'bigger' examples such as (16). I assume that such cases receive a 'massive pied-piping + sluicing' analysis along the lines sketched in Section 3 above. However, there is another reading, which is paraphrasable by a kind of priority modality as in (14).

    This is reminiscent of a slightly more familiar construction with *why*, which has a similar modal semantics (17a). Just as in the above cases, that modal semantics is not available if *why* is in construction with something 'larger' than a bare *v*P, e.g. a participle or non-finite TP; in fact such cases are simply ungrammatical (17b).

(17)   a.   Why worry? Why take oneself so seriously?
          ($\approx$ why should one worry? why should one take oneself so seriously?)
     b. *Why to worry? *Why worrying?

I think one can sketch a syntax for constructions like (17a) something like (18). A *v*P is built which contains a PRO$_{arb}$ subject. Above this is inserted a ModP containing a covert priority modal, with a meaning something like *should*; I represent this as $\Box$. To host *why*, a ReasonP is merged immediately above this projection (Shlonsky & Soare 2011), and then the derivation simply stops.[10]

(18)   [$_{ReasonP}$ why [$_{ModP}$ $\Box$ [$_{vP}$ PRO$_{arb}$ worry]]]

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10 See Weir 2014b for discussion of this kind of syntax in connection with '*why*-stripping' (Yoshida et al. 2015). I rejected (18) as a structure for *why*-stripping in general, but it may be the right structure for this kind of *why*+*v*P case. Clearly something more needs to be said about where the priority modal is coming from. We might hope that there is some link here with the fact that non-finite contexts in general seem to make (covert) priority modality available (cf. Bhatt 2006).

But write what?

In this syntax, there is no CP layer, which is potentially why such constructions do not embed — the CP which embedding verbs would select for is not present.

(19) ??I wonder/don't know why worry.

I suggest that examples like those in (14) can also be folded into this structure. The lack of a CP layer in such structures means that *wh*-words will not move from their first-merge positions (argument position for words like *what*, *v*P-internal adjunct position for words like *where*, ReasonP for *why*). Following the logic outlined above, if there is no complementizer, then these *wh*-words have no need to move to get closer to a complementizer:

(20)   [$_{ModP}$ □ [$_{vP}$ PRO run where]] (≈ where should PRO run?)

On this view, there is no sluicing or pied-piping (massive or otherwise) necessarily involved in the construction of examples like (14). On at least one of their parses, such examples are simply base-generated *v*Ps plus a covert priority modal. With this said, one might speculate that such *v*Ps might themselves be able to undergo sluicing (i.e. deletion of everything in them except the *wh*-phrase), and that this might help with some sluicing examples whose pre-elliptical source is otherwise somewhat mysterious, as in (21a) (adapted from Thoms 2013), though obviously many details remain to be elaborated here (e.g whether *with what* is undergoing movement to escape the ellipsis in (21b), and if so, where it is moving to).

(21)   a.   Amuse me! — With what? (≈ with what should I amuse you?)
        b.   [$_{ModP}$ □ [$_{vP}$ PRO amuse you with what]]

5   Inconclusion

'Many questions remain' (Johnson 1991: 629). There is, perhaps, something slightly suspect in appealing to vacuous satisfaction of the phonological constraint suggested in (9).[11] There's also something arguably a bit strange about there being a prosodic condition on an element (a [wh]-complementizer) which is after all silent in English (although this is a problem that the present analysis inherits from Richards's (2010) analysis, at least if it is to be extended to English). And we would like to know in more detail where the modal force is coming from in examples like those in section 4, as well as why it should be possible to construct a root utterance that simply 'stops' at or just above the *v*P level (though perhaps the literature on imperatives can help with both of these problems). However, I hope that I have at

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11 Perhaps one way of assuaging this worry is to envisage (9) as fundamentally a constraint on [wh]-complementizers (rather than on *wh*-words themselves) — it is the C that must have a *wh*-word in its prosodic domain, so if you get rid of the complementizer by PF, you have no problem.

least shown that there are some interesting questions to be answered — a skill that I am still practicing, but which, to the extent I have it, is due in no small part to Kyle's tutelage.

Happy birthday, Kyle! Have cake — but have *how much* cake?

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Object positions, the Unique Checking Constraint and the development of particle verbs

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1   Introduction

One of the central features of contemporary syntax is the abandonment of idiosyncratic surface conditions, such as adjacency conditions. In its place the theory of syntax must do the work. In particular, Johnson 1991 provided a theoretically motivated treatment of the rather special conditions that seem to characterize the phenomenon known as particle verbs. The analysis provided evidence for derivations of particle verb constructions that involved both DP and verb movement, unifying this range of phenomena with much of clausal syntax.

In this paper I will attempt to understand an old and controversial phenomenon concerning the development of the grammar of particle verbs in terms of the theory of syntax as well as contemporary approaches to grammatical development. The analysis will take off from the insights provided by Johnson's theory of particle verbs. Johnson's insights, using DP movement as a central component of the analysis, will be seen to merge quite tellingly with the theory of early grammatical stages of development.

