

The size of things I

Structure building

Edited by

Sabine Laszakovits

Zheng Shen

Open Generative Syntax



Open Generative Syntax

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Contents

Acknowledgments	iii
Introduction: The size of things Zheng Shen & Sabine Laszakovits	v
I The size of clausal complements	
1 Restructuring and nominalization size Emily A. Hanink	3
2 Matters of size and deficient functional categories in three Turkic languages: Turkish, Turkmen, and Noghay Meltem Kelepir	25
3 Akan complements on the implicational complementation hierarchy Caroline Pajančič	45
4 Backward vs. forward control/raising: A case of Lak aspectual verbs Nina Radkevich	67
5 Future interpretation in Gitksan and reduced clausal complements Neda Todorović	89
6 Size of sentential complements in Japanese Hiroaki Saito	115
7 Against embedded modal as control in Japanese: Its relevance to the implicational complementation hierarchy Koji Shimamura	131
8 Some notes on the scope properties of nominative objects in Japanese Masahiko Takahashi	153

Contents

9	Greek aspectual verbs and the causative alternation	
	Artemis Alexiadou & Elena Anagnostopoulou	173
10	Tales of an unambitious reverse engineer	
	David Pesetsky	187
 II Size beyond clausal complements		
11	On the size of Spell-Out domains: Arguments for Spell-Out of intermediate projections	
	Akihiko Arano	227
12	Stripping in Hindi: Does clause size matter?	
	Troy Messick & Deepak Alok	247
13	Three applicative GEs in Mandarin Chinese	
	Pei-Jung Kuo	265
14	The middle field of Brazilian Portuguese and the size of the verbal domain	
	Renato Lacerda	285
15	Particle-verbs in an Austrian-American code-switching idiolect	
	Jonathan David Bobaljik & Leo Bobaljik Wurmbrand	305
16	Noun phrases, big and small	
	Asya M. Pereltsvaig	323
17	Some notes on MaxShare	
	Zheng Shen	339
	Index	363

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Most importantly, we thank Susi Wurmbrand, without whom the volumes would not be possible. Happy birthday, Susi!

Introduction: The size of things

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Size in grammar, broadly construed, is the focus of this two-volume collection, *The size of things*. Under the umbrella term *size* fall the size of syntactic projections, the size of feature content, and the size of reference sets. Size and structure building is the shared focus of papers in Volume I, while Volume II presents papers looking into size effects in movement, agreement, and interpretation. Integrating a variety of research projects under this common theme, we hope this collection will inspire new connections and ideas in generative syntax and related fields.

The most productive research program in syntax where size plays a central role revolves around clausal complements. Part 1 of Volume I contributes to this program with papers arguing for particular structures of clausal complements as well as papers employing sizes of clausal complements to account for other phenomena. The ten contributions cover a variety of languages, many of which are understudied. Hanink discusses the availability of restructuring with thematic nominalizations in Washo. Kelepir investigates the size of the verbal domain under the nominalizing head in Turkman, Noghay and Turkish. Radkevich looks into aspectual verbs in Lak, and Alexiadou & Anagnostopoulou into aspectual verbs in Greek. Pajancic explores sizes of clausal complements in Akan in the context of the Implicational Complementation Hierarchy and the Finiteness Universal. Pesetsky offers an alternative account for non-finite clauses in English to the one in Wurmbrand 2014. Shimamura also contributes to the Implicational Complementation Hierarchy with a novel analysis of sentential complementation of *yoo* in Japanese. Takahashi uses scope properties of nominative objects in Japanese to support the phrasal complementation approach to restructuring. Saito attributes the different behaviors of the Japanese particles *teki* and *ppoi* as



well as *mitai* and *yoo* to the sizes of the clausal complement they take. Todorović uses different sizes of clausal complements in Gitksan to account for the distribution of future interpretation.

The papers in Part 2 of this volume explore the interaction between size and structure building beyond clausal complements. There are six papers in this part covering different domains in sentence structure. Within the CP domain, Arano explores the debate over the size of the Spell-out domain in the CP and argues the CP phase to be the Spell-out domain. Messick and Alok use restrictions on stripping in Hindi to argue that the size of an embedded clause with the complementizer *ki* in Hindi is different from an embedded clause with the complementizer *that* in English. Inside the vP domain, Kuo argues for different positions of the applicative *gei* in Mandarin Chinese, and Lacerda looks into object shift and middle-field topicalization. Bobaljik and L. B. Wurmbrand discuss a productive Austrian-American code-switching pattern involving English particle verbs and German verb clusters. Regarding the NP domain, the contribution by Pereltsvaig surveys the sizes of noun phrases in articleless languages and illustrates different behaviors of DPs and small nominals. Lastly, Shen discusses several aspects of the MaxShare constraint on multi-dominance, which maximizes the size of the shared elements.

All the papers in these two volumes are influenced in various ways by the work of Susi Wurmbrand, who not only pioneers the investigation into clausal complements across languages from the lenses of binding, finiteness, movement, restructuring, tense, and verb clusters, but has also deepened our understanding of Agreement, Case, features, and quantifier raising. Furthermore, Susi has had a direct personal impact on the work of all contributors and editors, and so we dedicate this book to her not only in recognition of her achievements, but also in gratitude of her generosity to us.

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Part I

The size of clausal complements

Chapter 1

Restructuring and nominalization size

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This paper addresses the interaction between restructuring and nominalization in Washo (isolate, USA). An overview of the basics of restructuring in Washo is provided, and then two types of thematic nominalizations – subject and object – are compared with respect to their underlying structure and the availability of restructuring. Particular attention is paid to predictions determining the availability of both functional and lexical restructuring; with specific regard to the latter, the Washo data offer preliminary evidence that the height of the nominalization must contain at least VoiceP to facilitate agent sharing (Wurmbrand & Shimamura 2017).


1 Introduction

This paper addresses the interaction between restructuring and nominalization size in Washo (isolate, USA). While Washo allows for restructuring in some nominalizations, it is shown that sufficient structure must be projected. I demonstrate this with a comparison between two types of thematic nominalizations in the language, subject and object, which differ in their underlying structure. The interaction between restructuring and nominalization is not well-studied, but offers an exciting venue for future research. The modest aim of this paper is therefore to offer some discussion of the basics of restructuring in Washo (§2), and to highlight some questions regarding the relationship between nominalization height and the availability of restructuring, based on currently available data (§3–§4).

2 Restructuring in Washo

The term *restructuring* refers to constructions in which an “embedded predicate is transparent for properties which are otherwise clause-bound” (Wurmbrand



Emily A. Hanink. 2021. Restructuring and nominalization size. In Sabine Laszakovits & Zheng Shen (eds.), *The size of things I: Structure building*, 3–23. Berlin: Language Science Press. DOI: ?? 

2015: 248). For example, one common diagnostic for restructuring comes from the availability of clitic climbing, as shown with the Italian contrast in (1a–1b) (Wurmbrand 2004: 991–992):

(1) Italian

- a. Lo volevo [vedere t_{cl} subito].
him I-wanted see immediately
'I wanted to see him immediately.' *Restructuring*
- b. *Lo detesto [vedere t_{cl} in quello stato].
him I-detest see in that state
Intended: 'I detest seeing him in that state' *Non-restructuring*

While restructuring phenomena have largely been studied in analytic-type languages, agglutinative-type languages likewise display restructuring effects. This is illustrated for example in (2) with Japanese, in which the restructuring verb *wasure* 'forget' occurs as an affix on the non-finite verb *tabe* 'eat' within the same predicate. Such predicates instantiate restructuring in that they exhibit monoclausal effects; see Shimamura & Wurmbrand 2014 for more details.

(2) Japanese

- John-wa subete-no ringo-o tabe-wasure-ta.
John-TOP all-GEN apple-ACC eat-forget-PST
'John forgot to eat all the apples.' (Shimamura & Wurmbrand 2014: 2)

In Washo, a head-final language like Japanese, restructuring verbs are likewise affixed onto a non-finite (tenseless) verb to form a complex predicate (3).¹

(3) Washo

- l-éšim-dugá:gu-yi
1-sing-not.know.how-IND
'I don't know how to sing.'²

Here, clause-bound transparency is revealed by the presence of a single agreement morpheme at the left periphery (prefixal agreement is only for person).

¹Washo (iso: was) is an endangered isolate spoken in several communities of California and Nevada surrounding Lake Tahoe. Some typologists group Washo within the Hokan family, see e.g., Campbell (1997) and Mithun (1999) for discussion. Orthography is adapted from Jacobsen (1964); non-IPA symbols in this paper are L [l], š [ʃ], and y [j]. Stress is represented with an acute accent. Unless otherwise stated, the Washo data come from the author's fieldwork.

²Some verbs in Washo are inherently negative, as is the case with *dugá:gu* 'not know how'.

Agreement morphology may not appear on both verbs, which I take as evidence for the reduced and non-finite status of the embedded verbal domain. In the same vein, just one set of TAM marking is observed at the right periphery; negation must likewise be clause-peripheral, and may not intervene between the verbs.

This strategy stands in contrast for example to finite embedding in the language, which comes in the form of either a clausal nominalization (4) or a bare (non-nominalized) clause (5), depending on the embedding predicate (Hanink & Bochnak 2018). Independent tense and mood marking are permitted in both of these clause types.³ Clausal nominalizations further provide evidence for a CP-layer in that they exhibit switch reference morphology (see Arregi & Hanink 2018). The upshot is that both of these embedding strategies involve finite clauses.

- (4) Finite embedding of a clausal nominalization (nominalized CP)

Adele [*pro* daláʔak ʔ-i:gi-yi-Ø-ge] hámpup'a-yé:s-i
 Adele [*pro* mountain 3/3-see-IND-SS-NM.ACC] 3/3.forget-NEG-IND
 'Adele remembers that she saw the mountain.'⁴

- (5) Finite embedding of a bare clause (MoodP)

pro [*pro* di-yé-iʔiš-aʔ] di-gum-suʔúʔuś-iʔ-i
pro [*pro* 1-fly-forward-DEP] 1-REFL-dream-ATTR-IND
 'I dreamt that I was flying.'

Washo Archive

2.1 Restructuring in Washo

Restructuring in Washo is found with a range of aspectual suffixes (6), as well as with modal 'know how to' (7) and desiderative 'want' (8) (which can also mean 'like'). Below I have classified a subset of these verbs (a term used loosely here, see §2.2) based on Grano's (2012: 16) sorting of Landau's (2000) classes; Grano draws from the set of restructuring verbs in Wurmbrand (2001: 342). The examples in (9) list some verbs in Washo that do not fall clearly into any of these categories.

- (6) Aspectual

- a. zí:gin l-éʔw-gáŋa-leg-i
 chicken 1/3-eat-start-REC.PST-IND
 'I started to eat the chicken.'
- b. mí:lé:we di-dulé:k'il-mámaʔ-ášaʔ-i
 2.PRO-for 1/3-cook-finish-PROSP-IND
 'I'll finish cooking for you.'

Washo Archive

³Washo is an optional tense language (Bochnak 2016), and tense marking often does not appear.

⁴'Remember' in Washo can only be expressed by negating 'forget'.

- c. háʔaš-dúweʔ-i
3.rain-be.about.to-IND
'It's about to rain.'
- d. t'é:liwhu bánkuš-íweʔ-i
man 3.smoke-stop-IND
'The man stopped smoking.'

Washo Archive

- (7) Modal
t'é:liwhu bašáʔ-dugá:gu-yi
man 3.write-not.know.how-IND
'The man doesn't know how to write.'

- (8) Desiderative
- a. di-gé:gel-gaʔlám-i
1-sit-want-IND
'I want to sit.'
- b. l-éšim-gaʔlám-i
1-sing-like-IND
'I like to sing.'

Washo Archive

- (9) Other
- a. di-bamušéʔeš-tamugáyʔliʔ-i
1-read-be.tired.of-IND
'I'm tired of reading.'
- b. l-éšim-duwéʔweʔ-ášaʔ-i
1-sing-try-PROSP-IND
'I'm going to try to sing.'⁵
- c. di-gum-yá:gim-ḡáḡa-hu-yaʔ
1-REFL-smoke-pretend-PL.INCL-DEP
'Let's pretend to smoke one another.'

Bear and Deer Story

2.2 Lexical vs. functional restructuring

Wurmbrand (2001) argues for a distinction between *lexical* and *functional* restructuring (see also Wurmbrand 2004; cf. Cinque 2001, 2004, Grano 2012), which depends on whether the restructuring element is a lexical verb or a functional head, e.g., Asp or Mod. I show in this section that this distinction, which will come up in the discussion of nominalizations, appears to be motivated in Washo.

⁵The verb 'try' is the reduplicated form of the aspectual verb 'be about to' (6c). This is an unusual instance of reduplication, which generally indicates plurality in Washo (see Yu 2005, 2012).

Wurmbrand (2004) lays out several diagnostics for lexical vs. functional restructuring. For example, only lexical restructuring verbs show flexibility in selection. In Washo, this is observed in that lexical verbs may select for a nominal argument (10a); this is however not possible in functional restructuring (10b).

(10) Variation in selection

- a. [di-mók'o] di-*tamugáyʔliʔ*-i
[1-shoe] 1/3-*be.tired.of*-IND
'I'm tired of my shoes.'
- b. * [ʔitbamušéʔeš] di-*gáŋaʔ*-i
[book] 1/3-*start*-IND
Intended: 'I started the book.'

Second, functional restructuring is compatible with weather subjects (11b), while lexical restructuring is not (11a):

(11) Weather verbs

- a. * baŋáya wa-métuʔ-*tamugáyʔliʔ*-i
outside STAT-*be.cold-be.tired.of*-IND
Intended: 'It's tired of being cold outside.'
- b. baŋáya wa-métuʔ-*iweʔ*-i
outside STAT-*be.cold-stop*-IND
'It stopped being cold outside.'

Additionally, Washo exhibits cross-linguistically rare object control in restructuring (cf. Cinque 2001), exemplified in (12) with the verb *méwil* ('ask (someone) to do something'). Such examples pose a problem for accounts in which restructuring is limited entirely to functional heads, as such heads are predicted not to be able to select for internal arguments.

(12) Adele l-é:biʔ-*méwil*-i

Adele 1/3-come-*ask*-IND
'I asked Adele to come.'

Finally, variation is observed in possible orderings of the causative morpheme. In cases of lexical restructuring, the causative morpheme may appear as a suffix on the lower verb (13a), or at the periphery of both verbs (13b).⁶ In cases of functional restructuring, it may only appear in a right-peripheral position (14).⁷

⁶This may in fact be a diagnostic for the optionality of lexical restructuring.

⁷The position of the causative morpheme in Washo is sensitive to phonological factors, see e.g., Jacobsen 1973, Benz 2018, but that is not what is driving the contrast here.

(13) Position of the causative in lexical restructuring

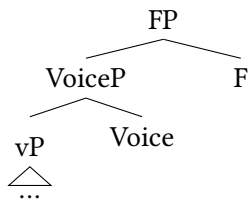
- a. dímeʔ di-yák'aš-*ha*-gaʔlám-i
water 1/3-be.warm-*CAUS*-want-IND
'I want to warm the water up.'
- b. dímeʔ di-yák'aš-gaʔlám-*ha*-yi
water 1/3-be.warm-want-*CAUS*-IND
'I want to warm up the water.'

(14) Position of the causative in functional restructuring

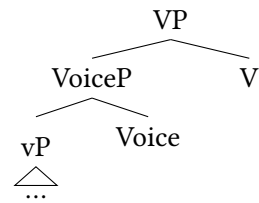
- a. dímeʔ di-yák'aš-gáŋa-*ha*-yi
water 1/3-be.warm-start-*CAUS*-IND
'I'm starting to warm the water up.'
- b. *dímeʔ di-yák'aš-*ha*-gáŋaʔ-i
water 1/3-be.warm-*CAUS*-start-IND
Intended: 'I'm starting to warm the water up.'

While a precise analysis explaining the range of such effects awaits future research, moving forward I follow Wurmbrand (2001, et seq.) in treating functional restructuring as involving functional heads in the clausal spine such as Asp/Mod (Cinque 2001, 2004, Grano 2012), represented in (15) below as “F”, but lexical restructuring as involving lexical verbs that select for an embedded VoiceP (16), in a way to be made more precise in the next subsection.

(15) Functional restructuring



(16) Lexical restructuring



2.3 Lexical restructuring involves agent sharing

Relevant for the discussion of nominalizations moving forward is the proposal that lexical restructuring involves the selection of VoiceP by a restructuring verb (Wurmbrand 2015, Wurmbrand & Shimamura 2017), rather than the selection of a bare VP (e.g., Wurmbrand 2001, 2004). This proposal is motivated by languages

that show a variety of effects of Voice in restructuring environments.⁸ I briefly summarize their approach and show how it extends to Washo.

Adopting the proposal that (causative) *v* co-occurs with Voice within a split-voice domain (i.a. Bowers 2002, Folli & Harley 2005, Alexiadou et al. 2006, Marantz 2008), Wurmbrand & Shimamura (2017) offer the following derivation of a matrix clause with active voice (Figure 1). In this structure, the Voice head introduces the agent and bears both agent and accusative case features, while *v* carries transitivity information. The valuation of interpretable ϕ -features as well as feature sharing between the DP argument and Voice corresponds to theta-assignment.

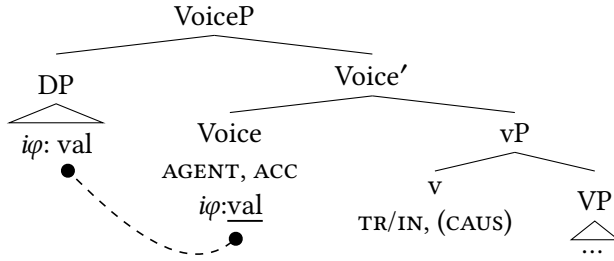


Figure 1: Feature sharing between DP and Voice (Wurmbrand & Shimamura 2017)

Wurmbrand & Shimamura (2017) adopt moreover a valuation approach to Agree (Pesetsky & Torrego 2007), formulated in (17) as Reverse Agree, which accounts for the downward valuation of the agent's features onto Voice.

(17) Reverse Agree (Wurmbrand 2014)

A feature $F: _$ on α is valued by a feature $F: \text{val}$ on β iff

- a. β c-commands α AND
- b. α is *accessible* to β
- c. α does not value {a feature of β }/{a feature F of β }

In restructuring configurations (see below), the restructuring verb selects for VoiceP. Crucially, matrix Voice agrees with the DP subject in its specifier before valuing *iφ* on the lower Voice head (see Wurmbrand 2015, Wurmbrand & Shimamura 2017 for distinctions between voice matching and default voice languages). No embedded subject is projected; this proposal therefore accounts for the fact

⁸While voice distinctions play a large role here, Washo lacks a passive (Jacobsen 1979).

that an overt subject is not allowed in the embedded VoiceP. Instead, feature sharing results in agent sharing between Voice heads.

Evidence for the presence of embedded VoiceP in Washo comes from the appearance of the causative morpheme *-ha* between the lower and higher verbs, indicating that the complement of the restructuring verb is larger than VP. Adopting Wurmbrand & Shimamura’s (2017) proposal for Washo, the structure for an example such as (18) is then as in Figure 2 (schematized without head movement). No embedded subject is projected, instead embedded Voice enters into a dependency with the higher Voice head, whose features it then shares.

- (18) *díme? di-yák’aš-ha-tamugáy?li?-i*
 water 1/3-be.warm-CAUS-be.tired.of-IND
 ‘I’m tired of warming up the water.’

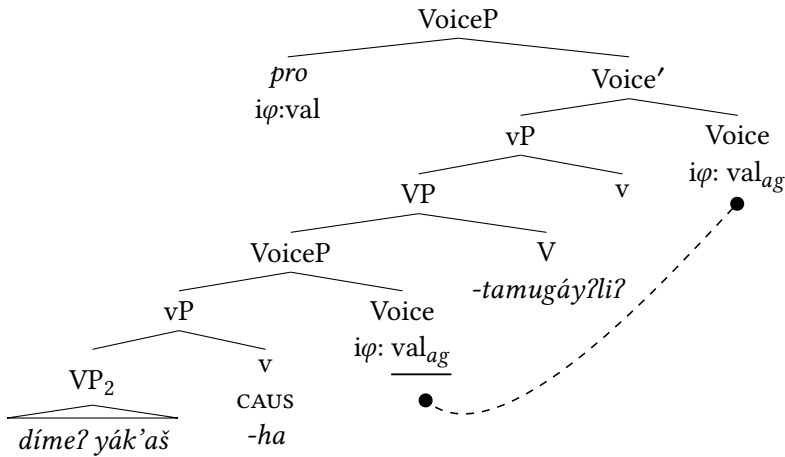


Figure 2: General schematic for restructuring in Washo

3 Restructuring in nominalizations

I now turn to the interaction between restructuring and nominalization. Beyond the sentential level, restructuring is also observed in certain nominalizations; by contrasting subject and object nominalizations, I show below that the height of the nominalization determines whether restructuring is possible. Functional restructuring requires higher aspectual heads to be present in order to obtain, while

the proposal put forward in §2.3 predicts that the projection of at least VoiceP within the nominalization is required for lexical restructuring.

3.1 Thematic subject nominalizations

The first nominalization type I discuss is thematic subject nominalizations, characterized in Washo by a lack of TAM marking as well as the presence of the phonologically conditioned prefix *t’-/d^e-* (Jacobsen 1964):

(19) Thematic subject nominalizations

a. *da-mt’áʔŋaʔ*

3.UN-hunt

‘hunter’

Washo Archive

b. *dé:guš t’-í:k’eʔ*

potato 3.UN-grind

‘potato grinder’ (*man’s name*)

(Jacobsen 1964: 354)

Much focus in the literature on subject nominalizations has focused on *-er* nominals (Rappaport-Hovav & Levin 1992, Baker & Vinokurova 2009, Alexiadou & Schäfer 2010), which are generally limited to agentive interpretations cross-linguistically (though see Alexiadou & Schäfer 2008, 2010), exemplified in (20):

(20) a dazzled [*admir-er* of Washington] (Rappaport-Hovav & Levin 1992)

Baker & Vinokurova (2009) argue that non-agentive subject nominalizations are distinguishable from *-er* nominals by the availability of: (i) direct objects and (ii) unaccusative subjects. In their analysis, deverbal *-er* nominals do not project beyond VP (cf. Alexiadou & Schäfer 2010), precluding accusative case licensing as well as external arguments in this nominalization type (*-er* is a nominal Voice head (cf. Kratzer 1996), contributing the necessarily agentive meaning).

On the first point, (21) shows that accusative direct objects are licensed in Washo *t’-/d^e-* nominalizations (*t’ánu* ‘people’; note that accusative is unmarked on nouns), while the presence of *v* and Voice is diagnosed by the availability of the causative suffix *-ha*. On the second point, non-agentive unaccusative subjects are also possible (22), consistent with the fact that the nominalizer does not take the place of an agentive subject, as on Baker & Vinokurova’s 2009 analysis.⁹

⁹Unaccusativity is diagnosed by the ability to undergo the inchoative/causative alternation.

- (21) t'ánu t'-íši-w-ha
people 3.UN-get.well-CAUS
'people healer' (Lit. 'one who heals people')
- (22) da-góta?
3UN-break
'something that is broken'

Relatedly, evidence for a syntactically-projected subject in VoiceP (beyond accusative licensing) comes from the availability of reflexives (23), for which PRO serves as a licit antecedent (cf. Baker & Vinokurova 2009 on Gikũyũ (Bantu)).

- (23) Ramona de-gum-dí?ye? L-é?-i
Ramona 3.UN-REFL-call 1-be-IND
'My name is Ramona.' (Lit. 'one who calls herself Ramona')

Subject nominalizations in Washo are therefore not of the *-er* type, and, based on the above behaviors from complementation and subject flexibility, can be taken to contain at least VoicePs (cf. Bochnak et al. 2011). I note moreover that they are in fact even larger, as there is preliminary evidence that aspectual suffixes are also permitted, as in (24), which contains the progressive suffix *-giš*:

- (24) t'ánu da-báŋkuš-i-giš k'-é?-i
person 3.UN-tobacco-ATTR-*PROG* 3-be-IND
'People are always smoking.' (Lit. 'ones who are continually with tobacco')

I now turn to the predictions for restructuring. Beginning with functional restructuring, the prediction is that at least AspP/ModP must be projected for restructuring to obtain. We saw in (24) that there is in fact evidence for an AspP layer in these nominalizations, leading to the prediction that functional restructuring should be possible. (25) shows that this prediction is borne out: functional restructuring with e.g., aspectual *-íwe* 'stop' is permitted:

- (25) Functional restructuring in subject nominalizations
t'-íšim-íwe-yé:s
3.UN-sing-*stop*-NEG
'one who doesn't stop singing'

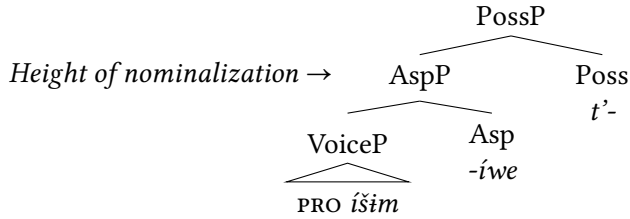


Figure 3: Functional restructuring in subject nominalizations

The availability of functional restructuring follows straightforwardly from the fact these nominalizations may contain functional layers such as AspP. This is schematized in Figure 3 for the example in (25) (shown without negation):¹⁰

Turning to lexical restructuring, the prediction is specific to VoiceP. On the account presented in §2.3, lexical restructuring requires agent sharing across Voice heads; the height of nominalization must therefore be at least VoiceP. We saw above that subject nominalizations do involve VoiceP as well as a projected subject, leading to the prediction that restructuring should be possible. This is again borne out, as demonstrated in (26) with the lexical verb *-gaʔlám* ‘like’:

(26) Lexical restructuring in subject nominalizations

t'-ém̩lu-gaʔlám-é:s

3.UN-eat-like-NEG

‘one who doesn’t like to eat’

Washo Archive

Unlike functional restructuring, lexical restructuring relies on agent sharing. As the nominalization targets (at least) VoiceP, this is possible because the φ -features on embedded Voice can be valued by the higher Voice head (see Figure 4, cp. Figure 2).