Particle verbs, also known as separable verbs, contain an attached particle that can (and sometimes must) separate from the verb. In German (V2/SOV), we find, for example:

(1)   a.   Katrin liest   das Buch durch
              Katrin reads the book through
              'Katrin reads through the book'
       b.   Katrin will   das Buch durchlesen
              Katrin wants the book through.read.INF
              'Katrin wants to read the book through'
       c.   *Katrin durchliest das Buch   (Poeppel & Wexler 1993)

The full verb + particle (*durchlesen*) may not move in finite form (e.g. *durchliest*) into 2nd (C) position in matrix clauses. Only the verb itself may move into this position, yielding (1a). (1c) is ungrammatical.

The phenomenon we would like to explain is the following. In the earliest stages of grammatical development (in German ending by 3:0 or earlier) children often produce nonfinite instead of finite verbs (for main verbs they produce the infinitive instead of an inflected finite form). However, less well known (and less often studied) is that in some stages of early development, there is what Poeppel & Wexler (1993, footnote 12), the first to discover the phenomenon, call a "curious asymmetry". Namely, particle verbs are made infinitival by the child when they should be finite at a much higher rate than are simple verbs. Let's call this configuration of data the "particle verb asymmetry" (PVA). Although the PVA has been questioned,[1] it seems to me still viable. The question is: why does the asymmetry hold?[2]

2 The syntax of particle verbs

In order to explain several phenomena of basic clause structure, Johnson (1991) assumes (his (17)):

(2)   a.   Specifiers of XP precede X'.
        b.   Verbs always move out of the VP they head.
        c.   Accusative Case-marked NPs move to Specifier of VP.

Minimalist theory developed in the latter 1990s and 2000s assumed these results in a slightly different form. A light verbal category *v* was assumed to select for VP. This light verb assigns an external argument to its specifier. Typically one assumes that V moves to *v*, so this assumption is similar to (2b). *v* also is standardly assumed to contain features that check or assign in some way accusative case, perhaps (in some cases) through movement. This assumption is partially similar to (2c) and partially different. For Johnson, structural case is assumed under government. For example, for a verb in minimalist theory, accusative case involves checking a

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1 Bennis et al. (1995) reanalyze Dutch data, taking out uses of auxiliaries, that are known to be always finite in child grammar, and find that the PVA doesn't hold. However, it does for at least one of their three children. More important, they analyze data from a wide range of ages per child, without reporting file by file data. It may very well be that the finite particle verbs occur at much later ages, when there aren't many non-finite verbs. Until the data is reanalyzed, it is inconclusive. Poeppel & Wexler (1993) analyzed one child of 25 months, with data from one recording, and PVA strongly held by category. Their data didn't seem to count many or any copulas or auxiliaries, as can be seen from the word order statistics that they give. I won't make any attempt in this paper to compare the proposed account with any of these alternatives.

2 After Poeppel & Wexler, who made some brief suggestions concerning the cause of the phenomenon, theoretical accounts of the relevant grammatical development were proposed by Broihier et al. (1994) and Hyams et al. (1993). I won't compare theories, except to point out that unlike these theories, the analysis proposed here makes no assumptions about development except for well-established principles that already account for a wide variety of phenomena.

feature between a DP and *v*. Nevertheless, there is enough continuity between (2) and current assumptions to make our search for the analysis of the syntax and development of particle verbs benefit by paying attention to Johnson's analysis. The movement of verbs and objects in particular are a crucial part of both theories, as opposed to surface conditions. We will see that this movement will play a crucial role in the developmental theory. We can't in limited space attempt to develop a precise implementation of Johnson's theory in terms of minimalist theory, but the guiding intuitions of both theories seem close enough in spirit to me, that I believe that a sketch of a theory at an intuitive level could be useful in creating a close match.

Strongly confirming the closeness of Johnson's ideas to contemporary theory is the crucial role that a category head μ above VP plays. μ has several of the characteristics of *v*, lacking mostly the external argument assigning property. Johnson in fact discusses how μ appears similar to (perhaps should be identified with) AgrO, a functional category in that position pre minimalist theory.

The flavor of Johnson's analysis of a simple transitive clause may be seen from his p-m for such a sentence (his (6)):

(3)
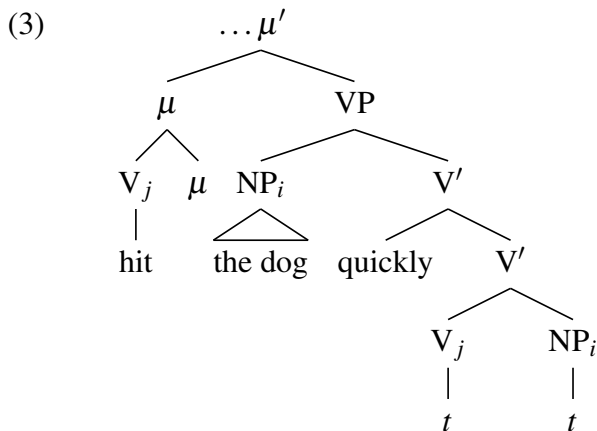
The verb raises to adjoin to μ and the object raises to SpecVP. By Johnson's definitions, the verb *hit* governs *the dog* and assigns accusative case to it. Properties like the fact that an adverb may not intercede between the verb and the direct object follow.

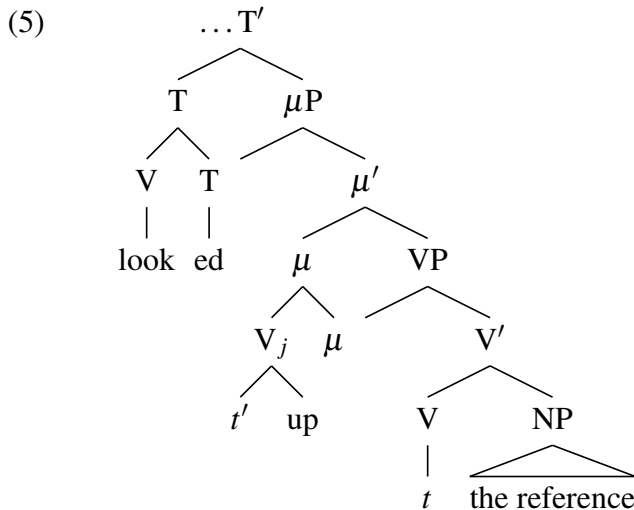Johnson argues that the movement of the object NP upwards is the same type of movement as Object Shift (OS) in other Germanic languages, and thus the movement should have much in common in OS. For example, in Icelandic, the object optionally moves past SpecVP to a higher position. The analysis employs this possibility in deriving properties of particle verbs, in particular the possibility of En-

glish particles showing up immediately after the verb or after the object and only one of these orders being possible for weak object pronouns.

(4) a. Mary looked the reference up.
     b. Mary looked up the reference.
     c. Mary looked it up.
     d. *Mary looked up it.

A fundamental assumption is that a particle enters the syntax as part of the verb. The particle optionally moves with the verb to μ. When the verb moves on to T, the particle may not travel with it because T "does not tolerate the particle as a stem".
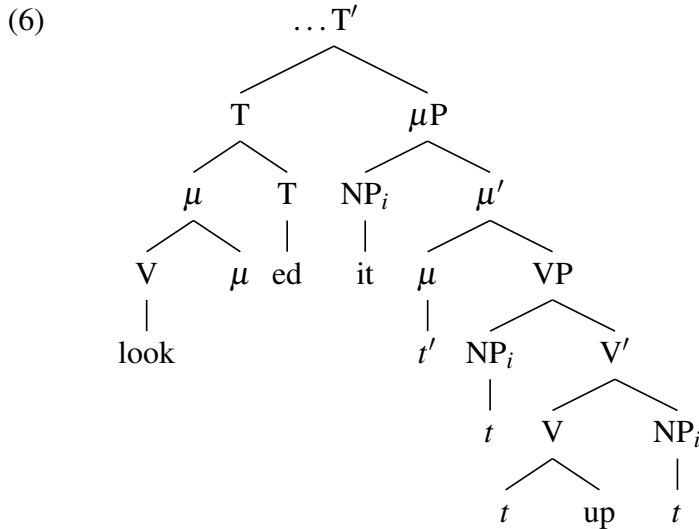
   Two possibilities arise. When the particle moves with the verb to μ, then the verb must (move) adjoin to T by itself, without μ, since μ dominates the particle, which T cannot tolerate as a stem, as (5) shows (Johnson's (79)).

(5)

$$\ldots T'$$

```
              ... T′
             /      \
           T          μP
          / \        /   \
         V   T            μ′
         |   |           /    \
       look ed          μ       VP
                       / \     /    \
                     Vⱼ   μ   V′
                    /  \      /    \
                   t′  up    V       NP
                            |      /────\
                            t    the reference
```

   The only (ACC) case-marked position is SpecVP so *the reference* moves there. This derives (4b). The other possibility is when the particle is stranded in its original position; the verb by itself moves up to μ. Then μ (dominating the verb) moves (adjoins) to T (Johnson's (78), not shown here). μ can assign case either before or after it moves to T, so the object *the reference* moves to either SpecVP (if case assigned before V moves to T) or to SpecμP (if case assigned after V moves to T). In either case (4a) and (4c) are derived.

   Why doesn't (5) derive (4b)? Johnson argues on the basis of facts about OS in other languages that a weak pronoun must be brought as close to the verb as possible. The facts of government/case assignment in (5) mean, as we have pointed out, that the object is assigned case (moves to) SpecVP. This position is not close enough to the verb for a weak pronoun, so (4d) cannot be derived. On the other

hand, if the particle is stranded in its original position (not moved with V), then (4c) is derived as in (6), (Johnson's (80)).

(6)

```
                        ...T′
                   ┌──────┴──────┐
                   T             μP
              ┌────┴────┐    ┌────┴────┐
              μ         T   NP_i       μ′
           ┌──┴──┐      │    │    ┌────┴────┐
           V     μ     ed   it    μ        VP
           │                      │    ┌────┴────┐
          look                    t′  NP_i       V′
                                       │    ┌────┴────┐
                                       t    V        NP_i
                                         ┌──┴──┐      │
                                         t    up      t
```

Johnson shows that this pronoun "characteristic paradigm" holds for both English particle constructions and OS in other Germanic languages, lending strong support to the analysis of English particle constructions as OS.