In sum, that thematic subject nominalizations in Washo support both functional and lexical restructuring is consistent with the fact that their structure is quite large. Note that if Baker & Vinokurova (2009) are correct that agent nominalizations contain only VP, then restructuring should not be possible in *-er*-nominals cross-linguistically, as higher functional heads will not be present, nor will agent sharing be possible. Restructuring thus provides a further diagnostic to distinguish between different types of subject nominalizations.

¹⁰Note that the presence of PossP in these structures is due to the fact that the prefix *t’-/dʰ-* is not an invariant nominalizer, but in fact a form of possessor agreement that appears with covert third person possessors. I do not go into this any further here due, but see Hanink (2020).

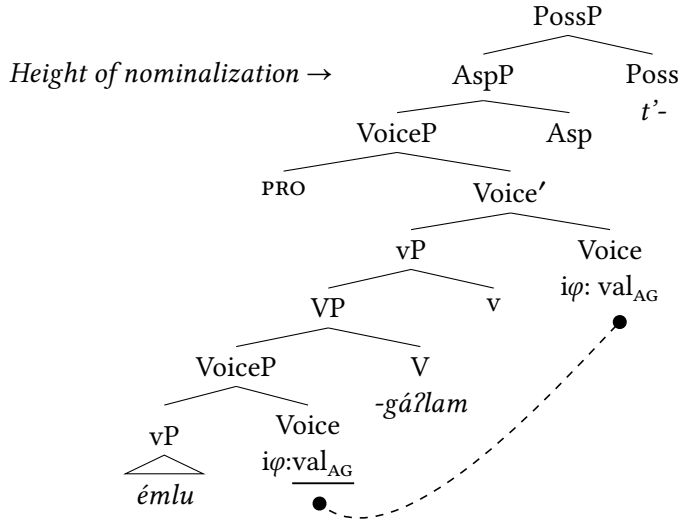


Figure 4: Lexical restructuring in subject nominalizations

3.2 Unexpressed theme nominalizations

I now move on from subject nominalizations to a type of *object* nominalization in Washo, which I term *unexpressed theme nominalizations*. This class of nominalizations is characterized by the invariant nominalizing prefix *d-*, as in (27):

(27) Unexpressed theme nominalizations

- a. *d-íšim*
NMLZ-sing
'song'
- b. *d-á:mu?*
NMLZ-wear.dress
'dress'

This type of nominalization refers to an unexpressed internal argument (essentially a cognate object, cf. Barker (1998) on *-ee* nominalizations), and can only apply to unergative verbs, not transitives or unaccusatives; Washo distinguishes between transitive/intransitive variants for several of these verbs (28), even with object drop (28c) but only the intransitive form may be nominalized by *d-* (29).

(28) Intransitive vs. transitive ‘eat’

a. *m-émlu-yi*

2-eat.IN-IND

‘You’re eating.’

b. *t’á:daš m-íʔw-i*

meat 2/3-eat.TR-IND

‘You’re eating meat.’

c. *m-íʔw-i*

2/3-eat.TR-IND

‘You’re eating it.’

(Jacobsen 1979: 149)

(29) Nominalization of intransitive vs. transitive ‘eat’

a. *d-émlu*

NMLZ-eat.IN

‘food’

b. **d-íʔw*

NMLZ-eat.TR

Intended: ‘food’

It is crucial here that unexpressed theme nominalizations differ from subject nominalizations in that they are deficient in verbal structure and do not license overt arguments. With this in mind, one way of deriving the meaning for this nominalization type is to treat *d-* as a root-selecting nominalizer that also introduces a theme (30b). This would rule out categorization of transitive and unaccusative roots by *d-*, as they are lexically specified as having a theme and are therefore of type $\langle e, \langle v, t \rangle \rangle$. The resulting meaning for the nominalization is then the set of individuals that are the themes of generic eating events, i.e., *food*.

(30) a. $\llbracket \sqrt{emlu} \rrbracket: \lambda e_v [\text{eat}(e)]$

b. $\llbracket d- \rrbracket: \lambda P_{\langle v, t \rangle} \lambda x_e. \text{Gen } e [P(e) \ \& \ \text{THEME}(x)(e)]$

c. $\llbracket d- \rrbracket (\llbracket \sqrt{emlu} \rrbracket): \lambda x_e. \text{Gen } e [\text{eat}(e) \ \& \ \text{THEME}(x)(e)]$

The treatment of *d*-nominalizations as root nominalizations rather than nominalizations of some verbal structure is further corroborated by Marantz’s (2001) diagnostics distinguishing *root-cycle* vs. *outer-cycle* attachment. For example, merger with a root is not only consistent with idiosyncratic meanings (31), but also implies that the resulting meaning depends on the semantics of the root itself, rather than on argument structure. Given that the argument structure of

unergative verbs does not entail a syntactically projected internal argument, the semantics of this nominalization must be sensitive to the meaning of the root instead.

- (31) *d-ime?*
NMLZ-drink
 ‘water’ (*not* ‘(a) drink’)

I therefore propose that the nominalizations in (27) have the structure in Figure 5.

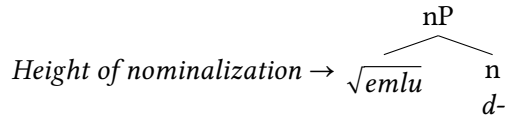


Figure 5: Unexpressed theme nominalizations

Relevant for our purposes is that neither functional nor lexical restructuring is ever possible in this type of nominalization (32), unlike in the deverbal nominalizations described in the previous subsections. This fact is immediately obvious if *d*-nominalizations are root nominalizations, and therefore do not in fact project any verbal structure (Figure 5) despite their superficially deverbal appearance.

- (32) No restructuring in unexpressed theme nominalizations
- a. **d-émlu-ga?lám*
NMLZ-eat.IN-like
 Intended: ‘food that is liked/wanted’
 - b. **d-émlu-máma?*
NMLZ-eat-finish
 Intended: ‘finished food’

To summarize, unexpressed theme nominalizations do not permit restructuring, which is immediately predicted due to their lack of verbal structure. This is of course not surprising, given that they turn out to be root nominalizations. While both subject and object nominalizations superficially appear to be deverbal, the availability of restructuring in the former but not the latter corroborates independently observed differences in the amount of structure they project.

4 Other nominalizations in Washo

We have seen in the previous section that subject nominalizations in Washo are large enough to allow for restructuring, while object nominalizations are not. Before concluding, I turn briefly to two further types of nominalizations in Washo – gerunds and instrumental nominalizations – that lead to predictions about the availability of restructuring, but for which relevant data is lacking at this time.

4.1 Gerunds

Gerunds in Washo, like subject nominalizations, lack TAM marking and do not make use of an overt nominalizer. Unlike subject nominalizations however, gerunds allow overt subjects and therefore show normal prefixal agreement, which I again treat as possessor agreement resulting from the presence of Poss (I return to this below).¹¹ One environment that gerunds occur in is as the subject of the underspecified modal *éʔ* (33a), which is otherwise a copula (Bochnak 2015a,b). Another is as the complement of certain verbs, e.g., ‘want’ (33b).

(33) Gerunds

- a. [hútiweʔ lem-íʃil] kʼ-éʔ-i
 [something 2/1-give] 3-be-IND
 ‘You have to give me something.’
 (Lit. ‘Your giving me something is necessary.’)
- b. [l-élšim] di-gaʔlám-i
 [1-sleep] 1/3-want-IND
 ‘I want to sleep.’ (Lit. ‘I want my sleeping.’)

Based on this distribution, I treat this construction as a type of *-ing* nominalization. Within the domain of *ing*-nominalizations, Kratzer (1996) distinguishes between ‘poss’-*ing* and ‘of’-*ing* constructions (see also Abney 1987, Alexiadou 2005, Harley 2009), which differ for example in whether the complement of the verb is introduced as a direct object (34a), or by the preposition *of* (34b).

(34) *-ing*-nominalizations

- a. We remember his building the barn.
- b. His rebuilding of the barn took five months. (Kratzer 1996: 126–127)

¹¹Washo exhibits portmanteau agreement marking for subject/object (Jacobsen 1964), which in this case can be understood as possessor/possessum.

Kratzer argues that ‘poss’-*ing* nominalizations must include at least a VoiceP layer, as accusative case is licensed on the direct object. This is the case in Washo gerunds, as shown by the availability of the accusative pronoun *gé:* in (35):

- (35) Eddy ʔwáʔ ʔ-éʔ-é:s-i-š-ŋa [*gé:* l-í:gi] k’-éʔ-i
 Eddy here 3-be-NEG-IND-DS-but 3.PRO.ACC 1/3-see 3-be-IND
 ‘Eddy isn’t here but I need to see him.’ [=‘My seeing him is necessary’]

Further, as with subject nominalizations, there is again evidence that AspP is also present in such structures, as suggested by examples such as in (36), which contains the progressive morpheme *-giš:*

- (36) ʔum-lóʔc’iw-giš k’-éʔ-i
 2-run-PROG 3-be-IND
 ‘You need to keep running.’ (Lit. ‘Your continuing to run is necessary.’)

Based on these characteristics, I adopt the structure in Figure 6 for gerunds in Washo, building on Kratzer (1996).¹²

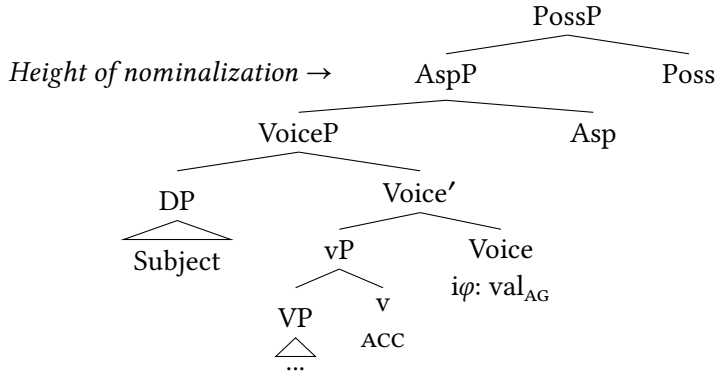


Figure 6: General schematic for gerunds in Washo

The presence of AspP in the structure again predicts that functional restructuring should be possible in gerunds. This prediction is borne out, as shown with the aspectual suffixes ‘start’ and ‘finish’ in (37a–37b), respectively:

¹²I assume again here that these nominalizations involve PossP, on the assumption that the agreement is in fact a form of agreement triggered by Poss, rather than T. Possessor agreement and verbal agreement are identical in almost all cases; I unfortunately do not have available the relevant data that might distinguish them. Note also that the case of the possessor is nominative/unmarked; the absence of case marking on the gerund’s subject is therefore not surprising. See e.g., Pires (2007) for tests distinguishing clausal gerunds (treated as TPs) from *poss-ing* nominalizations (see also Chomsky 1970, Abney 1987). Fieldwork/research is ongoing.

(37) Gerunds with restructuring

- a. [mé:hu šáwlamhu wagay-áŋa-gáŋa?] k-é?-i
 [boy girl 3.talk-APPL-start] 3-be-IND
 ‘The boy should start talking to the girl.’
 (Lit. ‘The boy’s starting to talk to the girl should be.’)
- b. [di-bamušé?eš-máma?] di-ga?lám-i
 [1-read-finish] 1/3-want-IND
 ‘I want to finish reading.’ (Lit. ‘I want my finishing to read.’)

Regarding lexical restructuring, the presence of VoiceP in gerunds likewise predicts agent sharing to be possible (barring semantic anomaly), leading to the availability of lexical restructuring in gerunds. I unfortunately do not have data to test this prediction at present, and so I must leave this question to future work.

4.2 Instrumental nominalizations

Another nominalization type for which restructuring remains to be tested are instrumental nominalizations, formed by the prefix *?it-* (38). As demonstrated through the availability of direct objects (38a), the causative morpheme (38a–38b), and reflexive marking (38b), such nominalizations target at least VoiceP.

(38) Instrumental nominalizations

- a. pú:t’e? ?it-yúli-ha
 fly INST-to.die-CAUS
 ‘fly swatter’ (Lit. ‘something to kill flies with’) Washo Archive
- b. ?it-gum-p’á?lu-šóšonj-ha
 INST-REFL-on.cheeks-be.red-CAUS
 ‘rouge’ (Lit. ‘something to make one’s cheeks red with’) Washo Archive

Due to the presence of VoiceP, it is predicted that lexical restructuring should be possible; functional restructuring is predicted to be allowed should it turn out that aspectual suffixes are also permitted. Here again I must test these predictions in future work. I note as well that an interesting case would be a type of nominalization with an intermediate size, smaller than VoiceP but larger than a root nominalization. I am unfortunately unaware of any such nominalizations in Washo, but this points to an open empirical question for cross-linguistic research.

5 Conclusion

Susi Wurmbrand's rich work over the years has opened to the door to many fascinating questions about the way that restructuring manifests cross-linguistically. While I have only scratched the surface of this topic, I hope to have demonstrated that examining the interaction between restructuring and nominalization cross-linguistically is a useful tool for understanding both of these constructions.

Acknowledgments

I would like to thank Adele James, Melba Rakow, and Ramona Dick[†], who have patiently worked with me over the years on the Washo language. I also thank Karlos Arregi, Andrew Koontz-Garboden, and the audience at GLOW 43 for helpful discussion of various aspects of the ideas presented here, as well as the two anonymous reviewers of this paper. All errors and shortcomings are my own.

Abbreviations

ACC	accusative	NM	clausal nominalizer
ATTR	attributive	NMLZ	nominalizer
APPL	applicative	PL	plural
CAUS	causative	PROG	progressive
DEP	dependent mood	PROSP	prospective aspect
DS	different subject (switch reference)	REC.PST	recent past
IN	intransitive	REFL	reflexive
INCL	inclusive	SS	same subject
IND	independent mood	STAT	static
INST	instrumental nominalizer	TR	transitive
NEG	negation	UN	unexpressed possessor agreement

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Chapter 2

Matters of size and deficient functional categories in three Turkic languages: Turkish, Turkmen, and Noghay

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This chapter compares and contrasts the verbal domain of the nominalized indicative complement clauses in three Turkic languages: Turkish, Turkmen, and Noghay, and argues for two points: (i) the size of this verbal domain under the nominalizing head is the same as the main clause verbal domain in Turkmen and Noghay, but smaller in Turkish, and (ii) regardless of the size of the verbal domain, in all these languages the highest inflectional category lacks certain morphosyntactic features (such as aspect, mood/modality, and tense, depending on the language) and the morpheme that heads this category is an underspecified morpheme, despite appearances.

1 Introduction

Turkic languages are known to be typical examples of languages that predominantly employ nominalization in subordinate clauses, and are, for instance, classified by Givón (2009) under “extreme nominalization languages” where all non-main clauses are nominalized to some degree. Givón reports that the following properties are the three most conspicuous telltale signs of clause nominalization: genitive case-marking on the subject, nominal suffix on the verb, and object case-marking on the entire clause. Nominalized clauses in Turkic languages have all these properties (Lees 1965, Kornfilt 1987, Taylan 1998, Borsley & Kornfilt 2000, Kornfilt 2007, among others). Even though Turkic languages are known to have



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similar nominalization properties in non-main clauses, to my knowledge, no comparative theoretical study has been done so far discussing the morpho-syntactic *differences* in the verbal morphology in complement clauses.

In this chapter, I compare and contrast the morphosyntax of indicative complement clauses in three Turkic languages: Noghay, Turkmen, and Turkish.¹ Turkish and Turkmen belong to the Oghuz branch (Csató & Johanson 1998, Schönig 1998), whereas Noghay belongs to the South Kipchak branch (Csató & Karakoç 1998). The following examples illustrate the clause types that I analyze in this chapter in these three languages:²

- (1) Hasan Elif-in gel-diğ-in-i biliyor. Turkish
Hasan Elif-GEN come-DIK-3POSS-ACC knows
'Hasan knows that Elif came/is coming/will come.'
- (2) ... telefon-ıñ i:şle-yä:n-nig-in-i
... telephone-GEN work-IMPF-DIK-3POSS-ACC
i:şle-me-yä:n-nig-in-i ba:rla-malı. Turkmen³
work-NEG-IMPF-DIK-3POSS-ACC check-NEC
'... you must check whether the phone is working or not.'
- (3) ... öz borış-ıñız-dı ak yüreg-iñiz ben toltır-ar
... self debt-2PL.POSS-ACC pure heart-2PL.POSS I pay-IMPF
eken-iñiz-ge Noghay⁴
EKEN-2PL.POSS-DAT
'... (that I hope) that you will pay your own debt with your pure heart ...'
(Djanbidaeva & Ogurlieva 1995: 125 cited in Karakoç 2007: 354)

Among Turkic languages Turkish is the one that has been studied the most within the generative framework. It has been known that (most) indicative complement

¹This chapter is a condensed and slightly modified version of the manuscript (Keleşir 2013). The reader is invited to consult the manuscript for an extensive discussion of the analyses of complement clauses in Turkish in the literature, for a more detailed explanation of the facts in the languages discussed in this chapter, and for more examples of each argument presented here.

²I copied the Noghay and Turkmen examples with the orthography used in the cited sources. The English translations from German and Turkish sources are mine, but I received help from a native speaker of German for two of the German translations. In those cases in which the source does not provide morpheme by morpheme glossing, I have added the morpheme boundaries and glosses based on the translations, discussions in the source, and my knowledge of Turkic morphology. Needless to say, all the errors of interpretation and analysis are mine.

³The Turkmen examples are from Clark (1998). Also see Kara (2001) for a grammar of Turkmen.

clauses in Turkish differ from matrix clauses not only in nominalization but also in the absence of most tense-aspect-modality (TAM) markers that are found in matrix clauses. Embedded verbal stems bear what has been traditionally called “nominalizers” that can be preceded by a very small number of verbal inflectional morphemes alongside the verbal root. Typical of such nominalizers in indicative clauses are *-DIK*⁵ and *-(y)EcEK*. For reasons of space and expository simplicity, I will use only *-DIK* in my examples and discussion of Turkish in this chapter. (1) above provides an example with it.

One of the central themes in the studies on Turkish complement clauses within the generative framework has been the quest to identify the functional categories that make them up. Two properties of these clauses have made it a real challenge for linguists to come up with a proposal for functional structure: (i) different “nominalizers” seem to be compatible with different TAM properties, so their function doesn’t seem to be solely to nominalize (if at all) (see Keleşir 2015), (ii) even if they’re not analyzed as nominalizers but as some TAM marker, it is hard to tell whether they are the morphological realizations of an inflectional category already present in matrix clauses or of a different one since these morphemes do not straightforwardly correspond to the inflectional morphemes found on matrix verbal stems. Thus, the question whether subordinate clauses in Turkish are *smaller* than CPs and if yes, what kind of a functional category is the complement of a nominalizer head has been a very controversial issue.⁶

The comparative study reported in this chapter shows that smaller complement clauses is not a property all Turkic languages share. In the following, first, I show that Turkish complement clauses are actually smaller than matrix clauses, with additional evidence, and then I argue that the same type of clause in two other Turkic languages, namely Turkmen and Noghay, are not. Furthermore, I argue that even though these three languages differ in the size of their nominalized complement clauses, what they have in common is the deficient nature of the highest inflectional category in the clause. I conclude with the suggestion that nominalization of clauses may not necessarily require smaller clauses or the absence of higher functional *categories* but the absence of higher functional *features*.

⁵Common convention in Turkish linguistics is to represent the consonants and vowels in a morpheme that undergo consonant and vowel harmony in capital letters.

⁶See Kural 1993, 1994, 1998, Kennelly 1996, Göksel 1997, Aygen 2002, Kornfilt 2007, among others.

2 Size differences in indicative complement clauses

2.1 Background

In order to understand the structure of subordinate clauses in these languages, it is necessary to be familiar with four properties of their morphosyntactic clause structure. These are (i) the different sets of TAM markers and their distribution, (ii) the two types of copular verbs and their distribution, (iii) the two types of negation and their distribution, and (iv) the nature and the distribution of existential predicates. For reasons of space, below I provide facts and examples from Turkish only. However, similar generalizations hold in Noghay and Turkmen as well, as we will see in the following sections.

Turkic languages have rich inflectional verbal morphology and a complex system of morphological combinations, with phonologically contentful as well as phonologically null forms. The TAM suffixes in Turkish are generally categorized into three sets in terms of their ordering on the verbal stem and the combinatorial properties. Set1, closest to the verbal root, contains a couple of modality markers and the negative suffix. Set2 is a large set of aspectual and modality markers. Set3 is relatively small. It contains the past tense and the evidentiality markers, as well as the conditional marker, which I exclude from the discussion in this chapter. The present tense is null. The future marker belongs to Set2. Table 1 provides a visual summary with representative markers.

Table 1: Some of the verbal inflectional markers in matrix clauses

	Set1	Set2	Set3
verb root	negative <i>-mE</i>	necessitative,	past,
+ voice markers	(=Neg1), ability	imperfective, future, possibility	evidential

Mainly, a matrix verbal predicate can be formed in the following ways: the lexical verb can always be optionally inflected with one or more Set1 markers. Once that stem is formed, it has to be inflected with either Set2 or Set3 markers, followed by the agreement markers. In the following, the verb with a Set1 marker (the negative suffix) has combined with a Set3 marker (the past tense marker).

- (4) Ben Elif-i ara-ma-dı-m.
 I Elif-ACC call-NEG-PAST-1SG
 ‘I didn’t call Elif.’

In order to express aspectual/modal notions, on the other hand, the lexical verb takes a Set2 marker (in addition to optional Set1 markers). This forms a participial form.⁷ There is no overt copula in present tense. The stem is immediately followed by agreement markers in present tense. However, past tense and evidential (Set3) markers occur with a copula. In (5) below, the participial form of the verb carries the necessitative (S2) marker. In this case, the Set3 marker *-di* is preceded by a copular verb *i-*. *i-* has to be inserted when there is a participial form.⁸

- (5) Hasan Elif-i ara-ma-malı i-di.
 Hasan Elif-ACC call-NEG-NEC COP-PAST
 ‘Hasan should not have called Elif.’

Thus, the line between Set2 and Set3 in Table 1 above indicates where the copula would be inserted.

Similar to the challenge posed by complement clauses in Turkish, functional structure of matrix clauses also has puzzled generative linguists. This is mainly due to the fact that if one assumes a correspondence between the position of a group of morphemes on the verbal stem and the position of the functional category they realize in morphosyntax, then it is almost impossible to find common inflectional features among the morphemes that occur in the same slot on the verbal stem to propose a position for them in the functional structural hierarchy. For instance, while a number of modality and aspect morphemes occur in the same slot on a verbal stem (Set2), other modality markers occur in different slots (Set1, e.g. ability, and Set3, e.g. evidentiality). These facts have led many researchers to either propose hybrid categories (e.g. Asp/Mod) or no labels at all but just label-less functional categories (e.g. Tense1, Tense2, ... or Zone1, Zone2 etc.).⁹ My goal in this chapter is not to propose labels for functional categories.

⁷See Lees 1962, Kornfilt 1996, Göksel 1997, Keleş 2001, Sezer 2001, among others, for a discussion of finite and participle forms.

⁸In Turkish, this copula has three forms: *i-*, its cliticized variant *-y*, which occurs when the copula cliticizes to stems that end with a vowel, and its phonologically null variant, which occurs when it cliticizes to stems that end with a consonant. Even though the clitic variants are more unmarked in modern standard Turkish, for expository reasons, I use only *i-* in all the Turkish examples in this chapter.

⁹For hybrid categories, see Aygen-Tosun (1998), for label-less categories, see Sezer (2001) and Enç (2004).

However, I do assume that there is a correspondence between the morphological ordering of the morphemes and their syntactic positioning. Therefore, I will refer to the label-less functional heads in the syntactic structure as F1, F2, F3. Given that Turkish and the other languages in this chapter are head-final, the ordering $F1 > F2 > F3$ implies that F3 is the highest functional category in the discussion.

The second piece of information that is crucial in understanding the discussion in the remainder of the chapter is the fact that the languages in this chapter have more than one copular verb with different syntactic distributions. For instance, Turkish, in addition to *i-* ‘be’, as seen in the examples above, has another copula *ol-* ‘be’. *i-* can only be inflected with Set3 markers, not with Set1 or Set2. Thus, I call it the “high copula”. *ol-* ‘be’, on the other hand, can be inflected with any of the markers a lexical verb can. I call it the “low copula”. These two copular verbs can also co-occur in a simple clause.

- (6) Ozan burada ol-ma-malı i-di.
Ozan here be-NEG-NEC COP-PAST
‘Ozan should not have been here.’

I assume that the low copula is inserted at V and the high copula at F3 to satisfy the requirement for a verbal stem of these categories (Kelepir 2001, Enç 2004).

Turkic languages also have two main negative forms: a negative suffix that attaches to a verbal stem (as shown in Table 1 above) and a free negative form that negates non-verbal forms. The following provide examples from Turkish. The negative suffix, *-mE* (a Set1 marker), is attached to the lexical verb *gel-* in (7a). The non-verbal negative form, *değil*, in (7b), negates the non-verbal predicate ‘at home’ and is followed by the high copula *i-*, which is further followed by past tense and agreement markers.

- (7) a. Hasan gel-me-di.
Hasan come-NEG-PAST
‘Hasan didn’t come.’
b. Ben ev-de değil i-di-m.
I home-LOC not COP-PAST-1SG
‘I was not at home.’

It is also useful for the upcoming discussion to label these two negative forms in terms of their height in the structure: the verbal negative suffix *-mE* is the “low negation” whereas the non-verbal free form *değil* is the “high negation” (Kelepir 2001). Double negation structures which show their co-occurrence illustrate this height difference more clearly.

- (8) Hasan bun-u bil-m-iyor değil i-di.
 Hasan this-ACC know-NEG-IMPF not COP-PAST
 ‘It was not the case that Hasan didn’t know this.’