3 Development of particle constructions

The analysis of particle constructions as OS offers a strong hint as to the nature of the difficulty for children with finite separable particles. There are two movement/checking related constraints in child grammar, each of which has a good deal of explanatory adequacy in predicting a range of grammatical phenomena. The second one, mostly involving A-chains and known as the Universal Phase Requirement (UPR, Wexler 2004b), constrains the child's grammar into only having full phases, not defective phases. It renders ungrammatical verbal passives, subject to subject raising constructions and many other grammatical processes. However, it holds until the child is about 7 years of age, much older than we expect the nonfiniteness requirement on separable verbs to hold. So this age signature suggests that it is not the right constraint to derive the participle verb asymmetry.

The other child checking movement constraint is known as the Unique Checking Constraint (UCC, Wexler 2004a). It renders ungrammatical a sentence in which the same DP checks more than one uninterpretable feature (more specifically in an implementation, the EPP feature). Its first and perhaps most well-known use was as the foundation for the theory of the optional infinitive (OI) stage. Assuming that there is an EPP feature for both TENSE and subject agreement (AgrS, in an imple-

mentation), a simple finite clause violates the UCC. In order to satisfy the UCC, the child omits either TENSE or AgrS, thereby deriving the characteristic nonfiniteness of many simple clauses (in non-null-subject languages) in the OI stage of child grammar until about 3, with some variation according to construction and language (Wexler 1993). Since omitting Tense or AgrS is a violation of the child's grammar, the child sometimes doesn't do this, providing a finite sentence (Minimize Violation).

The UCC is stated in grammatical relation neutral terms; it also explains constraints on object movement, predicting a number of grammatical properties including the omission of object clitics in languages in which the past participle agrees with the clitic (Wexler 2002, 2004a, 2014, Wexler et al. 2002, Gavarró et al. 2010, Tsakali & Wexler 2004).

Most to the point for present purposes, Wexler (2004a) argued that delays in object scrambling in Germanic languages were the result of the UCC. The age range of the phenomenon was about the OI age range, as would be predicted if UCC were the cause of scrambling delays. The error was the lack of scrambling when it was obligatory. That is, scrambling was optional for the child in obligatory contexts, just as finiteness is optional for the child in obligatory contexts. The analysis directly involved OS. Following Chomsky's (2000) extension of Holmberg's (1999) ideas, Wexler assumed that v has an EPP feature that attracts the direct object to its second specifier (under certain conditions). Holmberg showed that the object moved even further up than second specifier of v, to a higher category, for what he assumed were phonological reasons. So there are two EPP features involved, on v and on the higher functional category. Which should the child omit given the UCC? The child is unlikely to omit v, since this would force the omission of the external argument. The child sometimes omits the higher category, thus leaving the object in second specifier of v, where it linearly appears after relevant adverbs and negation. This looks like the omission of scrambling. (The child rarely scrambles an object when it is semantically incorrect, e.g. for many indefinites,)

Given Johnson's analysis of particle verb syntax as involving OS, we might look there to see how the UCC applies. We'll take Johnson's analysis of particle verbs for English as roughly correct for the other Germanic languages, in particular German, the language in which Poeppel and Wexler discovered PVA. If we were only considering scrambling sentences, in which the object raises up to a category even higher than μ, we might think we had the solution; Wexler's (2004a) analysis predicts the optionality of scrambling. However, what we want to know is why Tense is omitted so often for these OS sentences, a problem not encountered before.

First, let's consider how many EPP features have to be checked in the particle construction. I will assume that German particles always remain stranded; they

never move with the verb to C.[3] Thus an analysis like that in (6) will apply (for a lexical object DP like *the reference* instead of *it*[4])[5]. What can we say about double checking of an EPP feature in (6)?

Johnson doesn't discuss the exact movement pattern of the object DP. But in (6) we see that the object NP moves first to SpecVP and then to SpecμP. If that pattern is correct, then we can see a double checking of the object DP, presumably against two EPP features (on V and μ) in today's terms. Two questions arise. First, is this in fact the correct analysis of the movement to μ, first through V? And second, does the double checking constraint explain why T is omitted for particle verbs more often than for simple verbs?

We can't take a definitive position on whether moving through V to μ is the correct analysis. It's natural to think that V could host the kinds of features that attract a DP. On the other hand, a simple minimalist theory often says that the phase head *v* targets features in a phrase and would be responsible for Move to the outer spec of *v*, without taking account of V, which doesn't have the appropriate features. Chomsky's (2000) analysis of OS has *v* adding an EPP feature so that an object DP with the appropriate semantic features (*INT*) can surface, given a condition that doesn't allow such features on the edge of *v*P. The object moves to Spec*v*P, not checking features in V.

I will assume that in fact there is an uninterpretable EPP feature on V that must be checked and deleted by the object.[6] This seems natural (perhaps necessary) in terms of Johnson's analysis of particle structures, since the structure in which the particle moves with the verb to μ (5) has the object DP moving to SpecVP, not to SpecμP.

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3 This assumption might be problematic for some properties of Dutch verb raising to the right; I haven't performed any kind of analysis.

4 The analysis will apply to German up to word order of course; Tense is probably on the right, not left. And quite possibly the particle precedes rather than follows the verb at lexical insertion. This will be irrelevant to the analysis here.

5 Since we have assumed that particle stranding is obligatory in German, (6) is the only analysis of particle verbs.

6 An alternative possibility is that in fact the double checking only occurs when the object has the semantic complex (specificity, etc.) that makes it incompatible with being on the edge of *v*P. This would be especially true if (after *v*) the second category that had an EPP feature was the phonological-motivated one posited by Holmberg. If something like this analysis were correct, it could be that the sentences the child produced for separable verbs for some reason were scrambling structures. In German simple clauses, if there is no relevant adverb in the structure, the word order is SVO, whether or not scrambling occurs. If, as is likely, the appropriate adverbs don't exist in sufficient number in early child grammar to test the hypothesis, one could test to see if in fact the objects of the non-finite participle structures sentences were specific, etc., more than the objects for simple verbs.

The second question asks what are the consequences of this double checking of the object DP? Unlike cases where TENSE or AgrS or Cl (the base-generated clitic head on a verb) are omitted by the child, it seems unlikely that V or *v* would be omitted. V selects the object, *v* selects the external argument (and the VP). We don't expect these to be omitted, and omitting these probably isn't consistent with the child data we're looking at.

Let us consider a simple child sentence with a participle verb and a direct object. We have just shown why the UCC is violated with respect to the direct object. But if the sentence is finite, the UCC is violated again, via standard assumptions, by the double checking of TENSE and AgrS. There are two UCC violations. In contrast, a sentence with a simple verb has a UCC violation for AgrS/TENSE. One analysis of object movement for the simple verb in a simple SVO main clause has the analysis (3), in which the object only moves to SpecVP.[7] Thus if we extend the child's preference from not violating the UCC to Minimize UCC Violations, then we predict that the child will omit TENSE so as to have only one UCC violation rather than two. Exactly this extension was proposed in Rice et al. 2009: 1431 to explain why *copula and auxiliary* omission occurred more often in *wh*-questions than in declarative questions during the OI stage.[8]

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7 A second object movement might be possible, once the verb has moved to TENSE, unless I've missed something. But this would have the same word order as the one movement analysis (the verb is in C, preceding the object, in either case), so that a child would prefer the analysis that doesn't violate UCC.

8 One might ask about English. The UCC predicts that the child would prefer the option where the particle is stranded, the verb moving by itself to μ, for in this case there would only be one EPP checked by the object. This would predict that the young child would prefer forms like (4b) over (4a), that is the child wouldn't strand. I don't know if there is convincing evidence either way for sufficiently young children. If in fact these children don't prefer the non-stranded construction, it might be due to a preference for moving the verb + particle as a unit.

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Gapping without gaps

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1   Introduction

Gapping refers to the omission of a verb in clausal coordination, illustrated in (1).

(1)   Tasman discovered Tasmania, and Cook (discovered) the Cook Islands.

While the earliest analyses of gapping (Ross 1967) involve verb ellipsis, later some-times modified as verb phrase ellipsis (Jayaseelan 1990, Coppock 2001), Johnson (2009) famously proposed an analysis without ellipsis, describing gapping as a case of across-the-board verb phrase movement instead.

    This squib supports Johnson's contention that ellipsis is not involved in gapping. However, I note several problems with his specific proposal, suggesting across-the-board movement is not the way to go either. These problems have to do with the symmetric nature of coordination in gapping constructions, and with the nature of gapping in Dutch, where the proposed analysis can be shown not to work. I end by proposing an even more radical ellipsis-free analysis of gapping.

2   Elements of Johnson's movement analysis of gapping

I refer to Johnson 2009 for arguments, convincing in my view, that gapping is dif-ferent from verb (phrase) ellipsis. Johnson's own analysis contains the following elements (see Figure 1).

(2)   Elements of Johnson's (2009) analysis
      a.   coordination at the vP level ①
      b.   subjects are internal to both vPs, the subject of the first conjunct moves up ②
      c.   objects move out of the vP ③
      d.   across-the-board remnant VP-movement out of the vPs ④