Note also that *değil* occurs after and negates the participle in (8). Figure 1 is a rough representation of where I assume these elements may be in the syntactic structure in Turkish.

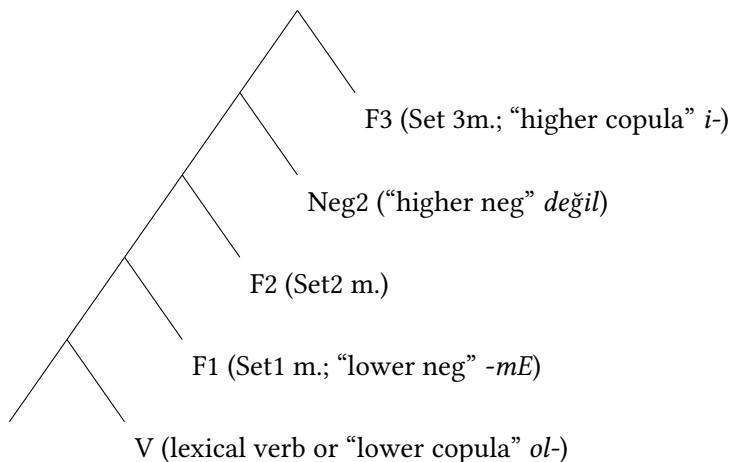


Figure 1: The verb and some functional heads in Turkish

Set1 forms verbal stems whereas Set2 forms participles, hence, non-verbal stems. Set3 markers must attach to verbal stems. This requirement is satisfied by either V (+Set1) or by the high copula. In the latter case, as I mentioned above, the higher copula is inserted at F3 to satisfy the verbal requirement of this category. This is no different from the requirement in English that either the lexical verb gets inflected with, for instance, the past tense marker, *walked*, or in the case of the presence of a participle, the auxiliary/copula does: *was walking*.

Finally, Turkic languages form existential and possessive clauses with special existential predicates. In Turkish, the affirmative form is *var* and the negative form is *yok*. These behave as non-verbal stems, showing combinatorial similarities to nominal and participial forms. For instance, in contrast with lexical verbal roots, they cannot be inflected with any of the Set1 or Set2 markers, as shown in (9a). However, similar to participials (and other non-verbal predicates) but in contrast with verbal stems with only S1 markers, they can be followed by the high copula inflected with Set3 markers, as shown in (9b).

- (9) a. * Bina-da asansör var-malı.
 building-LOC elevator EXIS-NEC
 ‘There should be an elevator in the building.’
 b. Bina-da asansör var i-di.
 building-LOC elevator EXIS COP-PAST
 ‘There was an elevator in the building.’

So, I assume that whatever categories form these existential predicates, as morphosyntactic objects they overlap with participles formed with F2/Set2 and occur below the higher negation in the structure in Figure 1.¹⁰

With this background in mind, let us now turn to the morphosyntactic properties of indicative complement clauses in Turkish, Noghay, and Turkmen. I start with Turkish and show that these clauses are smaller than main clauses.

2.2 Turkish

Embedded verb stems in indicative complement clauses in Turkish differ from the main verb stems in that the number (and the nature) of the inflectional morphemes on the former is much more restricted. Among the three sets of TAM markers I introduced in §2.1, they can only bear Set1 followed by *-DIK*. *-DIK* (alongside with other markers) has been traditionally called a “nominalizer” since it seems to mark the boundary on the stem between the verbal domain (with, for instance, the verbal negative suffix to its left) and the nominal domain (with, for instance, the nominal agreement suffix to its right).

The following is a representative example of the possible morphemes on an embedded verbal stem in indicative complement clauses. The lexical verb *uyu-* ‘sleep’ is (optionally) followed by the negative suffix, then *-DIK*, nominal agreement, and case marking.

- (10) Ozan-ın uyu-ma-dığ-ın-ı biliyorum.
 Ozan-GEN sleep-NEG-DIK-3POSS-ACC I.know
 ‘I know that Ozan is/was not sleeping.’

¹⁰It is, for instance, possible to create a double negation structure as in the following:

- (i) Bina-da asansör yok değil i-di.
 building-LOC elevator NEG.EXIS not COP-PAST
 ‘It was not the case that there was no elevator in the building.’

The following illustrate that *-DIK* cannot attach to Set2 (participial stems), as shown in (11a) or to Set3 markers (past tense and evidential markers), as shown in (11b):

- (11) a. *gel-iyor-duğ-um-u
 come-IMPF-DIK-1POSS-ACC
 ‘that I am/was coming’
 b. *Ozan-ın Selimiye-de i-di-diğ-in-i
 Ozan-GEN Selimiye-LOC COP-PAST-DIK-3POSS-ACC
 ‘that Ozan was in Selimiye’

Consequently, embedded clauses tend to be ambiguous with respect to the time, aspect and/or modality of the embedded event, in the absence of corresponding adverbials. At least at first sight, the ungrammaticality of the examples in (11) seems to show that whatever functional categories are realized as Set2 and Set3 markers are missing from embedded clauses. In addition, (11a) shows that *-DIK* cannot attach to a participle, i.e. a non-verbal stem. *-DIK* cannot attach to existential predicates, either.

- (12) *bu ev-de fare var-diğ-in-i
 this house-LOC mouse EXIS-DIK-3POSS-ACC
 ‘that there are/were mice in this house’

Recall that I mentioned in §2.1 that the existential predicates pattern with the participial forms of lexical verbs in their distribution. So, the absence of existential predicates in complement clauses is consistent with the absence of participial forms. I conclude that whatever functional category is responsible for the realization of existential predicates is also absent in these clauses.

Third, they cannot contain the high negation *değil*.

- (13) *Ozan-ın İstanbul-da değil-diğ-in-i
 Ozan-GEN İstanbul-LOC not-DIK-3POSS-ACC
 ‘that Ozan is/was not in İstanbul’

I have been presenting these facts to argue that the verbal domain of these clauses is smaller than that of main clauses. In other words, I propose that the functional categories related to tense, aspect, modality, mood and negation that are higher than the verb phrase (see the structure in Figure 1) must be absent in these subordinate clauses. One might ask whether the absence of participial

forms, existential predicates and *değil* in these clauses may not be due to a morphological requirement of *-DIK* to attach to verbal stems, assuming that these stems may be non-verbal. As plausible an analysis as it sounds, it would not explain the next fact: the fact that these clauses can not contain the high copular verb *i-*, either. As the following example shows, *-DIK* cannot attach to *i-* even though *i-* is a verbal stem (see §2.1 and Figure 1).

- (14) * Ozan-ın Selimiye-de i-diğ-in-i
Ozan-GEN Selimiye-LOC COP-DIK-3POSS-ACC
'that Ozan is/was in Selimiye'

Thus, I conclude that the grammaticality of (10) versus the ungrammaticality of (11–14)¹¹ point to the fact that Turkish nominalized clauses lack F3 (as well as Neg2) and F2 can only be realized as *-DIK* (and other so-called nominalizers with the same morphosyntactic distribution).¹² I argue in detail in Kelepir (2013) that embedded F2 lacks morphosyntactic aspect and modality features, and *-DIK* as an underspecified, default morpheme is inserted at this category. In short, the highest functional (inflectional) category in these embedded clauses below the head that is responsible for nominalization is F2 and it is deficient in terms of aspect/modality morphosyntactic features.

Having seen that nominalized complement clauses have a very small verbal domain in Turkish, the immediate question that arises is whether the functional category that is responsible for nominalization of the clause can only select for a small verbal domain in Turkic languages in general. A careful analysis of Noghay and Turkmen shows that this is not the case. I start with Noghay.

¹¹Sağ (2013) reports that these structures are grammatical in Denizli dialect of Turkish. Moreover, *-DIK* attaching to the high copula *i-*, as in (14), was possible in Ottoman Turkish (Kerslake 1988: 195) and the form *idüğü* remains in an idiomatic, frozen form in modern Turkish (Banguoğlu 1990, Kelepir 2013).

¹²The grammatical counterparts of the ungrammatical examples in (11–14) require the low copula *ol-*, which *-DIK* can attach to, see (i) below. *ol-* behaves like any other lexical verb morphosyntactically, so I assume that it is inserted at V and takes the non-verbal predicates as its complement.

- (i) a. geli-iyor ol-duğ-um-u (compare with (11a))
b. bu ev-de fare ol-duğ-un-u (compare with (12))
c. Ozan-ın İstanbul-da ol-ma-dığ-ın-ı (compare with (13))
d. Ozan-ın Selimiye-de ol-duğ-un-u (compare with (14))

See also Kerslake (1988) and Göksel (2001) for a detailed analysis of the functions of *ol-* in matrix and embedded clauses.

2.3 Noghay

Noghay is similar to Turkish in that the main clause verbal predicate may consist of a finite verb or a participle plus the high copula. The cognate of the high copula *i-* of Turkish in Noghay is *e-*. In her description of Noghay grammar, Karakoç (2001) reports that the copula *e-* has three inflected forms: the past form *edi*, the indirective-modal copula form *eken*, and the conditional form *ese*. Karakoç (2001) also notes that *e-* is not a regular lexical verbal root, i.e. it cannot be used as a full verb, it can only be inflected with the morphemes mentioned above. Recall that these are similar to the only morphemes (Set3 morphemes) that the Turkish high copula *i-* can carry. In the discussion of Noghay, my focus will be the form *eken*. Karakoç (2001) observes that *eken* expresses the notions “evidential”, “inferential” and/or “indirective”, among others. Henceforth, I will use the term “evidential” as a cover term for all these related meanings.

As expected from a copular verb, *eken* can occur with non-verbal predicates, as in (15a) and with participial forms, as in (15b).

(15) Noghay

- a. Ali eginši e-ken.

Ali farmer COP-EVID

‘Apparently, Ali was/is a farmer.’ (Karakoç 2001: 23)

- b. ... sen bir âlemet bol-ıan e-ken-sin

you a strange be-PERF COP-EVID-2SG

‘... (as I find out) you have become strange’ (Kazakov 1983: 33, cited in Karakoç 2001: 25)

I propose that similar to the main clause structure in Turkish, the evidential marker *-ken* in Noghay is a Set3 marker (recall Table 1) and thus, is inserted into F3 (recall the structure in Figure 1). Similar to the Turkish high copula *i-*, Noghay high copula *e-* is inserted into F3 to satisfy the verbal requirement of this category since neither the nominal predicate (15a) nor the participle (15b) can do it.

However, Noghay nominalized indicative complement clauses differ from those in Turkish in a number of respects. First of all, there is no morpheme that may be easily considered a “nominalizer” such as the morphologically more opaque form *-DIK* in Turkish. Instead, the high copula form *eken* carries nominal agreement (possessive) and case morphology.

- (16) ... bayının anası eken-in de anlaydı.
her.husband's mother EKEN-3POSS.ACC also realizes
'(The woman) ... realizes that she is her husband's mother.' (Karakoç 2007: 343)

The presence of a high copula in the subordinate clause raises the question whether these clauses are bigger than their counterparts in Turkish. As a matter of fact, they are. They can contain participles, (3) and (17), existential/possessive predicates *bar/yoq*, (18), and the non-verbal negator *tuwıl*, (19).

- (17) Kılıplı karttın sözi kim-ge tiy-edi eken-in B.
sneaky old.man's word who-DAT touch-IMPF EKEN-3POSS.ACC B.
anladı.
understood
'Baymurza understood whom the sneaky old man's words targeted (and ...).' (Djanbidaeva & Ogurlieva 1995: 126, cited in Karakoç 2007: 353)
- (18) Kim bileđi bu oyırsızdın yüreg-in-de ne bar
who knows this good.for.nothing's heart-3POSS-LOC what EXIS
eken-in.
EKEN-3POSS.ACC
'Who knows what is in this good-for-nothing's heart.' (Djanbidaeva & Ogurlieva 1995: 55, cited in Karakoç 2007: 344)
- (19) İdris /.../ kelininiñ quwnaq tuwıl eken-in körip
İdris his.bride's good not EKEN-3POSS.ACC saw.and
'... İdris saw that his daughter-in-law was not well ...' (Kapaev 1962: 159 cited in Karakoç 2001: 33)

In short, in this section I have shown that the nominalized indicative complement clauses in Noghay have a verbal functional structure similar to that of main clauses, in contrast to Turkish.

What is striking is that in these clauses *eken* does not function as a modal marker expressing evidentiality, as it does in main clauses. Karakoç (2001) reports that it does not express evidentiality but functions only as a static copula. In other words, it is semantically vacuous. Thus, I propose that even though *eken* with the high copula resides in F3 (see Figure 1), embedded F3 lacks the morphosyntactic features it may bear in matrix clauses. Hence, the lack of evidential interpretation. Thus, I suggest that similar to *-DIK* in Turkish, *-ken* in *eken* is an underspecified morpheme (Keleşir 2015). That is why it is inserted into a deficient F3. I return to this point in §3.

2.4 Turkmen

Turkmen, which belongs to the East Oghuz group (Schönig 1998, Johanson 1998), is a language genetically closer to Turkish than Noghay, and even though Turkmen and Turkish seem to be very similar on the surface, there is a striking difference between the two languages in the morphosyntax of complement clauses. Consider the following example from Turkmen where the embedded verbal stem bears the marker *-DIK*:

- (20) Turkmen
 ... nä:me tölö-mölü-düg-ü şol ta:yda aydyla:r
 ... what pay-NEC-DIK-3POSS there is.said
 ‘... it is said there what you have to pay’

(20) shows that in contrast with Turkish where the complement clause cannot have a verbal stem containing a Set2 marker, Turkmen allows this. The verbal stem contains a Set2 marker, one of the allomorphs of the necessitative marker *-mEll*. Thus, *-DIK* seems to attach to a participial form. The examples in Clark (1998: 480–483) also include other participial markers such as the future participle, the present participle marker, and the past participle marker that *-DIK* attaches to.

Does this show a difference between the morphological requirements of the *-DIK* markers in Turkish and Turkmen? Namely, can the Turkmen *-DIK* attach to a participial marker where the Turkish *-DIK* cannot? Or is the difference syntactic?

A closer look suggests that it is syntactic. Recall that Turkish (and Noghay) have the high copular verbs. In the Turkish examples we saw earlier, the high copula had the form *i-*. In Footnote 8 I noted that it also has two clitic variants: *-y* and a phonologically null form. When we analyze the Turkmen matrix clause examples where the copula is expected to occur, we see that it is never realized with phonological content. Even in environments where the Turkish copula would either be *i-* or the clitic *-y*, it is phonologically null. Contrast the Turkish and Turkmen examples in (21). In both, the stem ends with a vowel, *u*. Turkish copula is in the form of clitic *-y* (or it can be *i-*, but it cannot be null), whereas the Turkmen copula is null.

- | | |
|---|--|
| (21) a. Dolu-y-du.
full-COP-PAST
‘It was full.’ (Turkish) | b. Do:lu-Ø-di.
full-COP-PAST
‘It was full.’ (Clark 1998: 239)
(Turkmen) |
|---|--|

I would like to propose that the reason why *-DIK* attaches to Set2 markers, as in (20) is that the syntactic position of *-DIK* is the same as the position of *-ken* in Noghay. It realizes a high functional (inflectional) category, F3, which requires a verbal predicate. In the absence of a verbal stem, this high functional category hosts the high copula, which is phonologically null. However, neither the phonologically null copula nor the suffix *-DIK* can occur on their own, they have to attach to a stem to their left. So, (20) should actually be represented as (22) below.

- (22) ... nă:me tölö-mölü-Ø-düg-ü şol ta:yda aydilya:r
 what pay-NEC-COP-DIK-3POSS there is.said
 ‘... it is said there what you have to pay’

If *-DIK* really attaches to a null copula, an immediate prediction is that it should also attach to a non-verbal predicate. This is borne out.

- (23) Turkmen: non-verbal predicate
 O-nuň a:ga-m-Ø-dıg-in-i derrew tanadım
 he-GEN older.brother-1POSS-COP-DIK-3POSS-ACC immediately I.recognized
 ‘I recognized immediately that he was my older brother.’

The possibility of the occurrence of participial markers plus *-DIK* in Turkmen implies that complement clauses in Turkmen contain all the three functional categories, in contrast with Turkish, but similar to Noghay.¹³

If that is the case, then Turkmen complement clauses should be able to contain the high negation (the non-verbal negator) and existential predicates. This is, in fact, the case. In the examples below the high negation is *däl*, (24), and the existential predicate is *bar*, (25).

- (24) O-nuň gowı mugallıma däl-Ø-dig-in-i eşıtdım.
 she-GEN good teacher not-COP-DIK-3POSS-ACC I.heard
 ‘I heard that she is not a good teacher.’

¹³ An anonymous reviewer suggests that *-DIK* in Turkmen must be etymologically related to *-LIK*, which in many Kipchak and Turkic languages follows the non-finite clause head, and that Turkmen must have borrowed it from neighboring Kipchak languages (Asarina (2011) analyzes *-LIK* as a complementizer in Uyghur whereas Ótött-Kovács (2018) analyzes it as a nominalizer in Kazakh). However, I don’t think Turkmen *-DIK* is an allomorph of *-LIK*. Clark (1998: 480–483) describes *-DIK* in Turkmen as a particle separate from *-LIK* and reports that the use of each morpheme causes a different interpretation. He states that while *-LIK* emphasizes the nominal character of the object, *-DIK* emphasizes its verbal character. He translates those with *-DIK* as *that*-clauses whereas those with *-LIK* as gerunds, e.g. ‘never forget about a stick’s having two points’ or ‘realized about my having made a mistake’.

- (25) Ol meniň pulumyň bar-Ø-dig-in-1 bilyär.
s/he my money EXIS-COP-DIK-3POSS-ACC knows
‘She knows that I have money.’

Notice that even though the embedded sentence in (23) is translated with past tense ‘was my brother’, there is no past tense marker (*-DI*) on the embedded predicate. Contrast this with the past tense marker on the adjectival predicate in the matrix clause in (21b). A comparison of the embedded predicates in (23–25) shows that even though in all these there is no embedded tense marking, (23) is interpreted with past tense whereas those in (22), (24), and (25) with present tense. This is in fact reminiscent of the ambiguous tense (and aspect) interpretation in embedded clauses in Turkish mentioned in §2.2. In both languages the tense interpretation seems to rely on the tense of the main verb and context. While Turkmen embedded clauses with *-DIK* are ambiguous only with respect to tense, Turkish embedded clauses with *-DIK* are ambiguous with respect to both aspect (F2 category) and tense (F3 category). Thus, for Turkmen, I conclude that even though it contains both F2 and F3 categories, F3 is deficient in terms of morphosyntactic features, similar to Noghay.

3 Conclusion and implications

We have seen that even though in all of these three languages complement clauses are nominalized, they differ in the size of the clausal (verbal) domain below the nominal domain: the clausal domain is smaller, with fewer functional (inflectional) categories, than the main clauses in Turkish, whereas it is *almost* as big as the main clauses in Noghay and Turkmen. Noghay and Turkmen contain functional categories expressing aspectual and modal differences, forming existential and possessive predicates, the high negation, and the high copula. What this implies is that nominalization does not necessarily require a smaller clause, at least in Turkic languages. One way of accounting for the difference between these languages could be proposing that each nominalizing functional head in each language has a different selectional requirement, resulting in complement clauses with different sizes.

However, the nominalizing head seems to still put a requirement on the head of its complement: that it should be deficient, devoid of any morphosyntactic tense and evidentiality features. The most straightforward evidence for this comes from Noghay data. Recall that Noghay is reported to have two finite high copula forms: *eken* and *edi*. In main clauses, *eken* expresses evidentiality and *edi*

expresses past tense. Even though Noghay embedded clauses appear to be as big as the main clauses, there are crucial differences: first of all, *edi* cannot occur in the embedded clause. Second, as mentioned in §2.3, even though *eken* does occur in embedded clauses, it does not express evidentiality, in fact, it is devoid of any meaning (Karakoç 2007). So, even though the presence of the high copula *e-* shows that the highest functional (inflectional) category is present in the embedded clause, the impossibility of the “high” marker past tense *-di*, and the meaninglessness of the other “high” marker *-ken* point to the conclusion that highest functional category (F3) in embedded clauses lacks the morphosyntactic features it may bear in matrix clauses. I have argued in Keleşir (2015) that the reason why *-ken* is inserted into F3 is that it is the allomorph of an underspecified marker, *-GAn*, as opposed to the F3 marker *-DI* in *edi*, which is specified for past tense.¹⁴

Similarly, the highest functional categories, in Turkmen and Turkish, F3 and F2, respectively, seem to be deficient with respect to the morphosyntactic features they carry in main clauses. If this is correct, then we observe a dissociation of morphosyntactic features of heads from their semantic features. In all the three languages analyzed here, the embedded clauses can express aspectual and tense properties independent from the matrix clause, implying that the related operators are actually present. The dissociations between inflectional morphology from the semantics of related inflectional notions (e.g. tense) is familiar from works on sequence-of-tense phenomena and discussions on tensed vs. tenseless infinitives (Stowell 1982, Wurmbrand 2014, see also Enç 1987 and Ogiwara 1996). In the particular case of Noghay, we see that even when the evidential *morphology* is present in the embedded clause, the *semantics* of evidentiality is absent. Namely, the evidential marker is semantically vacuous in embedded contexts.¹⁵

Throughout the chapter, I have refrained from labeling the functional categories that are absent or present in embedded clauses. As I mentioned in §1, this

¹⁴ An anonymous reviewer asks whether an alternative theory could be proposed: that *eken* has been reanalyzed and is now its own lexical entry with its own syntax and its meaning, and that this would explain why it differs from *edi* and it has an unexpected meaning. *Eken* may have been reanalyzed and grammaticalized as a monomorphemic element. In fact, Karakoç (2001, 2007) treat it that way. However, it does not have its own syntax since its position and what complements it can take are not different from *eken* in main clauses. The difference is in the interpretation. The analysis I am arguing for here is meant to raise the question why among the two copular forms, *eken* and *edi*, it is *eken* that is used in nominalized clauses, or if we adopt the reviewer’s alternative theory, why it is *eken* that got reanalyzed. My answer is because perhaps it contains an underspecified morpheme, which functions as a default F3 marker, whereas *edi* does not.

¹⁵ See Aikhenvald (2004) and Schenner & Sauerland (2007) on the question whether evidentials can be embedded.

is mainly due to the reason that the set of morphemes that occupy the same positions in the embedded verbal template do not seem to have a common inflectional feature (i.e. aspect, modality, tense, mood etc.). However, I have also refrained from even claiming whether or not “big” clauses in Noghay and Turkmen are CPs or not. Since, for instance, I argue that the high copulas *e-* in Noghay and \emptyset in Turkmen are inserted at the “highest inflectional category” (F3), one might wonder whether these clauses are full CPs as in matrix clauses. Note that recent work by Susi Wurmbrand with Magdalena Lohninger (Wurmbrand & Lohninger 2019) analyzes nominalized complement clauses in Buryat (Bondarenko 2018), a Mongolian language spoken in the Russian Federation, in relation to their proposal for a *universal implicational complementation hierarchy* (ICH), and claims that these clauses do not display CP-hood characteristics and thus must be smaller than CPs. What I argued for in this chapter and what Wurmbrand & Lohninger (2019) propose do not necessarily contradict each other. Further research on Turkish, Noghay and Turkmen (and possibly other languages with nominalized complement clauses) may point to a more fine-grained layering of the “highest functional categories” and/or of the “highest” morphosyntactic features in nominalized embedded clauses.

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Abbreviations

ACC	accusative	IMPF	imperfective	PL	plural
COP	copula	LOC	locative	POSS	possessive
DAT	dative	NEC	necessitative	SG	singular
EVID	evidential	NEG	negative		
EXIS	existential	PAST	past		
GEN	genitive	PERF	perfective		

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Chapter 3

Akan complements on the implicational complementation hierarchy

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The implicational complementation hierarchy (ICH) formulated by Wurmbrand & Lohninger (2020) distinguishes three complement types: Proposition, Situation and Event, which are ordered by independence, transparency, integration and complexity. The ICH outlines the correlation between the semantic functions of the complement types, and the syntactic operations that run directionally along it. The complements are in a coherent containment relation and have minimal requirements for the domain they project: a theta domain for Events, a TMA domain for Situations, and an operator domain for Propositions. If one type of complement can be finite, all complements to its left on the ICH can be too (finiteness universal, Wurmbrand et al. 2020). This chapter discusses the distribution of complements in Akan, a Kwa language spoken in Ghana, Ivory Coast and Benin, which have traditionally been analysed as finite and requiring a mandatory complementiser. However, new data indicates that the clause introducer *se* in Twi (*de* in Fante) can be dropped and non-finite complements are possible in Event structures. I thus argue that Proposition, Situation and Event complements in Akan display the same properties predicted by the ICH and finiteness universal and that finiteness in the language can occur in every domain.

1 Theory

1.1 Introduction

The implicational complementation hierarchy (ICH) formulated by Wurmbrand & Lohninger (2020) depicts the correlation between the semantic functions of complement constructions, and the syntactic operations that run directionally



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along it. The mapping is language-dependent and can vary, unless it violates the hierarchy. Built on Givón’s (1980) binding hierarchy, Wurmbrand & Lohninger (2020) distinguish three complement classes for which they adapt Ramchand & Svenonius’s (2014) terminology as follows: Event (1a), Situation (1b) and Proposition (1c). Their order on the ICH is shown in Table 1.

(1) English

- a. Lea tried to read a book (#tomorrow).
- b. Lea decided to read a book (tomorrow).
- c. Lea claims to be reading a book right now.

Table 1: Implicational complementation hierarchy (Wurmbrand & Lohninger 2020)

MOST INDEPENDENT		LEAST INDEPENDENT
LEAST TRANSPARENT	Proposition » Situation » Event	MOST TRANSPARENT
LEAST INTEGRATED		MOST INTEGRATED
MOST COMPLEX		LEAST COMPLEX

The finiteness universal (Wurmbrand et al. 2020) postulates a further implicational relation that if a language allows or requires finiteness in a type of complement, all complements to its left in the ICH do too. In this chapter, I will test to what extent the ICH and the finiteness universal (detailed further in §1.2 and 1.3) apply to the distribution of complements in Akan, a Kwa language spoken in Ghana, Ivory Coast and Benin.¹ Its complement clauses have traditionally been analysed as requiring a mandatory complementiser: *se* in Twi, *dε* in Fante (Boadi 1972, Lord 1976, Osam 1998).