Applied to (1), this means that *Tasman* is generated in the left conjunct *v*P, and moves out of that *v*P to SpecTP; *discovered* is the remnant VP of both conjunct *v*Ps, moved into the middle field of the first clausal conjunct (PredP); *Tasmania* is the object of the left conjunct VP, moved to the right; and is the element coordinating
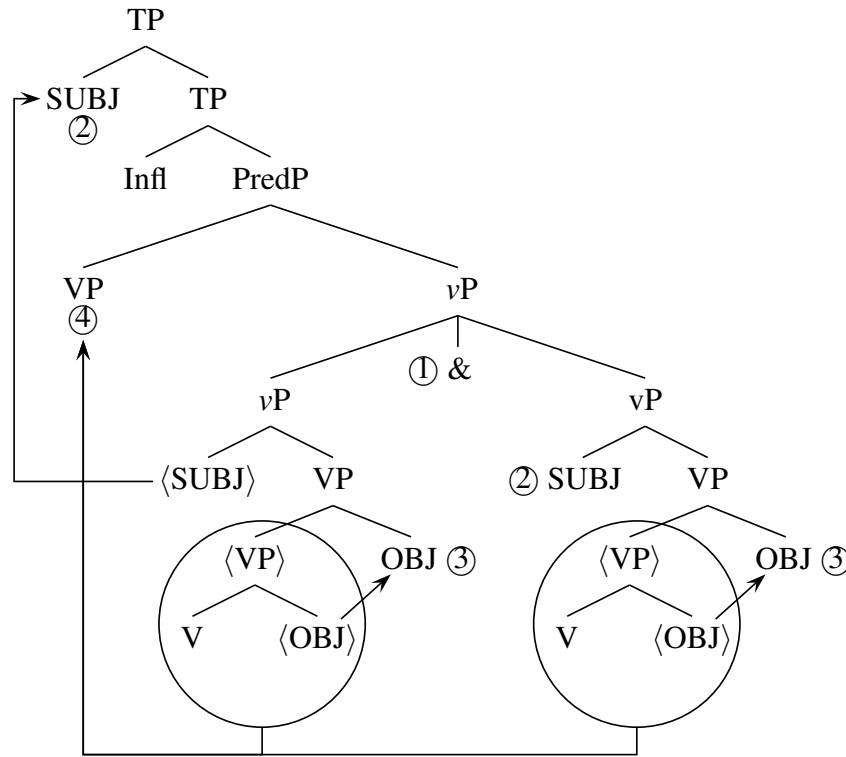
Figure 1

the two *v*P conjuncts; *Cook* is the subject of the right conjunct *v*P, staying in situ; *the Cook Islands* is the object of the right conjunct VP, moved to the right.

3 Coordination: Symmetric or asymmetric?

As Johnson (2009: 294) notes, his analysis violates the Coordinate Structure Constraint of Ross (1967), not so much in the across-the-board VP-movement, but in the movement of the subject (*Tasman* in (1)) out of the first conjunct *v*P. He refers to the observation made in the literature (see in particular Kehler 1996) that the Coordinate Structure Constraint is not observed in so-called asymmetric coordinations, and suggests that it "does seem possible" that coordination in gapping constructions is of the required asymmetric type.

This, however, is incorrect. As discussed in Kehler 2002: 83, Levin & Prince (1986) show that the asymmetric cause-effect reading of clausal coordination is lost under gapping. Consider a situation where Tasman and Cook are highly competitive characters, leading one to order more expensive drinks than the other. In that situation, (3) has the asymmetric reading that Cook orders champagne *because*

Tasman ordered wine (the symmetric reading, where Tasman and Cook just happen to order different drinks, is also available, of course):

(3)   Tasman orders wine and Cook orders champagne.

But under gapping, the asymmetric (cause-effect) reading is lost:

(4)   Tasman orders wine, and Cook champagne.

In this connection, Lakoff (1986) discusses the kinds of scenarios inducing the asymmetry that favors violations of the Coordinate Structure Constraint. These scenarios involve a natural course of events (5), reverse outcomes (6), or cause–effect (7).

(5)   This is the champage that Cook went to the store and bought.

(6)   How much champagne can you drink and still stay sober?

(7)   This is the champagne that Cook drank and lived to be one hundred

These typical scenarios all involve subject continuity. Gapping, on the other hand, requires contrastively focused subjects (and objects).

In Kehler's (2002) analysis, violations of the Coordinate Structure Constraint are only possible when the conjoined clauses involve a common topic (2002: 123, compare Lakoff 1971). In symmetric coherence relations, this leads to extraction of the common topic from both conjuncts, i.e. across-the-board extraction. In asymmetric coherence relations (contiguity, causality), there must be a single topic for both conjoined clauses, which can then be extracted (as in examples (5)–(7)). Typically, the cohesion between the two events expressed in the conjoined clauses requires that the subject of the two clauses remains constant. This makes it impossible to construe gapping counterparts to the examples in (5)–(7). As far as I can tell, only cause-effect scenarios allow for situations where the subjects are contrasted, but they require context, as in (3)–(4). And in those cases, gapping is not allowed.

It seems, then, that the violation of the Coordinate Structure Constraint in Johnson's (2009) analysis of gapping is problematic. Recall that this violation occurs when the subject of the first conjunct moves up, while the subject of the second conjunct stays inside its *v*P (see Figure 1). This subject movement is necessitated by Johnson's assumption that the subject is generated inside *v*P (his (19a)). But this assumption is a necessary ingredient of the analysis, which involves the coordination of two *v*Ps under a single TP. Under these assumptions, no alternative position presents itself for the subject of the second conjunct. The Coordinate Structure Constraint violation, therefore, is inevitable.

4 Gapping in Dutch

Gapping in Dutch is illustrated in (8) (compare to (1)) (as usual, Dutch examples are presented as embedded clauses to abstract away from the verb-second phenomenon, putting the verb in second position in main clauses):

(8)   …dat Tasman Tasmanië ontdek-te   en Cook de Cook Eilanden
       …that Tasman Tasmania discover-PST and Cook the Cook Islands
       '…that Tasman discovered Tasmania and Cook the Cook Islands.'

In Dutch embedded clauses, the word order is OV due to leftward shift of the object (Zwart 1994). The object appears to the left of adverbs and particles, including negation, that mark the *v*P boundary:

(9)   …dat Tasman Tasmanië niet ontdek-te
       …that Tasman Tasmania NEG discover-PST
       '…that Tasman did not discover Tasmania.'

The object shift applies to objects in both conjuncts (AFF = affirmative):

(10)   Hij   beweer-t dat Tasman Tasmanië wél ontdekt-te   en Cook
        he.NOM claim-3SG that Tasman Tasmania AFF discover-PST and Cook
        de Cook Eilanden níet.
        the Cook Islands   NEG.
        'He claims that Tasman did discover Tasmania, and Cook did not discover
        the Cook Islands.'

Since *de Cook Eilanden* 'the Cook Islands' in (8) is outside *v*P, it follows that *Cook*, the subject of the second conjunct in (8), cannot be inside *v*P either. While this removes the violation of the Coordinate Structure Constraint, since now both subjects have moved out of *v*P, it entails that gapping can no longer involve coordination at the *v*P level.

This means we are back at a clausal coordination analysis of gapping (presumably at the TP level). But then across-the-board extraction of the (remnant) VP would have to target a position outside TP, presumably in the left periphery, predicting VS word order in gapping (incorrectly). This could be fixed by proposing an additional subject movement out of the first conjunct, but that would be an ad hoc operation, bringing the Coordinate Structure Constraint violation back in again. (The subject is considered to be in the specifier position of TP in embedded clauses, in view of its position to the right of the complementizer, cf. (8).)

Another problem with gapping in Dutch, noted first for German in Evers 1975: 14, is that it may target discontinuous verbal elements:

(11)   …dat Tasman probeer-t [Tasmanië te   ontdek-ken   ] en   Cook
        …that Tasman try-3SG   Tasmania INF discover-INF   and Cook
        (probeer-t) [de Cook Eilanden (te ontdek-ken)]
                       the Cook Islands
        '... that Tasman tries to discover Tasmania, and Cook the Cook Islands.'

This would seem to be incompatible with any VP-movement analysis, including the remnant VP-movement analysis proposed by Johnson (2009). This argument assumes a condition of parallelism between the two conjuncts in gapping; as pointed out by Vanden Wyngaerd (2009: 48), if that condition could be relaxed, discontinuous gapping could be avoided by moving *de Cook Eilanden* 'the Cook Islands' in (11) into the matrix clause to the left of *probeert* 'tries', a movement that is generally possible in Dutch.

   All in all, though, it seems that Johnson's (2009) analysis of gapping as across-the-board remnant VP-movement does not carry over to Dutch.

5   A WYSIWYG analysis

So far we have seen that Johnson's (2009) analysis of gapping, replacing more traditional ellipsis analyses, faces problems with the Coordinate Structure Constraint and with gapping in Dutch. Nevertheless, I find Johnson's arguments against an ellipsis approach to gapping compelling, and would therefore suggest another alternative analysis, not involving ellipsis or movement.

   My alternative proposal starts from the assumption that every derivation is a triple consisting of a numeration (a set of elements), narrow syntax (the iterated operation merge), and an externalization procedure (setting the stage for sound/meaning processing). Importantly, a member of the numeration may itself be the output of another derivation (recursion). This has been referred to as 'layered derivations' (Zwart 2009, 2011). On this approach, conjuncts must be outputs of separate derivations (Zwart 2005), so that a coordinated structure *A and B* starts from the numeration (12), where *A/B* may stand for any possible conjunct, no matter its internal complexity.

(12)   { A, and, B }

In gapping constructions, A must be a clause, but B need not be. In fact, we may consider the possibility that B is just a string of noun phrases, more particularly those noun phrases that are focus alternatives to the focused noun phrases in clause A.

In the first conjunct of example (1), the focused noun phrases are *Tasman* and *Tasmania*. This means that for (1), B = [Cook the Cook Islands], i.e. what you see is what you get.

The nonfocused material in a gapping construction represents the 'focus related topic' of Tancredi (1992), i.e. that which is taken to be 'given' in the interpretation of an incomplete structure. I assume that full interpretation of a gapping construction involves the association of the focus material (B in (12)) with the focus related topic as part of the externalization procedure. Assuming this much, there is no need for a covert presence of the focus related topic material in B, i.e. no need for ellipsis in narrow syntax.

(It may be that the derivation generating B does involve ellipsis; i.e. the derivation yielding B starts out as a full clause, and is reduced to the set of focus elements during the externalization procedure of that derivation layer. This may account for the ellipsis effects in gapping found in Coppock 2001, though I leave this for further study.)

In support of this WYSIWYG analysis of gapping, I note the following.

First, as Carrera Hernández (2006: 258) observes, languages using a different conjunction for clausal coordination and noun phrase coordination lack gapping. This is illustrated in (13) for Wolof (Carrera Hernández 2006: 263, referring to Dr. Stéphane Robert by personal communication; Wolof uses *ag/ak* for noun phrase coordination).

(13)   *Jënd   naa   woto te   yow mobilette.
         to.buy PERF:1SG car   and you motorbike
         (intended) 'I bought a car and you a motorbike.'