(2) Akan (Fante, Osam 1998)

- a. Kofi ka-a dε yε-ba-e.
Kofi say-COMPL COMP 1PL.SUBJ-come-COMPL
‘Kofi said that we came.’
- b. Maame no hyε-ε bɔ dε ɔ-bɔ-kɔ.
woman DEF promise.COMPL COMP 3SG.SUBJ-FUT-go
‘The woman promised to go.’

¹There are several mutually intelligible dialects in Akan: Agona, Ahafo, Akuapem, Akwamu, Akyem, Asante, Assin, Bono, Denkyira, Fante, Kwahu, and Wassa. All but Fante belong to the Twi dialect (Osam 2016). Examples from my data are predominantly Twi.

3 Akan complements on the implicational complementation hierarchy

- c. Kofi bɔ-ɔ mbɔɔzen dɛ ɔ-bɛ-yɛ edwum no.
Kofi hit-COMPL effort COMP 3SG-FUT-do work DEF
'Kofi tried to do the work.'

In the Akan examples in (3) however we see that the complementiser *sɛ* can be present in all of them, albeit optional in (3d).

(3) Akan (Twi, personal communication)

- a. Me-ka-a sɛ me-kenkan-e nwoma no.
1SG-say-COMPL sɛ 1SG-read-COMPL book DEF
'I said that I read the book'
- b. Me-si-i gyinaɛɛ sɛ me-kenkan nwoma no.
1SG-say-COMPL decision sɛ 1SG-read book DEF
'I decided to read the book'
- c. Me-bɔ-ɔ mmɔɔden sɛ me-kenkan-e nwoma no.
1SG-hit-COMPL effort sɛ 1SG-read-COMPL book DEF
'I tried to read the book'
- d. Me-bɔ-ɔ me ho mmɔɔden kenkan-e nwoma no.
1SG-hit-COMPL myself effort read-COMPL book DEF
'I tried to read the book'

My data from Twi speakers show that the clause introducer can be dropped in combination with certain matrix verbs which are recognised as restructuring verbs in Wurmbrand's framework (2001, 2015, 2020). Although the vast majority of complements still require a clause introducer to be grammatical, and the complement has to be finite, these findings provide a challenge to the assumption that a complementiser is compulsory in Akan complementation.

In the remainder of §1, I examine a possible theoretical framework to account for the variations in the three complement types. §2 gives a brief summary on relevant points of the verbal morphology in the language. §3 concerns the three complement types Proposition, Situation and Event in Akan. §4 outlines a preliminary conclusion that finiteness can occur in every domain in Akan, and the consequences of the findings in this chapter for the ICH and finiteness universal.

1.2 The implicational complementation hierarchy

Across languages, complements can be divided into three types which are in an implicational hierarchy (see Table 1): Proposition, Situation and Event complements. The properties of the complement types are briefly summarised from Wurmbrand & Lohninger (2020) in Table 2.

Table 2: Properties of complement types (summarised from Wurmbrand & Lohninger 2020)

Proposition	Situation	Event
Speech and epistemic contexts	Emotive and irrealis contexts	Implicative and strong attempt contexts
Embedded reference time (attitude holder's <i>now</i>), no pre-specified tense value	No embedded reference time, pre-specified tense value	Tenseless, simultaneous
May involve speaker-oriented parameters	No speaker- and utterance-oriented properties	No speaker- and utterance-oriented properties
Anchored in an utterance or embedding context	With time and world parameters	No time and world parameters
Partial control possible	Partial control possible	Exhaustive control
Temporally independent	Future orientation	Event time simultaneous with time of matrix event

The complements are in a containment relation from which a complexity hierarchy is derived, extending from the most clausal (Proposition) to the least clausal type (Event). Clausehood “[is] represented through criteria of independence, transparency, integration, and complexity, and the implicational nature of the hierarchy is observed (...) in that Class 3 can never be more independent, more complex, less transparent and less integrated than Class 2; and Class 2 can never be more independent, more complex, less transparent and less integrated than Class 1” (Wurmbrand & Lohninger 2020).

The complement types are semantic sorts which express conceptual primitives. These are in a coherent containment relation: Propositions are elaborations of Situations, Situations are elaborations of Events (Ramchand & Svenonius 2014: 18, 20). The containment relation involves an existentially closed Event, which is then related to a time; this creates a Situation. Combined with speaker-oriented parameters, a Proposition results. The complements have minimal requirements for their domains, resulting from their properties. Proposition complements have

independent tense, thus require an operator domain (e.g. CP), since “(...) aspects of the meaning of an attitude configuration are situated in the operator domain of the complement clause. The operator domain also separates the matrix predicate and the embedded temporal domain (...)” (Wurmbrand & Lohninger 2020, following Kratzer 2006 and Moulton 2009, 2008). Situation complements (TP) have an independent temporal domain but the embedded clause needs future orientation from the matrix verb; they carry pre-specified tense value. Event complements (vP) receive simultaneous interpretation to the matrix verb and do not have independent tense. See Table 3 for a summary.

Table 3: Complement composition (Wurmbrand & Lohninger 2020)

	Proposition	Situation	Event
Minimal requirements	Operator domain TMA domain Theta domain	TMA domain Theta domain	Theta domain
Complexity	Most complex	Intermediate	Least complex

(4) Wurmbrand & Lohninger (2020)

- a. The ICH reflects increased syntactic and/or semantic complexity from the right to the left: a type of complement can never be obligatorily more complex than the type of complement to its left on ICH.
- b. The implicational relations of the ICH arise through containment relations among clausal domains.

ICH signature effects are even observed in languages like Greek (G) or Bulgarian (B) which exclusively have finite complement complements, through their choice of clause introducers for Proposition, Situation and Event complements: Proposition complements have *če* (B) and *oti* (G) as clause introducers, Event complements *da* (B) and *na* (G), and Situation complements can vary between the two but require overt future with *če* (B)/*oti* (G). The clause introducers align along the ICH, with Proposition and Event complements displaying the opposite values. It should also be noted although only finite complements are possible in Bulgarian and Greek, this does not violate the ICH: complements to the right of the hierarchy are never more independent or complex, or less transparent and integrated than the complements to their left (see Wurmbrand & Lohninger (2020) and Wurmbrand et al. (2020) for a detailed analysis). The semantic classification of the complement types and the synthesis model proposed by Wurmbrand &

Lohninger (2020) captures cross-linguistic differences, since it allows for flexibility and variation: complements have to match the semantic specifications of the matrix verb and are not syntactically selected, thus can have different forms; the morphosyntactic properties displayed in complements can differ from language to language, as long as the minimal requirements are met. The mapping between syntax and semantics “(...) allows mismatches in one direction: syntactic structure that has no consequence for interpretation is possible” (Wurmbrand & Lohninger 2020), which means larger structures are possible across languages.

1.3 A finiteness universal

Serbian displays another ICH signature effect. All types of complements can be finite:

(5) Serbian (Todorović & Wurmbrand 2020: 2)

- a. Jovan je pokušao da čita knjigu.
Jovan AUX tried DA read.3.SG.PRES.IMPFV book
‘Jovan tried to read the book.’
- b. Jovan je odlučio da čita knjigu.
Jovan AUX decided DA read.3.SG.PRES.IMPFV book
‘Jovan decided to read the book.’
- c. Jovan je tvrdio da čita knjigu.
Jovan AUX claimed DA read.3.SG.PRES.IMPFV book
‘Jovan claimed to be reading the book.’

Crucially, Event and Situation complements allow infinitives; Proposition complements do not. Again, Proposition and Event complements display opposing values while for Situation complements, both options are possible.

(6) Serbian (Todorović & Wurmbrand 2020: 2)

- a. Pokušala sam {čitati/ da čitam} ovu knjigu.
tried.SG.FEM AUX.1SG {read.INF.IMPFV/ DA read.1SG} this book
‘I tried to read the book.’
- b. Odlučila sam {čitati/ da čitam} ovu knjigu.
decide.SG.FEM AUX.1SG {read.INF.IMPFV/ DA read.1SG} this book
‘I decided to read the book.’
- c. Tvrdim {*čitati/ da čitam} ovu knjigu.
claim.1SG {*read.INF.IMPFV/ DA read.1SG} this book
‘I claim to be reading the book.’ [Vrzić 1994: 305, (22a,b)]

Not all of the finite complements above involve a CP domain. Event complements do not allow an overt subject, Event and Situation complements in Serbian allow phenomena associated with size reduction such as clitic climbing (marginal in Situation complements), NPI/NC licensing by the matrix NEG, free *wh*-ordering etc. From their transparency it follows that they project less structure, TPs and *v*Ps respectively. These operations are not possible in propositional complements, they are opaque and therefore project more structure, resulting in a CP.

Assuming a TP for Situation and a *v*P for Event complements in Serbian leaves the question of the presence of *da*, traditionally analysed as a complementiser, to which I will return in §4. Todorović & Wurmbrand’s (2020) approach separates clause size from finiteness. By comparing finite and non-finite complements in the South Slavic languages in Table 4, Wurmbrand et al. (2020) further develop the approach into an implicational finiteness universal in (7) that operates along the ICH. Following Adger (2007) finiteness is assumed to be “(...) the spell-out of agreement features, which can occur on *v*, T or C” (Wurmbrand et al. 2020: 130).

Table 4: Finiteness in South Slavic (Wurmbrand et al. 2020: 20: 126)

	Proposition	Situation	Event
Bulgarian, Macedonian	finite	finite	finite
Serbian, Bosnian?	finite	(non-)finite	(non-)finite
Slovenian, Bosnian	finite	(non-)finite	non-finite
Croatian	finite	non-finite	non-finite

The implicational distribution of finiteness stems from the containment relations the complements are in: “Since clausal domains are in a containment configuration (...), it follows that settings in a lower domain affect all clauses that include that domain, i.e. also clauses with additional higher domains, since higher domains necessarily include the lower ones” (Wurmbrand et al. 2020: 133).

(7) Finiteness universal (Wurmbrand et al. 2020)

If a language allows/requires finiteness in a type of complement, all types of complements further to the *left* on ICH also {allow/require} finiteness.

Consequently, Proposition and Situation complements cannot be less finite than Event complements. However, finiteness is possible in all types of complements. It does not define clausehood; rather the syntactic structure aligns along the ICH.

2 Some aspects of verbal morphology in Akan

2.1 Tense and aspect

Bhat (1999: 92) classifies languages as tense-prominent, aspect-prominent and mood-prominent. Languages choose tense, aspect or mood “(...) as the basic category and express distinctions connected with it in great detail; they represent the other two categories in lesser detail and further, they use peripheral systems like the use of auxiliaries, or other indirect means, for representing these latter categories” (Bhat 1999: 91). He further states that languages can select two or more equally prominent categories. According to Osam (2008), Akan is an aspect-prominent language with four aspects (Compleitive, Perfect, Progressive, Habitual) and a future tense (expressed with the marker *bɛ*). Boadi (2008) distinguishes between the Progressive, Habitual and Stative; he does not classify the Perfect as an aspect and states two tense markers, future and past.

2.2 The discussion on past, perfect and compleitive

Osam (2008) states that two aspects are “perfective”: compleitive and perfective, which are atemporal although there is a connection to a past tense: “There is a strong tendency for PFV [perfective] categories to be restricted to past time reference. I interpret this restriction as a secondary feature of PFV (...)” (Dahl 1985: 79). Boadi (2008) notes that “[b]oth the Past and Perfect depict the event described by a verb as having completed at, and as having occurred prior to, the time of speaking. In both *ɔ à-didí* ‘he has eaten’ and *ɔ didí-i* ‘he ate’ the subject of the sentence is understood to have gone through an event prior to the time of speaking” (2008: 24). The compleitive, realised by doubling the last vowel or consonant of the clause-medial verb stem, has been analysed as past tense and translated as such before but Osam (2008: 85) argues that “[d]espite the fact that past time is implied in the meaning of the compleitive suffix, my contention is that past time is a secondary meaning of the Akan morpheme. This is because the suffix cannot encode events that are located prior to the time of speech but which are imperfective. In the Akan aspectual forms (...), the Perfect, Progressive, and Habitual are all imperfective. When any past event is marked by any of these imperfective aspects, the coding does not involve in any way the use of the suffix I have called the compleitive”.

- (8) Akan (Asante Twi, Osam 2008: 75)

Kofi hù-ù abofra no.
Kofi see-COMPL child DEF
‘Kofi saw the child.’

The completive refers to events or actions that have been completed before the utterance and does not occur with the other aspects. It cannot be used for imperfective events, which is one of the strongest arguments for it being an aspect, not tense marker. Imperfective is expressed via the temporal marker *na* (*nna* in Fante). The perfect aspect *a-*, subject to vowel harmony with the verb stem, on the other hand signals that an event or action has occurred in the past but still has relevance to the present point in time.

- (9) Akan (Fante, Osam 2008: 79)
 Mà-á-tò bi.
 1SG.SUBJ-PERF-buy some
 ‘I have bought some.’

Osam states that the completive corresponds to the traditional perfect aspect in other languages. Its connection to past time meaning is indisputable as even Osam himself (2008: 87) assumes that the completive might be in the process of developing into a past tense form. No matter one’s stance on the aspect-tense debate, it must be acknowledged that the completive/past has an aspectual function and only refers to completed events. Boadi notes here: “The PAST Tense [completive aspect in Osam (2008)] affix *-e* performs an aspectual function corresponding to that performed by the Perfective in the Slavic languages (...)” (2008: 29). As the theoretical input for my analysis is originally based on data from the South Slavic languages, I adapt the completive as an aspect in this chapter.

2.3 The infinitive affix

Boadi (2008) mentions a non-finite indicative affix *a-* and disagrees with Osam’s (2008) assessment of *a-* as a consecutive marker: “The Infinitive is a one-member set represented by the prefix *a-*. It differs from the other Indicative affixes in not expressing aspect and other temporal relations. Unlike the finite forms its verb does not occur as the only predicate in independent clauses.” (Boadi 2008: 12).²

- (10) Akan (Boadi 2008: 12)
 ò rè-tó bí á-kò.
 he PROG-buy some INF-go
 ‘He is buying some to take away.’

²Both the perfect and infinitive affix are realised as *a-*. They can be distinguished when the construction is negated: perfective *a-da* becomes *n-da-a*, while the negation of the infinitive *a-da* is *a-n-da*.

The mention of a non-finite affix is especially interesting with regards to restructuring processes as “(...) [t]he close relationship between the TAM markers in Akan is evident in the fact that the non-finite mood affix *-a* does not express aspect or time, while the finite affixes express aspect and tense” (Owusu 2014: 22). It will be shown in §3.3 that the infinite *-a* occurs in Event complements.

3 Complement types

3.1 Proposition complements

Proposition complements in Akan are always finite. They do not have pre-specified tense values and require the clause introducer *sɛ/dɛ* in the examples below.

- (11) Akan (Twi, personal communication)³
- a. Me-ka-a sɛ me-kenkan-e nwoma no.
1SG-say-COMPL sɛ 1SG-read-COMPL book DEF
‘I said that I read the book.’
 - b. * Me-ka-a kenkan-e nwoma no.
1SG-say-COMPL read-COMPL book DEF
‘I said (claimed) to have read the book.’
 - c. Akua gye-di sɛ Kofi {bɛ-da yiye/ re-da yiye}.
Akua take-eat sɛ Kofi {FUT-sleep well/ PROG-sleep well}
‘Akua believes that Kofi will sleep well/is sleeping well.’

³‘Believe’ in Akan is formed with *gye* ‘collect’ and *di* ‘eat’. It is an integrated serial verb construction (see Osam 2003), meaning that “(...) the events encoded by the verbs are tightly integrated and thus cannot be separated into constituent parts” (Owusu 2014: 42). As seen below, the object of the complement clause can intervene between the two parts of the serial verb, and a pronoun has to be affixed to the verb in the complement clause.

- (i) Akan (Twi, personal communication)
 - a. * Akua gye-di sɛ Kofi re-da seseyi.
Akua collect-eat sɛ Kofi PROG-sleep right now
‘Akua believes Kofi is sleeping right now.’
 - b. * Akua gye Kofi di sɛ ɔ-re-da seseyi.
Akua collect Kofi eat sɛ 3SG-PROG-sleep right now
‘Akua believes Kofi to be sleeping right now.’
 - c. * ɔ-a-n-ka dɛ ɔ-bɛ-ba.
3SG.SUBJ-COMPL-NEG-say COMP 3SG.SUBJ-FUT-come
‘S/he didn’t say s/he will come.’

3 Akan complements on the implicational complementation hierarchy

- d. * Akua gye-di Kofi da yiye.
 Akua take-eat Kofi sleep well
 ‘Akua believes Kofi to sleep well.’

They require an overt subject which can differ from the subject of the matrix clause.

(12) Akan (Fante, Osam 1998: 29)

- a. Me-ka-a dɛ o-hu-u maame no.
 1SG.SUBJ-say-COMPL COMP 3SG.SUBJ-see-COMPL woman DEF
 ‘I said that s/he saw the woman.’
- b. Me-ka-a dɛ *hu-u maame no.
 1SG.SUBJ-say-COMPL COMP see-COMPL woman DEF
 ‘I said that she saw the woman.’

Lastly, clauses can be negated independently from each other.

(13) Akan (Fante, Osam 1998: 37)

- a. ɔ-ka-a dɛ ɔ-re-m-ba.
 3SG.SUBJ-say-COMPL COMP 3SG.SUBJ-PROG-NEG-come
 ‘S/he said s/he will not come.’
- b. ɔ-a-n-ka dɛ ɔ-re-m-ba.
 3SG.SUBJ-COMPL-NEG-say COMP 3SG.SUBJ-PROG-NEG-come
 ‘S/he didn’t say s/he will not come.’
- c. ɔ-a-n-ka dɛ ɔ-bɛ-ba
 3SG.SUBJ-COMPL-NEG-say COMP 3SG.SUBJ-FUT-come
 ‘S/he didn’t say s/he will come.’

As expected, Proposition clauses are temporally independent (albeit connected to the matrix verb through the attitude holder’s NOW, see Wurmbrand 2014) and do not show any subject restrictions. They also can be negated individually. Consequently, the construction consists of two clauses; an operator domain must be projected which means finiteness in Akan in the complement clause is mandatory. As in the South Slavic languages (Wurmbrand et al. 2020: 131), I propose that the locus of finiteness in Proposition complements in Akan is in the CP.

3.2 Situation complements

Situation complements in Akan require a future orientation, as expected. They are always finite. In Twi, the finite complement is possible without an overt future marker (15) while in Fante, overt future seems to be mandatory (14). Both dialects require the presence of *se/de* in Situation complements.

(14) Akan (Fante, Osam 1998: 31)

- a. Maame no hyɛ-ɛ bɔ dɛ ɔ-bɔ-kɔ.
woman DEF promise-COMPL COMP 3SG.SUBJ-FUT-go
'The woman promised to go.'
- b. *Maame no hyɛ-ɛ bɔ dɛ ɔ-kɔ-e.
woman DEF promise-COMPL COMP 3SG-go-COMP
'The woman promised that she went.'

(15) Akan (Twi, personal communication)

- a. Me-si-i gyinaɛ se me-kenkan nwoma no okyena/
1SG-build-COMPL decision se 1SG-read book DEF tomorrow/
*ennora.
yesterday
'I decided to read this book tomorrow/ yesterday.' (not intended: I decided yesterday to read this book; 'yesterday' refers to 'read')
- b. *Me-si-i gyinaɛ kenkan nwoma no.
1SG-build-COMPL decision read book DEF
'I decided to read this book.'

It can be observed that the clauses possess a pre-specified tense value and are not temporally independent as Proposition complements. Furthermore, the complement does not have a simultaneous tense interpretation with the matrix verb, thus requires a TAM domain. Therefore, finite Situation complements in Akan project a *vP* and a *TP*. According to Adger (2007), agreement features expressing finiteness are not limited to a *CP* but can be on heads of a *TP* or *vP* which explains the grammaticality of finite Situation complements as in (15a).

A TMA domain is what is minimally required for Situation complements. However, the ICH and containment approach allow for larger projected structures than minimally required. This is the case for complement clauses with overt future such as in (14a). As shown in (14) and (15a), Situation complements demand an irrealis event. This interpretation is either reached via overt future or a covert

future modal WOLL in the TMA domain (Todorović & Wurmbrand 2020, Wurmbrand 2014, Todorović 2015, see also Wurmbrand & Lohninger (2020) for more evidence for WOLL from Greek). In (15a), WOLL is licensed via Merge with the matrix verb. In (14a), an operator domain is projected and prevents WOLL from merging with the Situation verb. WOLL is licensed by Tense, and the spell-out is an overt future marker. The projected operator domain is in line with the ICH since although the construction is more complex than minimally required, the semantics are unchanged.

3.3 Event complements

3.3.1 *tumi* ‘can, manage’

In contrast to Indo-European languages, modality is not expressed via modal auxiliaries in the majority of Kwa languages but instead conveyed by different means such as affixes, periphrastic modal constructions and adverbs. *Tumi* ‘can’ is analysed as a modal auxiliary, which can be dynamic, epistemic or deontic and requires a semantically full verb as complement, by Owusu (2014) who argues that it does not carry lexical meaning and only refers to ability. Wurmbrand & Lohninger (2020) include modals and the non-modal implicative ‘manage’ in the Event class, “(...) as they form the least clausal contexts in most languages (...)” although they maintain that “(...) modals may be functional heads in certain languages, which constitutes a different type of complementation (...). The generalizations regarding the ICH apply foremost to complements of lexical verbs.

- (16) Akan (Owusu 2014 104: 67)
 Kofi tumi da.
 Kofi be.able.to sleep
 ‘Kofi can sleep.’
- (17) * Akan (Twi, personal communication)
 Kofi tumi sɛ da.
 Kofi be.able.to sɛ sleep

It never takes a clause introducer; its complements are non-finite. While the future tense/modal marker *bɛ* is usually affixed to the verb in the complement clause in Akan (20a), it attaches to *tumi*, the matrix verb of the construction (20b). The completive however is marked only in the complement (20c). *Tumi* can both mean ‘can’ and ‘manage’.

(18) Akan (Twi, personal communication)

- a. Ama kyere sɛ ɔ-bɛ-noa aduane.
Ama claim sɛ 3SG-FUT-cook food
‘Ama claims that she will cook food.’
- b. Ama bɛ-tumi a-noa aduane.
Ama FUT-can INF-cook food
‘Ama will be able to cook food.’
- c. Ama tumi noa-a aduane ennora.
Ama can cook-COMP food yesterday
‘Ama managed to cook food yesterday.’

These complements have no temporal independence or pre-determined tense value, they can only be interpreted simultaneously to the matrix predicate. They are also subject to exhaustive control, which means that the complement cannot have a subject.

(19) Akan (Twi, personal communication)

- a. * Ama tumi noa-a aduane ɔkyena.
Ama can cook-COMPL food tomorrow
‘Ama managed to cook food tomorrow.’
- b. * Ama tumi ɔ-noa.
Ama can 3SG-cook

According to Haspelmath (2016: 299, following Bohnemeyer et al. 2007: 501), the only way to test for clause size that holds cross-linguistically is negation. If clauses cannot be negated independently, the structure is monoclausal. In constructions with *tumi*, the verbs cannot be negated independently; both verbs have to carry the negative affix.

(20) Akan (Twi, personal communication)

- a. Akua n-tumi n-noa aduane.
Akua NEG-can NEG-cook food
‘Akua cannot cook.’
- b. * Akua n-tumi noa aduane.
Akua NEG-can cook food
‘Akua cannot cook.’
- c. * Akua tumi n-noa aduane.
Akua can NEG-cook food
‘Akua cannot cook.’

Since the complement can neither be negated individually, nor has its own temporal or aspectual domain, I conclude that the complement projects a vP.

3.3.2 *bɔ mmɔden* ‘try’

Bɔ mmɔden ‘try’ is an interesting case as it can have either a finite complement with the clause introducer as in (23a), or a non-finite complement as in (23b). Crucially, neither complement can receive an interpretation with ‘tomorrow’, as Proposition and Situation complements do.

(21) Akan (Twi, personal communication)

- a. Me-bɔ-ɔ mmɔden sɛ mɛ-kenkan-e nwoma no *ɔkyena.
1SG-hit-COMPL effort sɛ 1SG-read-COMPL book DEF *tomorrow
‘I tried to read the book *tomorrow.’
- b. Me-bɔ-ɔ me ho mmɔden kenkan-e nwoma no *ɔkyena.
1SG-hit-COMPL myself effort read-COMPL book DEF *tomorrow
‘I tried to read the book *tomorrow.’

As expected for Event complements, the matrix verb and its complement show the tightest connection of all three complement types. The complement does not have a TMA domain and is dependent on the temporal value of the matrix verb, the verbs have to agree, and the non-finite complement cannot have a subject.

(22) Akan (Twi, personal communication)⁴

- a. Me-bɔ me ho mmɔden a-kenkan nwoma no.
1SG-hit myself effort INF-read book DEF
‘I will try to read the book.’
- b. Me-bɔ-ɔ me ho mmɔden a-kenkan nwoma no.
1SG-hit-COMPL myself effort INF-read book DEF
- c. *Me-bɔ me ho mmɔden kenkan-e nwoma no.
1SG-hit myself effort read-COMPL book DEF
- d. *Me-bɔ-ɔ me ho mmɔden Kofi kenkan-e nwoma no.
1SG-hit-COMPL myself effort Kofi read-COMPL book DEF
‘I tried that Kofi read the book.’

⁴The speaker mentioned here that in written Akan, Me-bɔ in (22a) should be *re-bɔ*, but in spoken Akan the progressive marker is omitted most of the time.

It should be emphasized that even finite complements with *se* cannot receive a temporal interpretation different from the matrix verb, and the subject has to co-refer with the subject of the matrix verb.

(23) Akan (Twi, personal communication)

- a. * Me-re-bɔ mmɔden se me-kenkan-e nwoma no.
 1SG-PROG-hit effort se 1SG-read-COMPL book DEF
 ‘I’m trying to read the book.’ (complement in the past)
- b. * Me-re-bɔ mmɔden se Kofi kenkan-e nwoma no.
 1SG-PROG-hit effort se Kofi read-COMPL book DEF
 ‘I tried that Kofi read the book.’

It has to be mentioned here that Osam (1998: 29) states that complements with *bɔ mbɔden* ‘try’ always require overt future, and that aspectual/temporal agreement between the matrix verb and the complement is ungrammatical.

(24) Akan (Fante, Osam 1998: 29)

- a. Kofi bɔ-ɔ mbɔden de ɔ-be-yɛ edwuma no.
 Kofi hit-COMPL effort COMPL 3SG-FUT-do work DEF
 ‘Kofi tried to do the work.’
- b. * Kofi bɔ-ɔ mbɔden de ɔ-yɛ-ɛ edwuma no.
 Kofi hit-COMPL effort COMPL 3SG-do-COMPL work DEF
 ‘Kofi tried to do the work.’

This is certainly interesting data; one could for example speculate if these constructions support Owusu (2014) analysis of *be* as a modal instead of future tense marker. Wurmbrand & Lohninger (2020) also mention that “(...) verbs like *try* pose an interesting in-between case. While (...) a future interpretation is not possible, *try* complements also involve an irrealis aspect since the embedded event cannot be realized (i.e. completed) yet in a trying situation. Since *try* usually patterns with Event verbs, we have included it among this class, but we wish to note that it is a clear border-case (...) which may also show properties of the Situation class”. Since none of the speakers who worked with me have produced overt future in *bɔ mmɔden*, I will leave this analysis for future work.

Lastly, non-finite complements with *bɔ mmɔden* cannot be negated individually, both the matrix verb and the complement in (25a) have to carry the negation affix. Finite structures too cannot be negated independently, here in (26) only the matrix verb can have a negative affix which negates the entire construction. Thus both the non-finite and the finite Event structures project a vP.

(25) Akan (Twi, personal communication)

- a. Me-m-mɔ mmɔden n-kenkan nwoma no.
1SG-NEG-hit effort NEG-read book DEF
'I'm not trying to read the book.'
- b. * Me-m-mɔ mmɔden kenkan nwoma no.
1SG-NEG-hit effort read book DEF
'I'm not trying to read the book.'
- c. * Me-bɔ mmɔden n-kenkan nwoma no.
1SG-hit effort NEG-read book DEF
'I'm trying not to read the book.'

(26) Akan (Twi, personal communication)

- a. Me-a-m-mɔ mmɔden sɛ me-kenkan-e nwoma no.
1SG-COMPL-NEG-hit effort sɛ 1SG-read-COMPL book DEF
'I didn't try to read the book.'
- b. * Me-bɔ-mɔ mmɔden sɛ me-a-n-kenkan nwoma no.
1SG-hit-COMPL effort sɛ 1SG-COMPL-NEG-read book DEF
'I tried to not read the book.'
- c. * Me-a-m-mɔ mmɔden sɛ me-a-n-kenkan nwoma no.
1SG-COMPL-NEG-hit effort sɛ 1SG-COMPL-NEG-read book DEF
'I didn't try to read the book.'

4 Concluding remarks

In this chapter, I have examined Akan verbs with meanings similar to Proposition, Situation and Event verbs in other languages to find out whether they align along the ICH, and what domains their complements project. The findings confirm the hypotheses of the ICH (Wurmbrand & Lohninger 2020), and the finiteness universal (Wurmbrand et al. 2020), both repeated below in Table 5 and (27).

(27) Wurmbrand & Lohninger (2020)

- a. The ICH reflects increased syntactic and/or semantic complexity from the right to the left: a type of complement can never be obligatorily more complex than the type of complement to its left on ICH.
- b. The implicational relations of the ICH arise through containment relations among clausal domains.

Table 5: Implicational complementation hierarchy (Wurmbrand & Lohninger 2020)

MOST INDEPENDENT		LEAST INDEPENDENT
LEAST TRANSPARENT	Proposition » Situation » Event	MOST TRANSPARENT
LEAST INTEGRATED		MOST INTEGRATED
MOST COMPLEX		LEAST COMPLEX

Proposition and Event complements in Akan show opposite values on the ICH. Event complements are less complex than Situation complements, and Situation complements are less complex than Proposition complements. The complements also align hierarchically in terms of independence, transparency and integration.

(28) Finiteness universal (Wurmbrand et al. 2020)

If a language {allows/requires} finiteness in a type of complement, all types of complements further to the *left* on ICH also {allow/require} finiteness.

The finiteness universal has also been confirmed in Akan. As seen in Table 6, Akan shows ICH signature effects, with only Event complements allowing non-finite complements. As they themselves can be finite too, finiteness can be in every complement to its left, and every domain in Akan.

Table 6: Finiteness in Akan complements

	Proposition	Situation	Event
finite	✓	✓	✓
non-finite	*	*	✓

The three complement types have minimal requirements for their domains, but larger structures are a possibility in this framework. Assuming a TP for Situation and a *vP* for Event predicates leaves questions on the status of *se* which underwent a grammaticalisation process from a verb *se* ‘say’ into a functional element (Osam 1996).

Se (*dε* in Fante) has traditionally been analysed as a complementiser (Lord 1993, Boadi 1972 Osam 1998 amongst others) but has various different lexical and grammatical functions, “(...) including a verb meaning ‘resemble’; a comparative particle; a factitive object marker; a that-complementizer; an adverbial subordinator introducing clauses of purpose, result, reason, and condition; and a component of miscellaneous adverbials meaning ‘until’, ‘although’, ‘unless’, ‘or’, and

‘how’” (Lord 1993: 151). Agyekum (2002: 127) lists another function of *se* as an interpretive marker ‘that’. I propose yet another function, as a finiteness visualiser.

Todorović & Wurmbrand (2020) analyse *da* in Serbian as a finiteness visualiser. As shown in §1.3, finiteness can occur in different domains in Serbian, and an analysis of *da* as a complementiser in these structures is ruled out. Based on the positions of adverbs in complement constructions, they argue that *da* is in T in Situation complements, and *v* in Event complements. T and *v* are “(...) not morphologically realized. If these heads are inserted with a [+FINITE] feature, *da* can be seen as the morphological spell-out of this feature (...). We hypothesize that *da* spells out [+FINITE] on a clausal head (C, T, *v*), if no other feature of that head overtly expresses finiteness. For instance, if there is a semantic tense feature in T, the verb realizes that feature (either via lowering or V-movement) and [+FINITE] is made visible via the (true) tense feature and would not be spelled out in addition as *da*” (Todorović & Wurmbrand 2020).

As I have shown above, Event complements in Akan select a *v*P, and Situation events either a TP or a CP. Finite *se* complements are possible in Event complements and obligatory in Situation complements, thus I preliminarily conclude for now that *se*, as *da* in Serbian, is a finiteness visualiser in these constructions that can be in different domains.

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Chapter 4

Backward vs. forward control/raising: A case of Lak aspectual verbs

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This paper presents novel data from Lak exemplifying morpho-syntactic properties of aspectual verbs ‘to begin’ and ‘to finish’. The aspectual verbs in Tsez (Polinsky & Potsdam 2002), a language related to Lak, have been analysed as either backward control or raising depending on a number of their syntactic characteristics. When applied to Lak, the same tests produce a different result – the Lak aspectual verbs do not pattern with either control or raising. It is suggested that the aspectual construction is an example of clause union. The evidence in support of this proposal comes from A'-movement, agreement, and transitivity harmony.

1 Introduction

The phenomenon of control and raising has been one of the most discussed topics in syntax (Hornstein 1999, Landau 2001, 2003, 2004, Martin 2001, Boeckx & Hornstein 2003, 2004, Davies & Dubinsky 2004, Wurmbrand 1999, 2001, 2007) covering such issues as the nature of null elements (PRO, copies, traces, etc.) and complement sizes.¹ The recent shift of attention to a more cross-linguistic perspective has enriched the typology of attested types of control and raising constructions providing us with a better understanding of their syntactic and semantic properties. One such discovery started with a seminal work by Polinsky & Potsdam (2002) which reported a previously unattested “backward control” construction from Tsez, Nakh-Dagestanian, as in (1) where the subject bears the

¹The list of references is not intended to be exhaustive but for the reasons of space I have chosen just a small representative subset of the literature on control and raising.



case determined in the embedded clause. Polinsky & Potsdam (2002) analyse the construction in (1) as an instance of backward control, as schematically shown in (2). Interestingly, backward raising is also attested cross-linguistically, e.g., in Adyghe, North West Caucasian (Potsdam & Polinsky 2012).

- (1) Kid-bā ziya b-išr-a y-oq-si.
 girl.II-ERG cow.III.SG.ABS III.SG-feed-INF II.SG-begin-PST.EVID
 ‘The girl began to feed the cow.’ (Polinsky & Potsdam 2002: 248)
- (2) [PRO_{ABS} [XP DP_{ERG} (DP_{ABS}) V_{INF}] begin]

In this paper, I will discuss one construction found in Lak,² a language related to Tsez, where the subject of the main clause has its case determined by the embedded verb, as in (3).³

- (3) Rasul-lu-l lu buwk:un-nu q:urtal b-un-ni.
 Rasul-OS-ERG book.III.SG.ABS <III.SG>read-PRF.GER finish III.SG-do-PST.3
 ‘Rasul finished reading a/the book.’

Despite some surface similarities between the two constructions in Lak and Tsez, I will show that in Lak we deal with a mono-clausal structure. Capitalizing on the seminal work by Wurmbrand (2001, 2004, 2007), I will argue that the aspectual verbs (‘to begin’ and ‘to finish’) in Lak are restructuring verbs that can take complements of a much smaller size than CP/IP (cf. their Tsez counterparts). The paper is organized as follows. First, I present a short sketch of Lak morpho-syntax to help the reader navigate through the data presented in the paper. In the next section, I introduce the key properties of the aspectual verb construction and compare its properties to the Tsez backward cases. Then, I will present additional data from Lak that has to do with so-called “transitivity concord/agreement” attested in various languages of the world (Zariquiey 2014). The phenomenon of “transitivity agreement” observed in the Lak aspectual verb construction provides further evidence for its mono-clausal nature. Finally, I summarize the findings of the paper and identify directions for future research.

2 Basics of Lak morpho-syntax

Lak is a Nakh-Dagestanian (or North East Caucasian) language spoken in the Republic of Dagestan in Russia. According to the 2010 census of the Russian Federation, there are 145,895 speakers. Lak forms its own branch of the Nakh-Dagestanian language family but shares many key morpho-syntactic properties with

² All the Lak data in the paper are from author’s fieldnotes.

³ I use the <...> notation in glosses to indicate that class agreement is realized as an infix.

other members of the family previously studied formally: Tsez (Tsezic branch) and Archi (Lezgic branch). For more detailed descriptions of Lak morphosyntax discussed in this section, I refer the reader to grammars of Lak (Zhirkov 1955, Murkelinskij 1971) and a comprehensive overview of Lak syntax in Kazenin (2013).

One of the most prominent features of Nakh-Dagestanian is its nominal class system: all nouns belong to one of the classes. The nominal class system is only partially determined by semantics (for humans). Importantly, the class is not overtly marked on nouns themselves but is revealed via agreement on other verbal and non-verbal elements of the clause. The number of classes across the family varies from 0 in Lezgian (Haspelmath 1993), Aghul (Magometov 1970), Udi (Harris 2002), and some dialects of Tabasaran (Magometov 1965) to 8 in Batsbi (Desheriev 1967). Lak has a system of four nominal classes where Class I is comprised of male human individuals, Class II is used for older females, Class III consists of nouns referring to females, animates, concrete and abstract concepts, and Class IV is made up of most abstract and some concrete nouns.

Furthermore, Lak has a rich system of case marking which can be split into two: core and spatial cases, with the latter being an instance of PPs (see Radkevich (2010) for more detail and discussion). As for the core cases, Lak has absolutive, ergative, genitive, and dative cases. Some clarifications are in order here: (1) as common for Nakh-Dagestanian, absolutive is unmarked; (2) genitive and ergative are syncretic for nouns but not for pronouns; (3) non-absolutive forms of nouns usually have an additional morpheme between the root and the case exponent which is called an “oblique stem marker”. Similarly to other members of the family, Lak is a head final morphologically ergative language where arguments of all intransitive verbs pattern with internal arguments of transitive verbs with respect to case marking, i.e., absolutive, whereas external arguments of transitive verbs⁴ can be either ergative or dative. Consider the following examples.

- (4) Ninu d-urkun-ni.
mother.II.SG.ABS II.SG-⟨II.SG⟩come.PRF-PST.3
‘Mother came.’
- (5) Ninu d-i:zun-ni.
mother.II.SG.ABS II.SG-get.up-PST.3
‘Mother got up.’
- (6) Rasul-lu-l q:u dirχ:un-ni.
Rasul-OS-ERG field.IV.SG.ABS ⟨IV.SG⟩dig.PRF-PST.3
‘Rasul dug up the field.’

⁴In this paper I will use the term *external argument* to refer to external arguments of transitive verbs only excluding external arguments of unergative verbs.

- (7) T:u-n ga k:awk:un-ni.
 1.SG.III-DAT he.I.SG.ABS <I.SG>see.PRF-PST.3
 'I saw him.'

In (4) and (5), the sole arguments of intransitive verbs are absolutive marked. The situation is different in transitive clauses: in (6) and (7), the internal arguments are absolutive, while the external ones are ergative and dative, respectively. Another important property of Lak is absolutive controlled agreement: agreement can only be controlled by absolutive marked arguments. Most Nakh-Dagestanian languages have class/number agreement which is also true for Lak: class/number agreement is realized as prefixes, if vowel initial, as in (4–5), and/or infixes in the perfective aspect, as in (4), (6), and (7). This type of agreement is encoded with Roman numerals in the glosses. Furthermore, Lak has developed a person agreement system found on finite verbs: this type of agreement is also controlled by absolutive arguments and is realized as suffixes (glossed with Arabic numerals), as illustrated below.

- (8) Na zu b-uwhunu b-ur-u.
 1.I.SG 2.I.PL I.PL-<I.PL>catch.PRF.GER I.PL-AUX-1/2PL
 'I caught you.'
- (9) Na ga Ø-uwhunu Ø-ur-Ø.
 1.I.SG 3.I.SG.ABS I.SG-<I.PL>catch.PRF.GER I.SG-AUX-3
 'I caught him.'

Furthermore, Lak has contexts where the regular ergative-absolutive alignment in transitive clauses breaks down, i.e., the so-called cases of split ergativity. Lak has two types of split ergativity: aspect and person/tense based. In this description of Lak morpho-syntax, I will focus only on the former as the person/tense split ergativity is a very complicated phenomenon and is not directly relevant to the issue under discussion.

The aspect based split ergativity arises in imperfective durative (progressive) forms. External arguments of agentive verbs do not get their expected ergative marking, instead they appear absolutive marked. Furthermore, there are two agreement controllers where the internal argument controls class/number agreement on the lexical verb, while the absolutive marked external argument controls class/number and person agreement on the auxiliary verbs. Consider the examples in (10) and (11).

- (10) Rasul č:itu b-uh-laj Ø-ur-Ø.
 Rasul.I.SG cat.III.SG.ABS III.SG.ABS-catch-DUR.GER I.SG-AUX-3
 ‘Rasul is catching a/the cat.’
- (11) Rasul-lu-l č:itu b-uwhunu b-ur-Ø.
 Rasul.I.SG-OS-ERG cat.III.SG.ABS III.SG-⟨III.SG⟩catch.PRF.GER III.SG-AUX-3
 ‘Rasul caught a/the cat.’

In (10), the verb ‘to catch’ is used in the progressive aspect and its external argument ‘Rasul’ is absolutive marked, whereas it is ergative in non-progressive contexts, as in (11). Furthermore, the lexical verb agrees in class/number with the internal argument ‘cat’, whereas the auxiliary verb agrees with the absolutive marked external argument. In (11), however, all agreement is controlled by the internal argument č:itu ‘cat’. Importantly, the aspect based split ergativity does not affect the so-called dative verbs, as in (12).⁵

- (12) a. Rasul-lu-n matematika q:a-d-urč’laj
 Rasul.I.SG-OS-DAT math.IV.SG.ABS NEG-IV.SG-understand.DUR.GER
 d-ur-Ø.
 IV.SG-AUX-3
 ‘Rasul does not understand math.’
- b. * Rasul matematika q:a-d-urč’laj Ø-ur-Ø.
 Rasul math.IV.SG.ABS NEG-IV.SG-understand.DUR.GER IV.SG-AUX-3

The final aspect of Lak morpho-syntax that is directly relevant for this paper is word order and A’-movement. Like many other Nakh-Dagestanian languages, Lak has a relatively free word order within the clause, as illustrated below.

- (13) a. Rasul-lu-l q:u dirχ:un-ni.
 Rasul.I.SG-OS-ERG field.IV.SG.ABS ⟨IV.SG⟩dig.PRF-PST.3
 ‘Rasul dug up the field.’
- b. q:u Rasul-lu-l dirχ:un-ni.
- c. Rasul-lu-l dirχ:un-ni q:u.
- d. dirχ:un-ni Rasul-lu-l q:u.

However, long-distance scrambling is impossible, as shown in (14).

⁵There are many other intricate properties of the Lak aspect based split ergativity but their discussion goes beyond the scope of the paper. For more detailed discussion and analysis I refer the reader to Gagliardi et al. (2014).

- (14) a. Rasul-lu-l buwsun-ni [A^ʃli-l pu^ʃrun
Rasul.I.SG-OS-ERG <III.SG>say.PRF-PST.3 Ali.I.SG-ERG glass.IV.SG.ABS
yawɣ-ʃiwu].
<IV.SG>break.PRF-MSD
'Rasul said that Ali broke the window.'
- b. *Rasul-l-ul pu^ʃrun_i buwsun-ni, [A^ʃli-l
Rasul.I.SG-OS-ERG glass.IV.SG.ABS <III.SG>say.PRF-PST.3 Ali.I.SG-ERG
t_i yawɣ-ʃiwu].
t <IV.SG>break.PRF-MSD
- c. *Pu^ʃrun_i Rasul-lu-l buwsun-ni [A^ʃli-l
glass.IV.SG.ABS Rasul.I.SG-OS-ERG <III.SG>say.PRF-PST.3 Ali.I.SG-ERG
t_i yawɣ-ʃiwu].
t <IV.SG>break.PRF-MSD

Furthermore, the same locality restrictions are found in *wh*-questions: namely, *wh*-word can optionally front to the sentence initial position, as in (15), but it cannot cross the clausal boundary, as in (16).

- (15) a. Rasul-lu-l ci dirɣ:un-ni?
Rasul-OS-ERG what.IV.SG.ABS <IV.SG>dig.PRF-PST.3
'What did Rasul dig?'
- b. Ci Rasul-lu-l dirɣ:un-ni?
what.IV.SG.ABS Rasul-OS-ERG <IV.SG>dig.PRF-PST.3
- (16) a. Nit:i-n k'ul-s:a-r-iw, [Rasul ci
mother-DAT know-PART-PRES.3-Q Rasul.I.SG.ABS what.IV.SG.ABS
d-ullaj-s:a-r-iw]?
IV.SG-do.DUR.GER-PART-PRES.3-Q
'Does mother know what Rasul is doing?'
- b. *Ci_i nit:i-n k'ul-s:a-r-iw, [Rasul t_i
what.IV.SG.ABS mother-DAT know-PART-PRES.3-Q Rasul.I.SG.ABS t
d-ullaj-s:a-r-iw]?
IV.SG-do.DUR.GER-PART-PRES.3-Q
- c. *Nit:i-n ci_i k'ul-s:a-r-iw, [Rasul t_i
mother-DAT what.IV.SG.ABS know-PART-PRES.3-Q Rasul.I.SG.ABS t
d-ullaj-s:a-r-iw]?
IV.SG-do.DUR.GER-PART-PRES.3-Q

Having discussed the key properties of Lak morpho-syntax, in the next section I will present data from the aspectual verb construction and compare it to its Tsez counterpart highlighting many differences between the superficially similar constructions in the two languages.

3 Aspectual verbs in Lak and Tsez

In their seminal work, Polinsky & Potsdam (2002) study two interesting constructions with aspectual verbs in Tsez to conclude that one of them involves the so-called backward control, while the other is an instance of raising. The two structures in question are in (17) and (18).

- (17) Kid-bā ziya b-išr-a y-oq-si.
 girl.II-ERG cow.III.ABS III-feed-INF II-begin-PST.EVID
 ‘The girl began to feed the cow.’
- (18) Kid ziya b-išr-a y-oq-si.
 girl.II.ABS cow.III.ABS III-feed-INF II-begin-PST.EVID
 ‘The girl began to feed the cow.’ (Polinsky & Potsdam 2002: 248–249)

There are two surface differences between the two sentences that have to do with case marking and agreement: (1) in (17) the DP ‘girl’ bears ergative case associated with the embedded verb, while in (18) the same DP is absolutive marked; (2) the agreement on the main verb ‘to begin’ is controlled by the ergative DP, which is unattested in Tsez and in other Nakh-Dagestanian languages, whereas in the second sentence the controller is the absolutive DP ‘girl’. Polinsky & Potsdam (2002) propose that the two sentences under discussion have two different structures and, thus, represent different phenomena (control vs. raising).

- (19) [PRO [DP_{ERG} DP_{ABS} V_{INF}] begin] (=17)
 (20) [DP_{ABS} [t DP_{ABS} V_{INF}] begin] (=18)

The structure in (19) is a schematic representation of backward control where the null element (PRO) is in the main clause rather than in the embedded one as it would be in the run of the mill cases of forward control.⁶ Polinsky & Potsdam (2002) draw this conclusion based on a number of tests that contrast the two constructions. Interestingly, the verbs that can have backward control in Tsez

⁶It is important to point out that Polinsky & Potsdam (2002) treat control as movement (Hornstein 1999) and the ergative DP is an instance of the pronunciation of the lower copy.

are so-called aspectual verbs ‘to begin’, ‘to continue’, and ‘to stop/finish’. The Lak aspectual verbs ‘to begin’ and ‘to finish’ also show unexpected patterns of case marking: they can only bear the case assigned by the embedded verb.⁷ In the rest of the chapter, I will discuss some properties of the Lak aspectual verbs with special attention to case distribution and then I apply the tests used for Tsez in Polinsky & Potsdam (2002) to the Lak aspectual verbs to show that Lak aspectual verbs do not fit the patterns displayed by their Tsez counterparts.

3.1 Case distribution in the Lak aspectual construction

The two Lak aspectual verbs (‘to begin’ and ‘to finish’) share a lot of similarities with respect to the distribution of case. The two aspectual verbs take gerunds as their complements: the verb ‘to begin’ takes gerunds in imperfective aspects, whereas the verb ‘to finish’ takes perfective gerunds. Furthermore, they behave identically with respect to case distribution when used without gerundial complements. Consider the following sentences illustrating case marking for the verb ‘to begin’.

- (21) Bawa-l cila žahil-nij-s:a χawar
 grandmother.II-ERG self.II.SG youth.IV-LOC-ATTR story.III.SG.ABS
 b-ajbiwxun-ni.
 III.SG-⟨III.SG⟩begin.PRF-PST.3
 ‘Grandmother began her story about her youth.’

The same pattern of case distribution holds for the verb ‘to finish’ as well. Consider the data below. In (22), similarly to (21), the external argument is ergative.

- (22) Bawa-l cila žahil-nij-s:a χawar q:urtal
 grandmother.II-ERG self.II.SG youth.IV-LOC-ATTR story.III.SG.ABS finish
 b-un-ni.
 III.SG-do-PST.3
 ‘Grandmother finished her story about her youth.’

Whenever the verb ‘to begin’ is used on its own, i.e., without an embedded verb, (21), its external argument is ergative but when it is used with the gerundial complement in (23), the external argument of the embedded verb *bawa* ‘grandmother’ is absolutive marked. This case marking is compatible with the Lak case

⁷Unlike Tsez, Lak does not have a verb ‘to continue’: its meaning is realized via aspectual marking.

marking in durative (imperfective) contexts, i.e., split-ergativity. Note that the main verb is in the perfective aspect which is impossible with the absolutive marked external argument. Furthermore, if the embedded verb has a dative alignment, it is preserved in the aspectual construction. Given the data in (21–24), the case marking is determined in the embedded clause.

- (23) Bawa o^ʕl t:izlaj
 grandmother.II.SG.ABS cow.III.SG.ABS milk.DUR
 d-ajdirxun-ni.
 II.SG-⟨II.SG⟩begin.PRF-PST.3
 ‘Grandmother began milking a/the cow.’
- (24) A^ʕli-n matematika d-urč’laj
 Ali-DAT math.IV.SG.ABS IV.SG-understand.DUR
 d-ajdirxun-ni.
 IV.SG-⟨IV.SG⟩begin.PRF-PST.3
 ‘Ali began to understand math.’

Furthermore, the verb ‘to finish’ takes perfective gerunds as its complement and that aspect is incompatible with split ergativity, i.e., the external argument cannot be absolutive, as can be seen in (25).

- (25) a. A^ʕjšat-lu-l huqa buruw:un-nu q:urtal
 Ajšat.III-OS-ERG dress.III.SG.ABS ⟨III.SG⟩sew.PRF-PRF.GER finish
 b-un-ni.
 III.SG-do-PST.3
 ‘Aishat finished sewing a/the dress.’
- b. * A^ʕjšat huqa buruw:un-nu q:urtal
 Ajšat.III.SG.ABS dress.III.SG.ABS ⟨III.SG⟩sew.PRF-PRF.GER finish
 b-un-ni.
 III.SG-do-PST.3

To show that it is indeed the embedded clause properties that determine case marking, we can have the main verb in the durative aspect where the split ergativity (absolutive marking on external arguments) arises. This configuration makes straightforward testable predictions: 1) if the case is determined in the embedded clause, the external argument will be in ergative; 2) if the case is determined in the matrix clause, the external argument will be absolutive. Now consider the example in (26): the external argument ‘Aishat’ is ergative marked, consequently, the case of the external argument originates in the embedded clause.