If gapping involves clausal coordination, this generalization is mysterious, but not if in gapping the element A is a clause and the element B is a noun phrase string (assuming such a string to be characterized by the nominal category feature).

Second, on an ellipsis analysis of gapping one expects gap-remnant interactions, but these are hard to find (Ross 1970: 250). For example, in (14a) *the bucket* cannot interact with the supposedly elided verb *kicked* to yield the idiomatic reading 'die', in (14b) the elided material (*heard no one*) does not license the negative polarity item *anything*, and in (14c) the elided material (*wants Bob*) does not provide a binder for the reflexive pronoun *himself*.

(14)   a.   #John kicked the ball and Bill the bucket.
        b.   *John heard no one object and Bill say anything.
        c.   I want Bob to shave himself and Mary to wash himself.

Third, the WYSIWYG analysis proposed here accounts for the differences between gapping and VP-deletion/pseudogapping listed in Johnson 2009: 293, as well as for the observation that gapping occurs productively in languages without VP-deletion, such as Dutch. As is well known, VP-deletion/pseudogapping is not restricted to coordination, occurring with subordinating conjunctions like *before* and *because* and in embedded clauses, unlike gapping:

(15)   a.   Tasman discovered Tasmania before Cook did (the Cook Islands).
         b.   *Tasman discovered Tasmania before Cook the Cook Islands.

(16)   a.   Tasman discovered Tasmania and I think Cook did (the Cook Islands/ too).
         b.   *Tasman discovered Tasmania and I think Cook the Cook Islands.

If gapping does not involve ellipsis, parallel behavior to VP-deletion (including pseudogapping) is not predicted. Other differences between VP-deletion and gapping, such as the presence of additional material in the elliptical clause (like *hardly*, possible with VP-deletion but not with gapping), and voice mismatches between the overt and elliptical verb (possible with VP-deletion but not with gapping), also hinge on the presence of covert clausal material in ellipsis, which we no longer assume to apply to gapping on the analysis proposed here.

Finally, the analysis contemplated here derives all the locality effects of gapping identified in Neijt 1979. These effects are illustrated in (17)–(20), with the focused elements underlined.

(17)   Coordinate Structure Constraint
       *<u>Alphonse</u> cooked the rice and <u>the beans</u> and <u>Harry</u> <u>the potatoes</u>.

(18)   Sentential Subject Condition
       *That <u>Alphonse</u> ate <u>the rice</u> is fantastic and <u>Harry</u> <u>the beans</u>.

(19)   Left Branch Condition
       *People from <u>New York</u> love <u>the beach</u> and <u>LA</u> <u>the theater</u>.

(20)   Adjunct Island Condition
       *<u>John</u> saw Mary after he fixed <u>the car</u> and <u>Bill</u> <u>the bike</u>.

What unites these examples is that the focus elements in the first conjunct clause are contained within an island: *the beans* is contained within a coordinate structure in (17), both *Alphonse* and *the rice* are contained within a subject clause in (18), *New York* is contained within a left branch element in (19), and *the car* is contained within an adjunct in (20).

In a layered derivation model of grammar, islands are outputs of separate derivations (see Zwart 2009). Such an output of a separate derivation is listed as a single

element in the numeration for the next derivation, and as a corollary, its subparts are not elements in that numeration. Hence they can also not be singled out as focus elements in the derivation built on that numeration.

Concretely, in (17) *the rice and the beans* can be a focus element in the first conjunct clause, because *the rice and the beans* is an element in the numeration deriving that clause, but *the beans* is not an element in the numeration deriving the first conjunct clause, and therefore *the beans* cannot be a focus element in that clause. As a result, *the potatoes* can only be interpreted as a focus alternative to *the rice and the beans*, not as a focus alternative to *the beans*. The same goes, *mutatis mutandis*, for the island-contained intended focus elements in (18)–(20).

In conclusion, it seems that the major explananda of gapping constructions are within reach in the WYSIWYG analysis proposed here, in which the remnants are not the by-product of ellipsis or remnant movement, but simply the focus alternatives to the focused noun phrases in the antecedent clause.

6 Conclusion

In this squib I have (i) endorsed the arguments advanced in Johnson 2009 against an ellipsis analysis of gapping, (ii) argued that the alternative analysis advanced by Johnson, involving remnant-VP across-the-board movement, runs into problems with the Coordinate Structure Constraint and with gapping in Dutch, and (iii) proposed a new 'what you see is what you get' analysis of gapping, in which the remnant noun phrases are the output of a separate derivation yielding a string of focus alternatives to the focused noun phrases in the antecedent clause. This analysis, couched within the framework of layered derivations of Zwart (2009), explains major properties of gapping, setting it apart from VP-deletion/pseudogapping, and accounting for its locality properties.

Kyle Johnson was one of the first visiting faculty I encountered in the context of the Dutch national linguistics graduate training program, and I have benefited greatly from his work, his encouragement, and his friendship. I've also adopted Kyle's habit of letting papers float around in semi-published form for many years, and the material in this squib, first presented in Utrecht in 2007 and then in Budapest in 2009, is no exception. I can think of no better place for this paper to finally land than in his well-deserved tribute.

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