- (26) A^ʕjʂat-lu-l huqa buruw:un-nu q:urtal
 Ajʂat.III-OS-ERG dress.III.SG.ABS <III.SG>sew.PRF-PRF.GER finish
 b-away b-ur-Ø.
 III.SG-do.ITER.DUR.GER III.SG-AUX-3
 ‘Aishat is finishing sewing a/the dress.’

Having determined that the external argument in the aspectual constructions in Lak gets its case in the embedded clause, it is important to establish the position of this argument, i.e., whether it stays in the embedded clause or moves to the main clause.

3.2 Position of the external argument

Polinsky & Potsdam (2002) apply a number of tests to show that in the case the backward control construction the external argument stays in the embedded clause, whereas in the case of raising, it moves to the matrix clause. To determine this, they use the following tests: (1) A'-movement (scrambling and wh-movement); (2) event quantification; (3) second position validation clitic; (4) complement ellipsis. In this paper, I will use only the first two tests since Lak does not have any item similar to the Tsez second position validation clitic and the phenomenon of complement ellipsis gives rise to more complications, a proper discussion of which goes beyond the scope of the current paper.

3.2.1 A'-movement in the Lak aspectual construction

In Tsez and in Lak, A'-movement is clause-bound as discussed in §2 (see examples in (13–16). This locality restriction on movement allows us to test the position of arguments in the aspectual constructions and decide whether the structure is mono-clausal or bi-clausal. Consider the following two examples used as a base for applying the movement tests.

- (27) A^ʕli q:at:a b-ullaj Ø-ajiwɣun-ni.
 Ali.I.SG.ABS house.III.SG.ABS III.SG-do.DUR.GER I.SG-<I.SG>begin.PRF-PST.3
 ‘Ali began building a/the house.’
- (28) A^ʕli-l lu buwk:un-nu q:urtal b-un-ni.
 Ali.I-ERG book.III.SG.ABS <III.SG>read.PRF.GER finish III.SG-do-PST.3
 ‘Ali finished reading a/the book.’

Interestingly, (27) and (28) allow any word order combinations, thus suggesting that the structure is actually mono-clausal, as shown in (29) and (30).⁸ Since it is a mono-clausal structure, the discussion of the position of the external argument in terms of embedded/matrix clauses is inapplicable.

- (29) a. Q:at:a A^ʕli b-ullaj Ø-ajiwun-ni.
 b. A^ʕli b-ullaj q:at:a Ø-ajiwun-ni.
 c. A^ʕli Ø-ajiwun-ni q:at:a b-ullaj.
 d. A^ʕli Ø-ajiwun-ni b-ullaj q:at:a.
- (30) a. Lu A^ʕli-l buwk:un-nu q:urtal b-un-ni.
 b. A^ʕli-l buwk:un-nu lu q:urtal b-un-ni.
 c. A^ʕli-l q:urtal b-un-ni lu buwk:un-nu.
 d. A^ʕli-l q:urtal b-un-ni buwk:un-nu lu.

In this section, I have shown that the aspectual construction is mono-clausal as it allows scrambling compatible with the mono-clausal structure.⁹

3.2.2 Event quantification

Polinsky & Potsdam (2002) use an event quantification test to argue for the two structures (backward control and raising), namely, they show that a temporal adverbial can be interpreted as either modifying the matrix or the embedded verb. Interestingly, the two constructions with the linearly identical position of the adverb can have two distinct interpretations. Consider the following pair to illustrate this point.

⁸ An anonymous reviewer raises a question of whether the following word order is possible, as in (i). The ungrammaticality of (i) is not surprising since the complex verb *q:urtal ban* forms a morpho-phonological unit which cannot be split even in clearly mono-clausal structures, as in (ii).

- (i) * Lu b-un-ni A^ʕli-l buwk:un-nu q:urtal.
 book.III.SG.ABS III.SG-do-PST.3 Ali.I-ERG <III.SG>read.PRF-PRF.GER finish
- (ii) * χawar q:urtal bawa-l b-un-ni.
 story.III.SG.ABS finish grandmother.II-ERG III.SG-do-PST.3
 ‘Grandmother began her story.’

⁹ In this paper I do not test wh-questions in the Lak aspectual construction as it requires a more detailed discussion which is impossible due to the space limits. Thus, I leave it for future research.

- (31) [kidbā uyrax āliru ziya bišra] yoqsi.
 girl.ERG fourth time cow feed began
 ‘The girl began to feed the cow for the fourth time.’ (=4 feedings)
 *‘The girl began for the fourth time to feed the cow.’ (=4 beginnings)
- (32) kid uyrax āliru ziya bišra yoqsi.
 girl.ABS fourth time cow feed began
 ‘The girl began to feed the cow for the fourth time.’ (=4 feedings)
 ‘The girl began for the fourth time to feed the cow.’ (=4 beginnings)
 (Polinsky & Potsdam 2002: 255)

In (31) and (32), the adverbial is placed after the external arguments ‘girl’. If DP ‘girl’ is in the embedded clause, the adverbial is located there as well, thus it can only modify the embedded predicate. If the DP is in the matrix clause, the adverbial can modify either the matrix or the embedded verb. In (31), the only available interpretation is that ‘the girl fed the cow four times’, i.e. the adverbial modifies the embedded clause, while (32) is ambiguous between ‘the girl fed the cow four times’ and ‘the girl had four beginning of cow-feeding’, i.e., the adverb modifies the matrix verb. To see how the same test fares in the Lak aspectual construction consider the following examples.

- (33) Amudada k’ilčín o¹l t:izlaj
 grandmother.II.SG.ABS twice cow.III.SG.ABS milk.DUR.GER
 d-ajdirxun-ni.
 II.SG-<II.SG>begin.PRF-PST.3
 ‘Amudada began milking the cow for the second time.’ (two beginnings,
 #two milkings)
- (34) Bawa-l k’ilčín cila χawar
 grandma.II-ERG twice self.II.SG story.III.SG.ABS
 b-uwsu-nu q:urtal b-unni.
 III.SG-<III.SG>tell.PRF-PRF.GER finish III.SG-do-PST.3
 ‘Grandmother finished telling her story twice.’ (two finishings, #two stories)

The data in (33) and (34) parallel the examples from Tsez in (31) and (32): the adverbial follows the external argument. Interestingly, both Lak sentences are unambiguous: they can only mean ‘two beginnings’ and ‘two finishings’, respectively. In other words, the adverbial cannot modify the embedded verb, thus indicating that the external argument is in the matrix clause.

Having applied the test of the event quantification to the Lak aspectual verb construction, I conclude that the aspectual constructions are mono-clausal which further corroborates the results reported in §3.2.1.

3.3 Types of external arguments

Polinsky & Potsdam (2002) provide another piece of evidence for teasing the two constructions (control vs. raising) apart: the two types of verbs vary with respect to what types of external arguments they can have which is due to differences in their thematic structure. First, they note that only control predicates are compatible with such adverbs as ‘intentionally’, whereas raising verbs are only possible with adverbs like ‘accidentally’. When applied to the Lak aspectual verbs, a different picture emerges: both verbs are compatible with both types of adverbs.

- (35) Rasul ma^ʃžannugu ok:inu duklaj
 Rasul.I.SG.ABS on.purpose bad study.DUR.GER
 Ø-ajiwxun-ni.
 I.SG-⟨I.SG⟩begin.PRF-PST.3
 ‘Rasul on purpose began not to study well.’
- (36) A^ʃli cakunu Ø-ajiwxun-ni q:at:a
 Ali.I.SG.ABS unexpectedly I.SG-⟨I.SG⟩begin.PRF-PST.3 house.III.SG.ABS
 b-ullaj.
 III.SG-do.DUR.GER
 ‘Ali unexpectedly began building the/a house.’
- (37) A^ʃjšat-lu-l huqa b-uruwχ:un-nu
 Ajšat-OS-ERG dress.III.SG.ABS III.SG-⟨III.SG⟩sew.PRF-PRF.GER
 ma^ʃžannugu/cakunu q:urtal b-un-ni.
 on.purpose/unexpectedly finish III.SG-do-PST.3
 ‘Aishat finished sewing a/the dress.’

Furthermore, it is also shown in Polinsky & Potsdam (2002) that control verbs can have animate subjects, whereas raising verbs can only have inanimate subjects, as expected if they are only compatible with the adverbs like ‘accidental’. In Lak, however, both aspectual verbs are possible with inanimate subjects, as in (38) and (39).

- (38) Marχ:ala baws:u-nu q:urtal xun-ni.
 snow.III.SG.ABS ⟨III.SG⟩melt.PRF-PRF.GER finish become-PST.3
 ‘Snow finished melting/Snow has melted.’

- (39) Mary:ala baslaj b-ajbiwxu-ni.
snow.III.SG.ABS melt.DUR.GER III.SG-⟨III.SG⟩begin-PST.3
‘Snow started melting.’

Finally, based on Farkas (1988), Polinsky & Potsdam 2002 also argue that raising verbs cannot be used in imperatives. The Lak aspectual verbs can be used in the imperative construction, as shown below.

- (40) Ø-ajixu balaj t’ij!
I.SG-begin.IMPER song.III.SG.ABS say.DUR.GER
‘Start singing!’
- (41) Q:urtal d-u-wa t’ahni-k’ič’u šuŋršu-nu!
finish IV.SG-do-POT2 crockery.IV.SG ⟨IV.SG⟩wash.PRF-PRF.GER
‘Stop washing dishes!’

The data presented in this section show that the Lak aspectual verbs behave neither like control nor like raising verbs: on the one hand, the external arguments are in the matrix clause but inherit case from the embedded clause being compatible with the raising structure, while on the other hand, the aspectual verb are compatible with animate and inanimate subject, volitional and non-volitional adverbs, and can be used in imperatives. To accommodate all of these properties of the Lak aspectual verbs, I propose that these verbs form a complex predicate with their embedded verbs (something similar to the serial verb construction). Additional evidence to support this proposal comes from agreement and transitivity harmony.

4 Analysis: Aspectual verbs as restructuring

In the previous section I have applied several tests to Lak that are used by Polinsky & Potsdam (2002) to show that the aspectual construction in Tsez can be analysed either as (backward) control or raising. Unlike Tsez, its Lak counterparts behave neither as control nor as raising. In this section, I propose that the Lak aspectual construction is a case of restructuring (clause union). I base my proposal on the following pieces of evidence. First, as shown in §3, this construction behaves as a mono-clausal structure with respect to A’-movement: scrambling is freely available despite this phenomenon being clause bound in Lak. Second, the Lak aspectual construction differs from Tsez in another important characteristic, namely agreement, which I will discuss later in this section. The final piece of evidence comes from a phenomenon strongly resembling the so-called “transitivity harmony”.

Before discussing the analysis of the aspectual construction, it is important to spell out some underlying assumptions regarding case and agreement in Lak. Following Gagliardi et al. 2014 and Radkevich (2017), I assume that in regular (non-split ergative) contexts case is determined within vP, whereas in the biabsolutive construction the case on the external argument is checked higher in the clause (AspP). Additionally, it is important to point out that when the Asp is specified for the [IMPERF] feature, it also has an EPP-type feature which triggers the external argument to move out of vP. I also adopt an approach against multiple probing, i.e., when the same DP is targeted by several heads for feature valuation, as in Polinsky et al. (2017).¹⁰ Furthermore, I follow an analysis to agreement proposed in Polinsky et al. (2017) where each verbal head in the clause bears unvalued [uCL] features which can be valued by the closest absolutive marked DP. Furthermore, Polinsky et al. (2017) propose a system where only the lowest verbal head gets its features valued by the absolutive DP, whereas [uCL] features on all other heads are valued by the closest v, as schematically illustrated in (42) (for similar proposals see Collins 2003, Baker & Willie 2010): v2 gets its features checked by DP2, i.e., the closest absolutive DP, then v2 values the unvalued class/number features of v1 which in its turn values the same features on Asp. Importantly, I assume that feature valuation proceeds only in one direction -downward.

$$(42) \quad [\text{AspP} [\text{Asp}' [\text{vP2 DP1} [\text{v}' [\text{vP1} [\text{v}' [\text{VP DP2 V}] \text{v1}_{[\text{uCL}}]] \text{v2}_{[\text{uCL}}]] \text{Asp}_{[\text{uCL}}]]]]]$$

Going back to the aspectual construction in Lak, I propose that it should be analyzed as a case of restructuring as in (43).¹¹ The aspectual verbs (vP) take a complement as large as AspP since the embedded verb is marked for aspect but smaller than CP and the external argument (DP1) undergoes movement from the embedded to the matrix clause.¹²

$$(43) \quad [\text{vP} [\text{v}' [\text{AspP} [\text{Asp}' [\text{vP2 DP1} [\text{v}' [\text{vP1} [\text{v}' [\text{VP DP2 V}] \text{v1}_{[\text{uCL}}]] \text{v2}_{[\text{uCL}}]] \text{Asp}_{[\text{uCL}}]] \text{v}_{[\text{uCL}}]]]]]]]$$

¹⁰For independent motivations for this assumption see Rezac 2003, Baker & Willie 2010.

¹¹Restructuring analyses of constructions resembling backward control have been proposed in Roussou 2009 for Greek and in Greshler et al. 2017 for Modern Standard Arabic. I thank an anonymous review for pointing these references to me.

¹²An anonymous review has raised an interesting question of why DP1 does not get its case in the matrix clause. A possible solution is to assume that the original case of DP1 that it gets in the embedded clause cannot be overridden in the next cycle (matrix clause). Then, the next question is why DP1 moves to the matrix clause. I will leave this question for future research.

The structure in (43) straightforwardly accounts for the agreement facts in the Lak aspectual constructions due to its mono-clausal status. Below I will illustrate how the proposal works with the two aspectual verbs. Consider the following derivation for the verb ‘to finish’ in Figure 1, which is based on (43): the lowest *v* gets its [uCL] features valued by the absolutive DP (DP2), whereas the higher verbal elements get their values for [CL] from the closest verbal head.

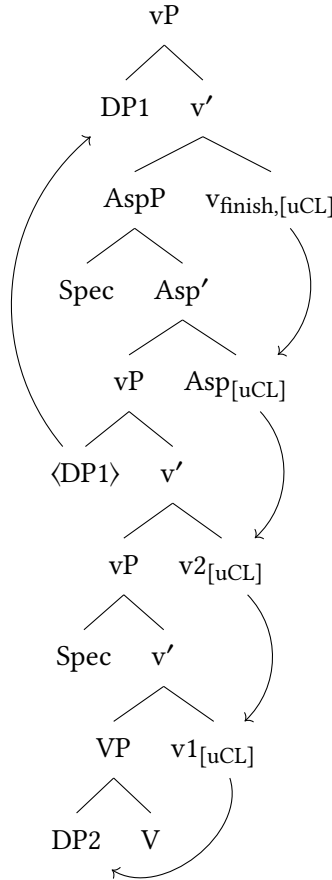


Figure 1: Derivation for the verb ‘to finish’

The situation is slightly different for the verb ‘to begin’ (Figure 2): it has two absolutive arguments (=split ergativity) due to the aspectual specification of the embedded verb. In Figure 2, *v*₁ gets its [uCL/NUM] features valued by the closest absolutive marked DP, the internal argument, then *v*₁ values features on *v*₂,

and v2 on Asp. Recall that in the system proposed in Polinsky et al. (2017), agreement between heads applies as a last resort operation when there is no absolutive marked DP available for agreement. In Figure 2, v_{begin} has [uCL] features which are valued by the absolutive marked external argument (DP1).¹³

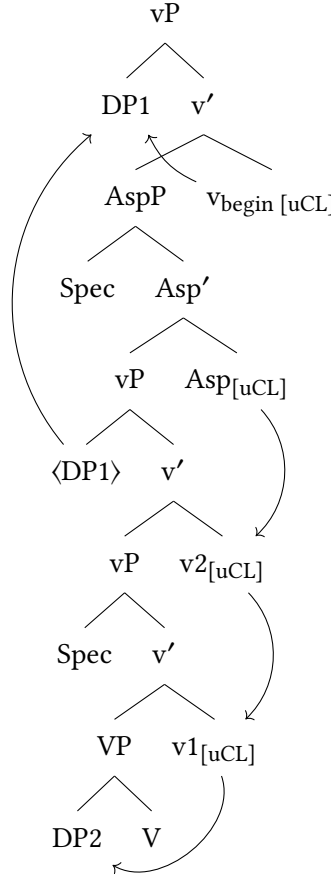


Figure 2: Derivation for the verb ‘to begin’. Recall that the verb ‘to begin’ takes imperfective gerundial complements which give rise to split ergativity. In the analysis of this phenomenon adopted in the paper, the external argument raises to spec,AspP in the split-ergative context. In this diagram I omit this part for the ease of exposition.

¹³The derivation for the verb ‘to begin’ is similar in spirit to the analysis of the biabsolutive construction in Lak (Radkevich 2017) and Archi (Polinsky 2016). I refer the reader to these works for further discussion and detail.

The final piece of evidence in favour of the mono-clausal analysis of the aspectual verbs in Lak comes from the so-called transitivity harmony. The term transitivity harmony refers to a linguistic phenomenon describing a situation when two verbs belonging to the same clause agree in transitivity value, i.e., both verbs must be both either transitive or intransitive. As reported in Zariquiey (2014), this phenomenon is found in several Panoan languages, in two Takanan languages, in Tariana (Arawakan), in Nepali, Bangla (Indo-Aryan), Dulong/Rawang, Dumi (both Tibeto-Burman), Kambaata (Cushitic), Wolaitta (Omotic), Wambaya (West Barkly), several Pama-Nyungan and Austronesian languages, and in Hatam (Papuan). It is important to point out that this phenomenon is not uniform across languages. However, there are several languages which exhibit the transitivity harmony with the aspectual verbs ‘to begin’, ‘to stop’, ‘to continue’, etc. Consider the following examples from Shipibo-Konibo (Panoan).

- (44) E-a-ra ransa-i keyó-ke.
1-ABS-EV dance-SIM.EVENT.SS.SO finish: MID-CMPL
'I finished dancing.'
- (45) E-n-ra (nami) pi-kin keyo-ke.
1-ERG-EV meat.ABS eat-SIM.EVENT.SS.AO finish-CMPL
'I finished eating meat.' (Valenzuela 2011: 202)

The two sentences above have the same main verb 'finish' which is transitive in Shipibo-Konibo. When this verb is used with an intransitive verb, it must have the same transitivity value. One way to do this is to use the middle voice, as in (44), where the verb 'to finish' is used with the intransitive verb 'to dance'. In (45), the first 'to finish' takes another transitive verb 'to eat' which agree in their transitivity values. A very similar situation is found in Lak. The Lak aspectual verb 'to finish' is a complex verb which consists of a short participle *q:urtal* 'finish' and a light verb. Crucially, the light verb can be either *ban* 'do' or *xun* 'become'. The alternation between the two verbs is not unique for the verb to finish: *haz xun* 'to rise (intr.)' vs. *haz ban* 'to rise (trans.)', *s:uku xun* 'to move (intr.)' vs. *s:uku ban* 'to move (trans.)', *χi:nil xun* 'to get scared' vs. *χi:nil ban* 'to scare', *kaj-kaj xun* 'to fold (intr.)' vs. *kaj-kaj ban* 'to fold ('trans.)', a.o. (Eldarova 1995: 42). Going back to the discussion of the verb 'to finish', it can surface either as *q:urtal xun* or *q:urtal ban* depending on the transitivity of the verb it takes, as illustrated below: in (46), the embedded verb 'to melt' is intransitive and the intransitive variant of verb 'to finish' must be used, whereas in (47) both verbs are transitive.

- (46) Marχ:ala baws:u-nu q:urtal xun-ni/
 snow.III.SG.ABS <III.SG>melt.PRF-PRF.GER finish become-PST.3/
 *b-un-ni.
 III.SG-do-PST.3
 ‘Snow finished melting/Snow has melted.’
- (47) A⁵li-l lu buwk:un-nu q:urtal
 Ali-ERG book.III.SG.ABS <III.SG>read.PRF-PRF.GER finish
 b-un-ni/*xun-ni.
 III.SG-do-PST.3/become-PST.3
 ‘Ali finished reading a/the book.’

The transitivity harmony observed in Lak can only be possible if the structure is mono-clausal. Furthermore, the analysis of agreement proposed above can be extended to the transitivity harmony, namely, the verb ‘to begin’ has an unvalued feature [UTRANS]. Recall that besides this feature, the verb ‘to finish’ also agrees in class/number which it gets from the lower *v* head, as shown in Figure 1. I suggest that during the valuation of the class/number features the transitivity feature also gets valued. This analysis of the transitivity harmony is similar in spirit to the analysis of voice agreement discussed in Wurmbrand & Shimamura (2017).

5 Conclusion

In this paper I have discussed the aspectual construction in Lak which has some surface similarities with the aspectual construction in Tsez that is analysed as either backward control or raising (Polinsky & Potsdam 2002). By applying the same tests to Lak, I have shown that what we deal with is neither control (backward or forward) nor raising. I have proposed that the aspectual construction in Lak is a case of clause union or restructuring (Wurmbrand (2001, 2004, 2015), a.o) where the main verb takes a complement smaller than CP, namely, AspP. I have backed up my analysis with evidence from A'-scrambling, agreement and transitivity harmony. From the empirical point of view, it would be interesting to compare the Lak aspectual verbs to their counterparts in other languages of the family: for example, in Tanti Dargwa the verb ‘to finish’ has two variants: transitive *taman-ab* and intransitive *taman-b=iχ* (Sumbatova & Lander 2014). In Bagwalal, a similar phenomenon has been described as a case of serial verb construction in Tatevosov (2001: 119–125). A detailed comparative study of the aspectual verbs in Nakh-Dagestanian could provide us with a better understanding of this type of clause union.

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Abbreviations

ABS	absolute case	MSD	masdar
AO	A-oriented	NEG	negation
ATTR	attributive	OS	oblique stem
AUX	auxiliary	PART	participle
CMPL	completive aspect	PL	plural
DAT	dative case	POT	potential mood
DUR	durative aspect	PRES	present tense
EV	direct evidential	PRF	perfective aspect
EVID	evidential mood	PST	past tense
GER	gerund	Q	question marker
IMPER	imperative mood	SIM.EVENT	simultaneous event
ITER	iterative aspect	SG	singular
MID	middle	SO	S-oriented

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Chapter 5

Future interpretation in Gitksan and reduced clausal complements

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This paper explores temporal interpretations in clausal complements in Gitksan, a language without temporal morphology. Bare predicates in Gitksan can receive present or past reading. Jóhannsdóttir & Matthewson (2007) capture these readings with a covert non-future tense. For future reading, bare predicates must combine with a marker *dim*; in syntax, *dim* combines with the non-future tense. In this paper, I focus on the connection between the syntactic make-up of Gitksan complements and the availability of future-oriented reading. Assuming the non-future tense in Gitksan, I show that the attested readings can only be captured if some of the complements project TPs, while the others do not. I propose that the observed patterns follow straightforwardly from Wurmbrand's (2001 et seq.) idea that clausal complements are of different sizes: some complements are CPs, but some can project as little as vPs. Gitksan provides support for this approach through the syntax-semantics interaction in the embedded temporal-modal domain.

1 Introduction

One of the ways to classify clausal complements is according to the temporal relation between the embedded and the matrix predicate. In English, for example, Wurmbrand (2014) argues for a three-way division of infinitival complements, based on the available temporal readings and the aspect of the embedded eventives. In complements of, e.g. *believe*, the event time (ET) of the embedded predicate is simultaneous with the ET of the matrix predicate, as in (1a); these are



propositional complements. The embedded predicate can also receive backward-shifted interpretation.¹ In complements of, e.g. *want*, the ET of the embedded predicate is necessarily future-oriented with the respect to the ET of the matrix predicate, as in (1b); these are future-irrealis complements. In complements of e.g. *try*, the ET of the embedded predicate is necessarily simultaneous with the ET of the matrix predicate, as in (1c); given the temporal dependency of the embedded predicate, these are tenseless complements. Propositional and tenseless complements are thus on the opposite side of the temporal dependency spectrum.

- (1) a. Propositional simultaneous
 Leo *claimed/believed* [to be eating (*tomorrow)].
 Leo *claimed* [to have eaten (yesterday)].
- b. Future-irrealis
 Leo *decided/planned/planned/wanted* [to eat (tomorrow)].
- c. Tenseless
 Leo *tried/began/managed/forgot* [to eat (*tomorrow)].
 (Wurmbrand 2014)

The semantic division also receives syntactic support. Wurmbrand (2001 et seq.) observes that, cross-linguistically, tenseless complements are most transparent for cross-clausal syntactic operations (e.g. clitic climbing, long object movement, NPI-licensing). Future-irrealis complements, under restructuring, are somewhat less transparent, and propositional complements are most opaque. Wurmbrand argues that the observed syntactic and semantic differences can systematically be captured if these complements are of different sizes, i.e. not necessarily CPs. I refer to this proposal as *different complement sizes hypothesis* (DCSH). Propositional simultaneous complements are CPs, future-irrealis complements, under restructuring, are TPs or ModPs, and tenseless infinitives (typically restructuring) are vPs or even VPs, as in (2). The “porous” structure of future-irrealis and tenseless complements captures both their transparency and dependency on the matrix domain.

- (2) a. Propositional simultaneous: CPs
 V *claim* [CP[TP[ASPP[vP...]]]]
- b. Future-irrealis: TP/ModP
 V *want* [TP/MODP WOLL[ASPP[vP...]]]
- c. Tenseless vP/VP
 V *try* [vP/vP]

¹Infinitives cannot receive future orientation, but their finite counterparts can:

(i) Leo claims that he will be eating.

Importantly, DCSH is not confined to non-finite embedded domains. Todorović & Wurmbrand (2020) show that, in Serbian, clausal complements of verbs in (1) are finite, yet they are strikingly syntactically and semantically similar to their non-finite counterparts in English (e.g. temporal interpretation), Czech (e.g. clitic climbing) and German (e.g. long object movement). They argue that the observed phenomena are captured if syntax of these complements is similar to those in English (2); that is, if finite complements do not necessarily project a CP (Adger 2007, Kornfilt 2007; cf. Rizzi 1997).

Rather than finiteness, Wurmbrand & Lohninger 2019 argue for the syntax-semantics connection along the lines of implicational complementation hierarchy – event complements (including tenseless) are the most transparent, least clausal (and thus the smallest), and most dependent on the matrix verb; they are on one end of the scale. Situation complements (including future-irrealis) can only be less transparent, more clausal (thus bigger) and less dependent on the matrix verb, while the propositional complements, on the opposite end of the scale, are least transparent, most clausal (project most structure), and least dependent on the matrix verb.² This is confirmed for Slavic (see also Wurmbrand et al. 2020), Romance, Cypriot Greek, Scandinavian (see also Wurmbrand & Christopoulos 2020), Buruyat (see also Bondarenko 2018), Akan, Japanese and Austronesian languages (Wurmbrand & Shimamura 2017).

In this paper, I test the implicational complementation hierarchy with respect to the DCSH and its effects on temporal interpretation in Gitksan. I focus on future-oriented reading. While Gitksan lacks present or past morphology, it conveniently marks future in all future-oriented contexts. Building on work by Matthewson & Todorović (2018), I show that the availability of future-oriented reading follows from the DCSH: propositional complements are CPs, future-irrealis complements are ModPs, and tenseless complements are vPs (complements of *si'ix* 'try') or ModPs (complements of *bak* 'try'). Gitksan data provide preliminary support for the implicational complementation hierarchy.

The paper is organized as follows: §2 provides an overview of Gitksan morphosyntax and its temporal system. §3 discusses future reading in embedded domains. §4 discusses the connection between syntax of propositional and future-irrealis complements and their attested readings. §5 discusses two types of 'try's, §6 concludes the paper.

²The terminology is from Ramchand & Svenonius (2014).

2 Gitksan

Gitksan is a Tsimshianic language spoken in Northwest Interior of British Columbia, Canada. It is a member of the Interior branch of the family and it forms a dialect continuum. With 531 fluent speakers, it is “threatened” (Dunlop et al. 2018).³

All the uncited data in this paper were collected during fieldwork. I conducted elicitations of Gitksan utterances with Vincent Gogag (from Gitanyaaw (Kitwancool)), Barbara Sennott (from Ansba’yaxw (Kispiox)), Hector Hill, Ray Jones and Barry Sampere (from Gijigyukwhla (Gitsegukla)). The data were collected following the methodology for semantics fieldwork in Matthewson (2004) and Burton & Matthewson (2015): the elicitations were conducted in controlled discourse contexts, via translation tasks, acceptability judgment tasks, and storyboard tasks.

2.1 A brief overview of Gitksan morphosyntax

Gitksan is a predicate-initial language, with a VSO order. This is shown in (3) for root and in (4) for embedded clauses.

- (3) a. Ba_x=hl hanak’.
run=CN woman
‘The woman ran.’ (Davis & Forbes 2015: 159)
- b. Gup-i-t=s Mary=hl hun.
eat-TR-3.III=DN Mary=CN fish
‘Mary ate the fish.’ (Forbes 2019: 8)
- (4) Ha-’nii-goot=s James [ji=t gup=s Tyler=hl anaax.]
INS-on-heart-3.III=DN James IRR=3.I ear-3.II=DN Tyler=CN bread
‘James thinks that Tyler ate the bread.’
(Lit. ‘James’ on-heart is that Tyler ate the bread.’) (Davis & Brown 2011: 57)

Agreement in Gitksan is quite complex (see Davis & Brown 2011, Davis & Forbes 2015, Forbes 2017, 2018, 2019) and it can be divided into three series (Rigsby 1986), as in (5). Gitksan follows the ergative/absolutive split.

- (5) a. series I: a pre-predicative clitic
b. series II: post-predicative affix
c. series III: post-predicative independent word
(Davis & Forbes 2015: 157)

³<https://www.ethnologue.com/language/git>

The distribution of agreement indicates if the clause is dependent or independent (Rigsby 1986). Dependent clauses are introduced by complementizers, subordinating verbs, clausal coordinator *ii*, negation, irrealis, imperatives, and aspectual markers, as in (6). Forbes (2019) observes that in dependent clauses, absolutive argument occurs with a suffix (series II agreement), *-ʼy* in (7a) and (7b), while the transitive subject occurs with a pre-predicative clitic (series I agreement), *t* in (7b).

- (6) Yukw=hl bax=s Cheyenne.
 PROG=CN run=PN Cheyenne
 ‘Cheyenne is running.’ (Schwan 2019: 8)
- (7) a. Nee=dii bas-ʼy.
 NEG=FOC run-1SG.II
 ‘I didn’t run.’ (Forbes 2019: 65)
- b. Nee=dii=t hilen-ʼy.
 NEG=FOC=3.I chase-1SG.II
 ‘She didn’t chase me.’ (Forbes 2019: 65)

In independent clauses, absolutive argument occurs with a pronoun (series III), *niiʼy* in (8a) and (8b), and transitive subject occurs with a suffix (series II), *-t* in (8b).

- (8) a. Bax ʼniiʼy.
 run 1SG.III
 ‘I ran.’ (Forbes 2019: 65)
- b. Hilen-i-t ʼniiʼy.
 chase-TR-3.II 1SG.III
 ‘She chased me.’ (Forbes 2019: 65)

Forbes (2019) also observes that agreement morphology changes in Aʼ-extraction. Subject and object extraction create a post-predicative affix, *-it* in (9b) and *-yi* in (10b). There is a common noun determiner *-hl* on the *wh*-phrase. Object extraction also creates a suffixal ergative agreement, *-n* in (10b), which occurs in independent clauses (series II). Transitive subject extraction surfaces with a pre-predicative *an* (11b) and there is no determiner. There is also an ergative clitic agreement *t*, which occurs in dependent clauses (series I).

- (9) a. Limx ʼnit.
 sing 3.III
 ‘He’s singing.’ (Forbes 2017: 2)

- b. Naa=*hl* lim=*it* ___?
 who=CN sing=3X
 ‘Who sang?’ (Rigsby 1986: 303)
- (10) a. Hilmooyi-’y=t Mary.
 help-TR-1.SG.II=PN Mary
 ‘I helped Mary.’
- b. Naa=*hl* hlimoo-yi-n ___?
 who=CN help-TR-2SG.II
 ‘Who did you help?’ (Rigsby 1986: 303)
- (11) a. Gub-i=s Jeremy=*hl* hon-n.
 eat-TR=CN Jeremy=CN fish-2SG.II
 ‘Jeremy ate your fish.’ (Forbes 2017: 3)
- b. Naa *an=t* gup()=*hl* susiit?
 who AX=3.I eat()=CN potatoes
 ‘Who ate the potatoes?’ (Davis & Brown 2011: 50)

Finally, note that predicates can also be preceded by one or more “preverbal” that often convey adverbial notions, as in (12a), or other pre-predicative operators, one of which is the future marker *dim*, as in (12b).

- (12) a. *Luu sga* het-xw ‘nii’y.
 in blocking stand-PASS 1SG.III
 ‘I stood in, blocking the way.’ (Rigsby 1986)
- b. *Dim* amksiwaa-max-da.
FUT white.person-language-3PL.INDP
 ‘They’ll speak English.’ (Rigsby 1986)

2.2 Temporal system of Gitksan

Gitksan typologically patterns with a number of languages in the Northwestern North America in lacking temporal morphology. First analysis of the Gitksan temporal system was offered by Jóhannsdóttir & Matthewson (2007; J&M; see also Matthewson 2013). They show that a bare predicate in root clauses is ambiguous between present and past reading, as in (13). Temporal adverbials can disambiguate between them, but not license them. Crucially, a bare predicate cannot receive future reading even with a future adverbial, as in (14a), but it requires a futurity marker *dim*, as in (14b).

- (13) Siipxw=t James (k'yoots).
 sick=PN James (yesterday)
 'James is sick. / James was sick (yesterday). / *James will be sick.'
 (Matthewson 2013: 363)
- (14) a. *Yookw=t James ji taahlakxw.
 eat=CN James PREP tomorrow
 'James will eat tomorrow.' (Jóhannsdóttir & Matthewson 2007)
- b. *Dim* yookw-t James (ji taahlakxw).
 PROSP eat-CN James PREP tomorrow
 'James will eat (tomorrow).' (Jóhannsdóttir & Matthewson 2007)

J&M primarily focus on temporal readings in root clauses. They posit a covert pronominal non-future tense in (15) to capture the present and past reading of predicates; (15) presupposes that the reference time (RT) is not after the UT. The UT is taken as the default RT in root clauses.

$$(15) \llbracket \text{NON-FUTURE} \rrbracket^{g,C} = \lambda t : t \leq t_C . t$$

J&M analyze a pre-predicative marker *dim* (Rigsby 1986:304), as a prospective aspect in (16). The non-future tense combines with *dim* to derive future reading.

$$(16) \llbracket \text{dim} \rrbracket^{g,C} = \lambda P_{\langle i,st \rangle} . \lambda t . \lambda w . \exists t' [t < t' \ \& \ P(t')(w)]$$

Dim is analyzed as a prospective aspect and not as a modal because of its nature when it co-occurs with other modals. Matthewson (2013) shows that with deontic modals, which are obligatorily future-oriented (Abusch 2012, Thomas 2014, Klecha 2011, Chen et al. 2017, i.a.) *dim* is obligatory, as in (17). But with epistemic modals, *dim* occurs only if it contributes future-orientation, as in (18). Crucially, *dim* makes no modal contribution, but it only brings future orientation.

- (17) Sgi #(dim) (ap) ha'w=s Lisa
 CIRC.NECESS #(PROSP) (verum) go.home=PN Lisa
 'Lisa should go home.' (adapted from Matthewson 2013: 380)
- (18) a. [You can hear people hollering, so the Canucks might be winning.]
 Yugw=imaa=hl xsdaa-diit.
 IPFV=EPIS=CN win-3PL.II
 'They might be winning.'

- b. [You are watching in the Canucks. They might win.]

Yugw=imaa=hl dim xsdaa-diit.

IPFV=EPIS=CN FUT win-3PL.II

‘They might be winning.’ (Matthewson 2013: 374)

Todorović et al. (2020) propose that, despite not being a modal itself, the prospective *dim* comes with a covert modal in root clauses (possibly only when there is no overt modal). This is motivated by the modal flavors it gets (e.g. in offers, warnings, see Copley 2009 et seq.; Klecha et al. 2008, Klecha 2011). In this paper, I will treat *dim* as a prospective aspect with a null modal, but nothing in the analysis hinges on it: what matters is its future-oriented contribution.

This paper extends J&M’s analysis to embedded clauses, by exploring the connection between future-oriented reading and the syntax of those complements. It also expands on the relations between the RT and the ET. J&M show that the RT for the embedded event can be in the past. I further show that the embedded ET can be interpreted as ‘present’, i.e. simultaneous with this RT, or as ‘past’, i.e. back-shifted from it. In other words, I argue that the non-future tense in Gitksan is relative. Finally, this paper builds on Matthewson & Todorović (2018)’s discussion of future readings in clausal complements; it extends the empirical coverage and shows that, to capture all the readings, TP crucially must be absent from future-irrealis and tenseless complements. In §3, I start by discussing the distribution of *dim* in embedded clauses in Gitksan.

3 Future in embedded clauses

One peculiarity of Gitksan is that futurity is overtly marked by *dim* in all future-oriented contexts.⁴ Matthewson & Todorović 2018 (M&T) explore its distribution in complement clauses. They note that, if the DCSH is assumed, it makes clear predictions about the distribution of futurity marker in Gitksan: (a) if propositional simultaneous complements are CPs, they have space in syntax for *dim*; these complements allow for simultaneous, back-shifted and forward-shifted readings of the embedded eventuality (see §4.1), so *dim* should occur only if there is future-oriented interpretation. This is confirmed in (19); (b) if future-irrealis complements are ModP or TP, they also have space in syntax for *dim*, and, due to their obligatory future-orientation, *dim* will always surface, as is the case in (20); (c) if tenseless complements are VPs or vPs, they have no room for *dim* – *dim* never occurs in them, as confirmed in (21a); the absence of temporal-modal

⁴The data in this section are from Matthewson & Todorović (2018).

domain in these complements explains their obligatorily simultaneous interpretation, as in (21b).⁵

- (19) [I'm looking for Colin. I ask you "Where is Colin?" You reply:]
 Ha'niigood-i'y [(dim) yukw=hl bax-t].
 believe-1SG.II [(PROSP) PROG=CN run-3.II]
 i. Without *dim*: 'I think he is running (now).'
 ii. With *dim*: 'I think he will run.'
 Consultant's comment on (ii): "He's just about to/going to start"
- (20) [There's a charity run next week. Will Colin run?]
 Hasak-t [#(dim) bax-t].
 want-3.II #(PROSP) run-3.II
 'He wants to run.'
- (21) [We are watching the race and I spot injured Colin trying to run, limping along. I tell you:]
 a. Yukw[=hl] si'ix [(#dim) bax-t].
 PROG[=CN] try (#PROSP) run-3.II
 'He's trying to run.'
 Consultant's comment: "*Si'ix* and *dim* don't go together."
 b. * Gyoo'n sik'ihl [gup-d-i=hl hun t'aahlakw].
 now try eat-T-TR=CN salmon tomorrow
 'He tried today to eat the salmon tomorrow.'

A note is in order regarding the future-oriented and tenseless complements. Given that *dim* always occurs pre-predicatively in complements of 'want', M&T argue that *dim* is located in the embedded clause. This is different from future-oriented complements in languages like English, in which there is no overt futurity marker. M&T take the overtness of *dim* in these complements as an additional argument for the futurity stemming from the complements of verbs like 'want', rather than the verb itself (in line with Abusch 2004, Wurmbrand 2014, Todorović & Wurmbrand 2020, pace Ogihara 1996, Abusch 1997, Pearson 2017, i.a).

Regarding 'try' in Gitksan, it is realized either as a pre-verbal element *si'ix*, with which *dim* never occurs, as in (21), or as a verb *bak*, which obligatorily takes *dim*. I return to this difference in §5.

⁵At this point, I remain agnostic with respect to presence/absence of ASPP in tenseless complements.

- (22) [We are watching the race and I spot injured Colin trying to run, limping along. I tell you:]
 Bag-a-t [♯(*dim*) ba_x-t].
 try-TR-3.II [♯(PROSP) run-3.II]
 ‘He’s trying to run.’

Future reading in Gitksan complements provides preliminary support for the DCSH. To sketch a more precise picture of the syntax of these complements, in §4, I discuss all the possible interpretations of propositional and future-irrealis complements in Gitksan.

4 Non-future tense: Simultaneous or backward-shifted reading

In root clauses in Gitksan, J&M’s non-future tense accounts for the availability of the readings simultaneous (present) with or back-shifted (past) from the UT (13). In this section, I show that non-future tense in Gitksan is relative, on the example of embedded clauses. Relative tense is predicted to make the embedded ET simultaneous or back-shifted from the RT established by the matrix predicate. This gives us the four settings in Table 1.

Table 1: Four readings

matrix present	embedded present (simultaneous)
matrix present	embedded past (back-shifted)
matrix past	embedded ‘present’ (simultaneous)
matrix past	embedded ‘past’ (back-shifted)

These readings are all attested in propositional complements, as shown in §4.1. In other words, the available interpretations support the presence of TP in these complements. And given that these clauses can be introduced with a complementizer *wil*, I propose that they are CPs. Conversely, obligatory future-oriented reading of future-irrealis complements is only accounted for if there is no TP, as shown in §4.2.

4.1 Propositional complements

Let us first consider bare predicates. As shown in (19) and repeated in (23a), propositional complements allow for the reading where the believing time and the running time coincide, both happening at the UT. This reading can be derived as in (23b). Both tenses are interpreted as present: the matrix tense locates the ET at the UT, the lower tense introduces the RT for the embedded ET simultaneous with the believing time.

- (23) a. [I'm looking for Colin. I ask you "Where is Colin?" You reply:]
 Ha'niigood-i'y [yukw=hl bax-t].
 believe-1SG.II [PROG=CN run-3.II]
 'I believe he is running (now).'
- b. [TP PRES [ASPP [VP [CP [TP PRES [ASPP PROG [VP]]]]]]]]]

Another setting is this: matrix present – embedded past, as in (24a). Matrix tense locates the ET at the UT, and the embedded tense locates the embedded ET prior to the believing time, i.e. prior to the UT, as in (24b).

- (24) a. [There was a race yesterday. You saw Colin preparing for it in front of the start line. But you left before the race began. I ask you today: "Did Colin run?"]
 Ha'niigood-i'y [bax-t k'yoots].
 believe-1SG.II [run-3.II yesterday]
 'I believe he ran yesterday.'
- b. [TP PRES [ASPP [VP [CP [TP PAST [ASPP [VP]]]]]]]]]

The next option is: matrix past – embedded 'present', i.e. simultaneous interpretation, as in (25a). Matrix past locates the saying ET in the past, while the embedded present sets the saying time as the RT for the embedded ET, as in (25b).

- (25) a. [I called Mary yesterday. I asked her about Susan's health. Mary told me: "Susan's feeling tired." Today, I called Susan's sister and told her:]
 Mehl-d-i=s Mary loo-'y ky'oots [win hlebiksw=s Susan].
 tell-T-TR=PN Mary OBL-1SG.II yesterday COMP tired=PN Susan
 'Mary said yesterday that Susan was tired.'
- b. [TP PAST [ASPP [VP [CP [TP PRES [ASPP [VP]]]]]]]]]

The last option is: matrix past – embedded ‘past’; the latter shifts the RT for the embedded ET back from the saying time, as in (26).

- (26) a. [I called Mary yesterday. I asked her about Susan’s health. She said:
 “Susan was feeling tired on Sunday.” Today I call Susan’s sister and
 tell her:]
 Mehl-d-i=s Mary loo-’y ky’oots [win hlebiksw=s Susan
 tell-T-TR=PN Mary OBL-1SG.II yesterday COMP tired=PN Susan
 ha’niisgwaa’ytxwsa].
 Sunday
 ‘Mary said yesterday that Susan was feeling tired on Sunday.’
 b. [TP PAST [ASPP [VP [CP [TP PAST [ASPP [VP]]]]]]]]

Examples in (25) and (26) show that the embedded predicate in past contexts can get either back-shifted or simultaneous interpretation in Gitksan (for aspectual restrictions, see Todorović 2020). This resembles the SOT effects in English. If the SOT effects in English are derived from the interaction between matrix and embedded tense (Ogihara 1995, Grønn & von Stechow 2010, Zeijlstra 2012, i.a.; cf. Altshuler & Schwarzschild 2012), the corresponding interpretations in Gitksan can be captured by positing TP in these complements, as shown above. Conversely, similarities between English and Gitksan are puzzling if there is no TP in these complements in Gitksan.

Consider now what happens when the embedded relative non-future tense combines with *dim*. The following four combinations are predicted:

1. matrix present – embedded present + *dim*
2. matrix present – embedded past + *dim*
3. matrix past – embedded ‘present’ + *dim*
4. matrix past – embedded ‘past’ + *dim*

Each but last interpretation is attested. The first option is (19), repeated in (27). Matrix present locates the believing time at the UT. The embedded present introduces the time interval simultaneous with the believing time, i.e. the UT. *Dim* extends from the UT and locates the embedded ET in the future.

- (27) a. [I’m looking for Colin. I ask you “Where is Colin?” You reply:]
 Ha’niigood-i’y [dim yukw=hl bax-t].
 believe-1SG.II [PROSP PROG=CN run-3.II]
 ‘I believe he will run.’

- b. [TP PRES [ASPP [VP [CP [TP PRES [MODP Ø [ASPP **DIM** [VP]]]]]]]]]

Second option is in (28). Matrix present locates the time of believing at the UT. The embedded past introduces an interval before the UT, at the time when I saw Colin yesterday. *Dim* extends forward from this past interval and locates the embedded ET after the time when I saw Colin.

- (28) a. [You saw Colin yesterday and it looked like he was getting ready to go for a run. I ask you: “What was Colin doing when you saw him?”
You say:]
Ha’niigood-i’y [dim bax-t].
believe-1SG.II [PROSP run-3.II]
‘I think he was going to run.’

- b. [TP PRES [ASPP [VP [CP [TP PAST [MODP Ø [ASPP **DIM** [VP]]]]]]]]]

In the third option, Diana’s statement in (29) was 2 weeks ago (adapted from Jóhannsdóttir & Matthewson 2007). The embedded ‘present’ (simultaneous) sets the time of Diane’s statement as the RT for *dim*. *Dim* extends in the future from that point, so the embedded ET is located during the last week.

- (29) a. [It is December 14 today. I met Diana 2 weeks ago, on November 30. I asked her about her plans. She said that her sister had a birthday party in Winipeg on December 7 and that she would go to that party.]
Gilbil-hl anuutxw=hl nda mahl-i=s Diana dim wil yee-t
two-CONN week=CN when tell-T=PN Diana PROSP COMP go-3.II
go’o=hl Winnipeg am k’i’y=hl ganuutxw.
LOC=CN Winnipeg only one=CN week
‘Diana said two weeks ago that she would go to Winnipeg after one week.’

- b. [TP PAST [ASPP [VP [CP [TP PRES [MODP Ø [ASPP **DIM** [VP]]]]]]]]]

Consider the last option (matrix past – embedded ‘past’ + *dim*). In (30), John’s statement is located in the past. The embedded tense back-shifts from the matrix past, as in (30). *Dim* would then need to extend from that time, i.e. before John’s statement. This is in principle possible – the time of Mary’s arrival could be before the time of John’s statement. This reading is not attested, which is puzzling.

- (30) a. # [You saw John yesterday. He thought Mary was in town and he was looking for her. He told you that, according to what he knew, she would have arrived to town last Sunday.]

He=s John ky'oots dim 'witxw=gat=t Mary jihlaa
say=PN John yesterday PROSP arrive=REPORT=PN Mary when
ha'niigwaa'ytxw
Sunday

'John said that Mary would have arrived on Sunday.'

- b. [TP PAST [ASPP [VP [CP [TP PAST [MODP Ø [ASPP **DIM** [VP]]]]]]]]]

One possible explanation for (30) comes from English. In the English example in (31a), *would* is necessarily future-oriented with respect to the time of finding out. The syntax is as in (31b): *would* is standardly assumed to be composed of past tense and the modal WOLL (Abusch 1985, 1988). Given that the embedded past is c-commanded by the matrix past, this creates the SOT environment, i.e. the embedded past can be deleted and be interpreted as simultaneous. Kusumoto (1999) argues that with *would* in embedded contexts in English, past tense undergoes obligatory deletion. This explains why the WOLL component in these contexts is always future-oriented with respect to the matrix ET and not with respect to the embedded past time (see also Wurmbrand 2014).

- (31) a. We found out a month ago that the trial would be last week.

- b. [TP PAST [ASPP [VP [CP [TP ~~PAST~~ [MODP WOLL [ASPP [VP]]]]]]]]]

If the same mechanism applies in Gitksan propositional complements, then the embedded past, when (a) combined with *dim*, and (b) c-commanded by matrix past, should undergo obligatory deletion. In these clauses, the embedded past will always be interpreted as simultaneous; *dim* can then only extend from matrix ET. This is exactly the only licit interpretation of this sentence, as in (32).

- (32) a. [You saw John last Wednesday. John was expecting for Mary to arrive to town soon. He told you, that according to what he knew, Mary would arrive this past Sunday.]

He=s John ky'oots dim 'witxw=gat=t Mary jihlaa
say=PN John yesterday PROSP arrive=REPORT=PN Mary when
ha'niis-gwaa'ytxw.
Sunday

'John said that Mary would arrive on Sunday.'

- b. [TP PAST [ASPP [VP [CP [TP ~~PAST~~ [MODP Ø [ASPP **DIM** [VP]]]]]]]]]

4.2 Future-irrealis complements

Future-irrealis complements are necessarily future-oriented and have obligatory *dim*. If TP is projected in these complements, there are four predicted readings: (1) present – present + *dim*, (2) past – ‘present’ + *dim*, (3) present – past + *dim*, (4) past – ‘past’ + *dim*. Crucially, only the first two readings are attested. I argue that the distribution is accounted for only if there is no TP in these complements.

With the first option, we predict the reading in (20), repeated in (33). Matrix present locates the ET at the UT, embedded present introduces an interval simultaneous with the matrix ET. *Dim* locates the embedded ET in the future.

- (33) a. [There’s a charity run next week. Will Colin run?]
 Hasak-t [#(dim) baχ-t].
 want-3.II [#(prosp) run-3.II]
 ‘He wants to run.’
 b. [TP PRES [ASPP [VP [TP PRES [MODP Ø [ASPP **DIM** [VP]]]]]]]]]

The second option is in (34), i.e. future-in-the-past reading. Matrix tense locates the wanting time in the past and the embedded ‘present’ introduces the RT for the embedded ET simultaneous with the wanting time. *Dim* then locates the movie watching in the future from the wanting time.

- (34) a. [You wanted to see Tenet yesterday, they were showing it in the cinema. But you were really busy the entire day and you didn’t make it in time to the cinema, so you didn’t see it. And they are not showing it anymore.]
 Sim hasag-a’y dim algal-i’y a=hl Tenet.
 really want-1SG PROSP watch-1SG.II PREP=CN Tenet
 ‘I wanted to watch the film (but it is not being shown anymore).’
 b. [TP PAST [ASPP [VP [TP PRES [MODP Ø [ASPP **DIM** [VP]]]]]]]]]

Crucially, the remaining two combinations are unattested. Consider first matrix past – embedded ‘past’, as in (35a). Matrix tense locates the wanting time in the past. The embedded past moves the RT for the embedded ET before the wanting time. *Dim* should then extend from that point and in principle allow for the reading where the running occurs before wanting. But this is not the case – the only attested interpretation of this sentence is in (36) – the wanting occurs before running. How do we account for this? One option is – keeping the embedded TP and saying that past embedded under another past, when combined with *dim*, undergoes obligatory deletion. The *dim* is then correctly predicted to extend in the future from the wanting time, as in (36).

- (35) a. [There was a 5k race on Sunday in your town, the only one this year. Your friends ran, but you didn't feel like it. Yesterday, you finally felt like running that race, but it was too late, the race was over.]
 # Hasag-a'y dim baṣ-a'y e=hl golt.
 want-1SG PROSP run-1SG PREP=CN race
 'I wanted to have run the race.'
- b. [TP PAST [ASPP [VP [TP PAST [MODP Ø [ASPP **DIM** [VP]]]]]]]]]
- (36) [There was a 5k race on Sunday in your town, the only one this year. I know you wanted to run, but you sprained your ankle. You say to me:]
 Hasag-a'y dim baṣ-a'y e=hl golt.
 want-1SG PROSP run-1SG PREP=CN race
 'I wanted to run the race.'

However, even if keep the TP analysis, it cannot derive the remaining reading: matrix present – embedded past, as in (37). Matrix present locates the wanting time at the UT. The embedded past shifts the RT back from the UT, i.e. to yesterday. *Dim* moves it forward; it is thus predicted that eating the salmon can happen before wanting it. This reading is unattested. As (37b) shows, this time we cannot resort to any kind of deletion of the embedded past, since this is not the licensing environment (the matrix tense is not past). Thus, by positing the embedded TP, we incorrectly rule in this reading.

- (37) a. [There was a party yesterday and there was a lot of food. There was also smoked salmon, but you didn't eat it. Today, you are thinking how you should've tried that salmon, it looked delicious.]
 # Hasag-a'y [ni dim gup=hl hun].
 want-1.II 1.I PROSP eat=CN salmon
 Intended meaning: 'I want to have eaten the salmon'
- b. [TP PRES [ASPP [VP [TP PAST [MODP Ø [ASPP **DIM** [VP]]]]]]]]]

Crucially, this problem does not arise if there is no TP in the embedded clause: the RT for *dim* is the wanting time, as in (38). *Dim* then extends in the future from it, regardless of whether the wanting is in the present (38a) or in the past (38b). This correctly allows (33), (34) and (36) and excludes (35) and (37) – the embedded ET is always after the wanting time.

- (38) a. [TP PRES [ASPP [VP WANT [MODP Ø [ASPP **DIM** [VP]]]]]]]
 b. [TP PAST [ASPP [VP WANT [MODP Ø [ASPP **DIM** [VP]]]]]]]

In sum, if tense is simultaneous with or back-shifted from the RT in Gitksan, then the temporal interpretations in propositional complements are captured with TP in them. Conversely, the readings in future-irrealis complements can be captured only without TP.

5 A remaining question: Two ‘try’s

In §3, I have shown that *si’ix* ‘try’ does not allow *dim*, but that *bak* requires it, as repeated in (39).

- (39) [Colin injured himself before the run. He is stubborn and decides to try anyway. We are watching the race and I spot him trying to run, limping along. I tell you:]

- a. Yukw[=hl] si’ix (#*dim*) ba_x-t.
 PROG[=CN] try (#PROSP) run-3.II
 ‘He’s trying to run.’
- b. Bag-a-t [#(*dim*) ba_x-t].
 try-TR-3.II [#(PROSP) run-3.II]
 ‘He’s trying to run.’

While the two can both be used in majority of contexts, M&T show that in non-agentive contexts, only *si’ix* is fine.

- (40) [How was the weather yesterday? (*Guuhl wihl lax ha k’yoots?*)]

- a. Si’ix wis ky’oots (gi).
 try rain yesterday PRIOR.EVID
 ‘It tried to rain yesterday.’
- b. # Bag-a-t [dim wis ky’oots].
 try-TR-3.II PROSP rain yesterday
 ‘It tried to rain yesterday.’
 Consultant’s comment: “No. An individual can’t make it rain. Not unless you’re the rain dancer.”

M&T propose that the distribution of *dim* with these verbs is due to their semantics – *si’ix* is more like English ‘try’ and *bak* is more like English ‘want/decide/plan’ (modulo the agentivity requirement). An argument for *si’ix* – ‘try’ correspondence builds on Sharvit (2003) observation that ‘try’ has both an intensional and an extensional component. The extensional component asserts that

there is an event in the real world. And if that is the case, then the event like “cutting a tomato” in (41), requires there to be a tomato. ‘Want’ lacks the requirement of the object existing in the actual world. The examples in Gitksan in (42) show that only *si’ix* has a requirement that there are tomatoes, while *bak* does not. In other words, only *si’ix* behaves like English ‘try’.

- (41) John *wanted/#tried* to cut a tomato, but there were no tomatoes to cut.
(Sharvit 2003:404-405)
- (42) [John is coming into a room, and he’s got his knife handy and is planning to cut tomatoes and then he notices that there is nothing there.]
- a. # *Si’ix* k’ots-d-i=s John=hl tomato, ii ap nee dii
try cut-T-TR=PN John=CN tomato CCNJ VERUM NEG FOC
dox=hl tomatoes.
be.on.PL=CN tomatoes
‘John tried to cut a tomato, but there were no tomatoes.’
Consultant’s comment: “*Si’ix* means he tried. But he didn’t try yet because there were no tomatoes.”
- b. Bag-a=s John dim=t k’ots=hl tomato, ii ap nee dii
try-TR=PN John FUT=3I cut=CN tomato CCNJ VERUM NEG FOC
dox=hl tomatoes.
be.on.PL=CN tomatoes
Consultant’s volunteered scenario: “John is coming into a room, and he’s got his knife handy and his companion is right there and then they notice that there are no tomatoes.”

Regarding *bak*, M&T argue that it is similar to Grano’s (2011, 2017) ‘try’ in which: (a) agent is presupposed, (b) volitional events have an initial stage that corresponds to a mental action, (c) ‘try’ picks out this initial stage of the event, i.e. it asserts that the event is realized to a degree above zero; (d) it is associated with an ordering source based on the agent’s intentions.

M&T argue that the initial stage of volitional action and ‘try’ referring to agent’s intentions capture *bak* – a mental stage of preparing to cut tomatoes counts as the initial stage of trying. This mental preparatory stage makes *bak* similar to ‘want/decide/plan’ (the difference is that *bak* can only refer to the events in the immediate future).

Structurally, *bak* patterns with ‘want/decide/plan’ in having *dim* in the complement, and *si’ix* patterns with ‘try’ in not having it. And a preliminary investigation shows that there is more syntactic parallelism. First, *si’ix* is a pre-verbal

element and it does not allow for the subject to intervene between it and the verb, while *bak* is an independent lexical verb and it embeds a complement containing both subject and the verb, as in (43). The contrast is shown in (44). Note that *hasak* ‘want’ has the same configuration as *bak*, as in (45).

- (43) a. [*si’ix* V+inflection (DP-subject)]
 b. [*bak*+inflection [(DP-subject) V+inflection]]
- (44) a. Siki’hl gub-i=s John hun.
 try eat-TR=PN John salmon
 ‘John tried to eat salmon.’
 b. # Sik’ihl John gup hun.
 try John eat salmon
 c. Bag-a=s John [dim=t gup=hl hun].
 try-TR=PN John PROSP=3.I eat-CN salmon
 ‘John tried to eat salmon.’
- (45) Hasak=s John [dim=t gup=hl hun].
 Want=PN John PROSP=DM eat=CN salmon
 ‘John wanted to eat salmon.’

Second indicator is a behavior under negation (Clarrisa Forbes, p.c.). *Bak* behaves like *hasak* ‘want’ with respect to the word order in the embedded domain and the agreement marking on the prospective aspect (series 1), as in (46). *Si’ix* patterns with a desiderative verb ‘*nim* (another way to express desire) in having a predicate-initial word order in the embedded domain, and with Colin carrying the common noun determiner, as in (47).

- (46) a. Nee dii-t bak=s Colin [dim=t gup=hl hun].
 NEG FOC-3.I try=PN Colin PROSP=3.I eat=CN fish
 ‘Colin didn’t try to eat fish.’
 b. Nee dii hasak=s Colin [dim=t gup=hl hun].
 NEG FOC want=PN Colin PROSP=3.I eat=CN fish
 ‘I didn’t want to eat fish.’
- (47) a. Nee dii=t si’ix [gup=s Colin=hl hun].
 NEG FOC=3.I try eat=PN Colin=CN fish
 ‘Collin didn’t try to eat fish.’ (Clarisa Forbes, p.c.)
 b. Nee dii=t ‘nim [gup=s Colin=hl hun].
 NEG FOC=1.I DESIDER eat=PN Colin=CN fish
 ‘Collin didn’t want to eat fish.’ (Clarisa Forbes, p.c.)

Moreover, *'nim*, like *si'ix*, cannot be followed by *dim*.⁶

- (48) [There's a charity run next week. Will Colin run?]
'Nim (#*dim*) *baṡ-t* Colin.
want PROSP run-3.II Colin
'He wants to run.'

Thus, *baṡ* and *si'ix* are not the only two verbs that seem to belong to different classes. One possibility is to say that tenseless complements are either vP (with *si'ix*) or ModP (with *baṡ*) and that future-irrealis complements are either vP (with *'nim*) or ModP (with *hasaṡ*). Another option is to follow Wurmbrand & Lohninger's idea that a lexical verb can belong to one class (e.g. have a smaller complement) in one language and another class (e.g. have a larger complement) in another language. In other words, no class contains exactly the same set of verbs in every language. Rather, how much structure is projected within a complement of a verb is determined by the transparency of the embedded domain and its dependence on the matrix domain. The natural next step is to determine further syntactic and semantic properties of (pre-)verbs that seemingly belong to the same class in Gitksan and to differentiate between the two approaches.

6 Conclusion and outlook

In this paper, I argued that the future-oriented readings in Gitksan complements provide evidence for structural differences between these complements: propositional complements are CPs, future-irrealis complements are ModP and tenseless complements are either vPs or ModP. The absence of TP in future-irrealis and tenseless complements (and of ModP in complements of *si'ix*), systematically limits the availability of temporal readings in them, while its presence in propositional complements expectedly enables most temporal interpretations. The conveniently marked futurity in these complements makes the differences between them easier to spot. The findings from Gitksan provide preliminary support for the implicational complementation hierarchy. One potential avenue for further research would be the left periphery. The proposed structural analysis makes the following prediction about the distribution of a complementizer *wil*: it should be able to occur in propositional complements, but not in future-irrealis and tenseless complements. This prediction is borne out, as shown in (49).

⁶I would like to thank the reviewer for drawing my attention to this.

- (49) a. Gilbil=hl ganuutxw=hl dat mahl-i=s Diana [(#wil) *dim* wil
two=CN weeks=CN when tell-T=PN Diana COMP PROSP COMP
yee-t go'o=hl Winnipeg am k'i'y=hl ganuutxw].
go-3.II LOC=CN Winnipeg only one=CN week
'Diana said two weeks ago that she would go to Winnipeg.'
- b. Sim hasag-a'y [(#wil) *dim* (#wil) algal-i'y a=hl Tenet
Really want-SG.II COMP PROSP COMP watch-SG.II PREP=CN Tenet
ky'oots].
yesterday
'I wanted to watch Tenet yesterday (but it is not being shown
anymore).'
- c. [Yukw=hl] si'ix (#wil) ba_x-t.
PROG[=CN] try (#COMP) run-3.II
'He's trying to run.'
- d. Bag-a-t [(#wil) *dim* (#wil) ba_x-t].
try-TR-3.II [(#COMP) PROSP (#COMP) run-3.II]
'He's trying to run.'

What is puzzling is the order of *dim* and *wil*: *dim* standardly precedes *wil* in both Gitksan (Rigsby 1986) and neighboring Nisga'a (Tarpent 1987). Syntactically, this is problematic, since *wil* is supposedly a complementizer and *dim* is a prospective aspect. While I do not have a straight-forward solution at this point, note that *dim* also proceeds conjunction *ii* 'and then' in Nisga'a (Tarpent 1987: 434), but can be preceded by complementizer *ji* 'whether' (Tarpent 1987: 430). It is also in an unexpected place when combined with a progressive marker *yukw*, as in (50). (50) is about a future event, so *dim* should be taking a scope over *yukw*, which is not reflected on the surface. One option is that there is some kind of phonological requirement that determines the surface order of *dim*. Finally, *dim* is obligatory in purpose clauses. But it can occur with *wil* in either order, resulting in two different interpretations, as in (51). I leave this puzzle for further research.

- (50) *Yukw dim wis*.
PROG FUT rain
'It is going to rain.'
- (51) [Why did Rosemary come to UBC today?]
a. Witxw 'nit *dim wil* hahla'ls-t.
arrive 3SG.II PROSP COMP work-3.II
'She arrived to work.'

- b. 'Witxw 'nit wil dim hahla'ls-t.
 arrive 3SG.II COMP PROSP work-3.II
 'She came because she works there.'

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Abbreviations

1/2/3	first/second/third person	IPFV	imperfective
		IRR	irrealis
I/II/III	series I/II/III pronoun	NEG	negation
AX	agent extraction	PASS	passive
CIRC.NECESS	circumstantial necessity	PL	plural
		PN	proper noun determiner
COMP	complementizer	PREP	preposition
CCJN	conjunction	PRIOR.EVID	prior evidence
CN	common noun	PROG	progressive
	determiner	PROSP	prospective
DN	determinate noun	REPORT	reportative
	determiner	SX	intransitive subject
EPIS	epistemic		extraction
FOC	focus	TR	transitive
INS	instrumental	VERUM	verum

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Chapter 6

Size of sentential complements in Japanese

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This chapter investigates sentential complements in Japanese, focusing on those selected by two semantically similar particles, *teki* ‘like, -ish’ and *ppoi* ‘like, -ish’. I show that, despite their apparent similarities, the clausal complements taken by *teki* and *ppoi* behave differently in a number of respects. I argue that their differences are due to a difference in size of their clausal complements; *teki* takes a syntactically larger sentential complement than *ppoi*. I also show that the same contrast as with *teki* and *ppoi* is found with another pair of particles; the evidential markers *mitai* and *yoo*, which indicates that the suggested size difference is not idiosyncratic to the pair of *teki* and *ppoi*. The difference in the size of the sentential complements of the elements in question is argued to provide evidence that syntactic selection is needed independently of semantic selection.

1 Introduction

In this chapter, I discuss two semantically similar morphemes *teki* ‘like, -ish’ and *ppoi* ‘like, -ish’ in Japanese. *Teki* and *ppoi* usually take a nominal complement, forming an AP, as shown in (1) (e.g. Kaiser et al. 2001).

- | | | |
|-----|------------|--------------------------|
| (1) | a. seizi | b. seizi-{teki/ppoi} |
| | politics | politics-{TEKI/PPOI} |
| | ‘politics’ | ‘political/politics-ish’ |



The distribution of *teki* and *ppoi* is not limited to the use found in (1). *Teki* and *ppoi* can also be attached to a sentential complement, as illustrated in (2) (see e.g. Yamashita 2000, Saito 2017 for *teki*, Kojima 2003, Yamada 2014 for *ppoi*).¹

- (2) [[_S okaasan-ga tuku-ru]-{teki-na/ppoi}] karee
 mother-NOM cook-PRES-{TEKI-COP/PPOI} curry
 ‘curry like (the) one the mother cooks’ (Lit. ‘[the mother cooks]-ish/like
 curry’)

The selectional property of the morphemes *teki* and *ppoi* is thus similar in that both can take a nominal or a sentential complement. It should also be noted that the present tense marker *ru* appears in the clause selected by *teki/ppoi*, which indicates that their “clausal” complements are really clausal, involving at least a TP-layer.

This chapter investigates syntactic properties of the clausal complements of *teki* and *ppoi*. In the next section, I show that, despite the similarities we have observed in (1) and (2), *teki* and *ppoi* show differences regarding their clausal complements. In §3, I argue that the contrast found with *teki* and *ppoi* is due to a difference in the size of their clausal complements; I suggest that *teki* selects a larger sentential complement than *ppoi*. In §4, I demonstrate that another pair of particles (the evidential markers *mitai* and *yoo*) shows exactly the same contrast

¹As shown in (i) and (ii), *teki* and *ppoi* can also appear in the sentence-final position, which can be considered as a case where they take a nominal or clausal complement (see (1) and (2) in the text).

- (i) John-no sigusa-wa [_{NP} zyosee]-{teki-da/ppoi}.
 John-GEN gesture-TOP woman-{TEKI-COP/PPOI}
 ‘John’s gesture is womanly.’ (Lit. ‘John’s gesture is woman-ish/like.’)
- (ii) Ano karee-wa [_S okaasan-ga tuku-tta]-{teki-da/ppoi}.
 that curry-TOP mother-NOM cook-PAST-{TEKI-COP/PPOI}
 ‘That curry is like the one the mother cooked.’ (Lit. ‘That curry is [the mother
 cooked]-ish/like.’)

Notice, however, that when *teki* and *ppoi* attach to a matrix clause, there is a contrast, as pointed out by an anonymous reviewer: *ppoi*, but not *teki*, can attach to the matrix clause. In this paper, I will focus on their occurrence in prenominal (modifier) clauses, putting aside the contrast found in (iii).

- (iii) [Okaasan-ga karee-o tuku-ru]-{[?]*teki-da/ppoi}.
 mother-NOM curry-ACC cook-PRES-{TEKI-COP/PPOI}
 ‘It seems that the mother will cook curry.’ (Lit. ‘[The mother will cook curry]-ish/like.’)

as *teki* and *ppoi*, indicating that the suggested size difference in clausal complements is not idiosyncratic to the specific pair of *teki* and *ppoi*. §5 concludes this chapter.

2 *Teki* vs. *ppoi*

In this section, I will demonstrate that the clausal complements selected by *teki* and *ppoi* behave differently in a number of respects, suggesting that selectional properties of *teki* and *ppoi* are not identical despite the apparent similarities. Specifically, I will investigate the distribution of imperatives, volitionals, the politeness marker, and nominative-genitive conversion with respect to the clausal complements of *teki* and *ppoi*.

The first difference concerns the imperative marker. Japanese allows embedded imperatives (Oshima 2006, Schwager 2006). Thus, as shown in (3), the imperative can appear in the clausal complement of the matrix verb ‘say’. Notice that (3) involves true embedding, not a direct quote. Under the intended interpretation, the pronoun *kare* ‘he’ refers to the matrix subject John; this interpretation is not available if *kare* is contained in a direct quote (see e.g. Anand 2006, Crnić & Trinh 2009).

- (3) John_i-ga Mary-ni [kare_i-no hon-o ka-e to] i-tta.
 John-NOM Mary-DAT he-GEN book-ACC buy-IMP C say-PAST
 ‘John_i told Mary to buy his_i book.’

What is important for us is that imperatives can appear in the clausal complement of *teki*, as shown in (4) (see Saito 2017).

- (4) [[asita a-e]-teki-na] hito
 tomorrow meet-IMP-TEKI-COP person
 ‘(a) person like (the) one who you should meet tomorrow’

Note that the clause selected by *teki* is truly embedded; in (5), the embedded pronoun *kare* ‘he’ refers to John (the matrix subject). This interpretation should be impossible if (5) involved a direct quote of John’s utterance or thought.²

² *Teki* can also introduce a direct quote (Saito 2017), and so can *ppoi*, at least for some speakers (see e.g. Ohara 2010). In the following, I will focus on clausal complements of *teki* and *ppoi* which are truly embedded.

- (5) John_i-wa Mary-ni [[kare_i-no mise-de tabe-ro]-teki-na] mono-o
 John-TOP Mary-DAT he-GEN store-at eat-IMP-TEKI-COP thing-ACC
 tutae-ta.
 tell-PAST
 ‘John_i told Mary something like what she should eat at his_i restaurant.’
 (Saito 2017: 167)

The clausal complement of *ppoi* behaves differently in this regard. Imperatives cannot appear in the clause selected by *ppoi*, as in (6).

- (6) [[asita a-e]-ppoi] hito
 tomorrow meet-IMP-PPOI person
 ‘(a) person like (the) one who you should meet tomorrow’

The volitional marker *yoo* shows the same distribution as imperatives. It can appear in the clausal complement of *teki*, not in that of *ppoi*:³

- (7) [[asita a-oo]-{teki-na/*ppoi}] hito
 tomorrow meet-VOL-{TEKI-COP/PPOI} person
 ‘(a) person like (the) one who I/we will meet tomorrow’

The same holds for the politeness marker. As illustrated in (8), the politeness marker can occur in the clause selected by *teki* while it cannot appear in the clause taken by *ppoi*.

- (8) [[asita ai-mas-u]-{teki-na/*ppoi}] hito
 tomorrow meet-POL-PRES-{TEKI-COP/PPOI} person
 ‘(a) person like (the) one who I will meet_{POLITE} tomorrow’

The clausal complements of *teki* and *ppoi* thus show differences regarding imperatives, volitionals, and the politeness marker. All of them can appear in the clausal complement of *teki*, but not in that of *ppoi*, which indicates that *teki* and *ppoi* take different kinds of clausal complements.

There is a further difference between the clausal complements of *teki* and *ppoi*, which concerns nominative-genitive conversion. It is well known that the subject in prenominal clauses (relative clauses) can be optionally marked by genitive case, instead of nominative, in Japanese, as illustrated in (9) (nominative-genitive conversion, NGC henceforth; see e.g. Harada 1971, Watanabe 1996, Hiraiwa 2000, 2005, Maki & Uchibori 2008, Miyagawa 2011).

³The volitional *oo* in (7) is a realization of the volitional marker in question, *yoo*. The distribution of *yoo* and *oo* is phonologically conditioned.

- (9) [okaasan-{ga/no} tuku-ru] karee
 mother-{NOM/GEN} cook-PRES curry
 ‘curry the mother cooks’

Crucially, NGC is impossible in the clausal complement of *teki*, as in (10) (Saito 2017).

- (10) * [[hudan okaasan-no tuku-ru]-teki-na] karee
 usually mother-GEN cook-PRES-TEKI-COP curry
 ‘curry like (the) one the mother usually cooks’

This contrasts with the clausal complement of *ppoi*, where NGC is allowed.

- (11) [[hudan okaasan-no tuku-ru]-ppoi] karee
 usually mother-GEN cook-PRES-PPOI curry
 ‘curry like (the) one the mother usually cooks’

We thus observe a difference between the clausal complements of *teki* and *ppoi* with respect to the availability of NGC. NGC is allowed in the complement clause of *ppoi* while it is disallowed in that of *teki*.

To sum up, I have shown that, despite their apparent similarities, *teki* and *ppoi* show differences in their clausal complements regarding the distribution of imperatives, volitionals, and politeness marking. They also behave differently regarding the availability of NGC; NGC is possible in the clausal complement of *ppoi*, not in that of *teki*. In the next section, to account for this contrast, I will suggest that *teki* and *ppoi* select a sentential complement of different sizes; *teki* takes a larger complement than *ppoi*.

3 The size of things: CP vs. TP

In the previous section, we have seen that the clausal complements of *teki* and *ppoi* behave differently regarding the distribution of imperatives, volitionals, politeness marking, and NGC. The observations from the previous section are summarized in Table 1.

In this section, I will suggest that the contrasts found in Table 1 are due to the difference in the size between the clausal complements of *teki* and *ppoi*. Specifically, I will argue that *teki* takes a larger sentential complement than *ppoi*.

First, consider the (un)availability of imperatives, volitionals, and the politeness marker. To explain the fact that these elements can appear in the clausal

Table 1: Clausal complements of *teki* and *ppoi*

Clausal complements of: <i>teki</i> <i>ppoi</i>		
Imperatives can appear	Yes	No
Volitionals can appear	Yes	No
The politeness marker can appear	Yes	No
NGC is possible	No	Yes

complement of *teki*, but not in that of *ppoi*, I suggest that the former involves richer structure than the latter (see Wurmbrand 2001 et seq. on selection of clausal complements of different sizes). Independently, imperatives, volitionals, and politeness marking have been claimed to involve the CP-domain (or some projection above TP, e.g. Rizzi 1997, Han 1998, Cinque 1999, Haegeman 2006, see also Ueda 2007, Endo 2009, Hasegawa 2010, Miyagawa 2012, Yoshimoto 2017 for volitionals, imperatives, and the politeness marker in Japanese).⁴ I thus assume that the imperative, volitional, and politeness morphemes (or corresponding operators) are located in a C-head in Japanese, and argue that *teki* takes CP as its complement, as shown in (12). The presence of the CP-layer, which is the locus of imperatives, volitionals, and politeness marking, ensures the availability of these elements in the clausal complement of *teki*.⁵

(12) [_{CP} [_{TP} ...]]-*teki*

I further suggest that *ppoi* takes a smaller complement than CP. Recall that tense markers can appear in the clausal complement of *ppoi* (while the imperative/volitional/politeness morphemes cannot), as shown in (2), repeated below.

- (13) [[_S okaasan-ga tuku-ru]-{teki-na/ppoi}] karee
 mother-NOM cook-PRES-{TEKI-COP/PPOI} curry
 ‘curry like (the) one the mother cooks’ (Lit. ‘[the mother cooks]-ish/like
 curry’)

⁴But see Shimamura 2021 [this volume] for *yoo*.

⁵If we assume a more fine-grained structure of CP in Japanese, *teki* would take ReportP in Saito’s 2012 sense, which is usually selected by a verb of saying/thinking. I leave for future research investigations of the clausal complements of *teki* and *ppoi* in terms of the cartographic approach to the Japanese right periphery. See also Saito (2017) for similarities between clausal complements of *teki* and those of verbs of saying.

Given this, I suggest that *ppoi* takes a TP complement, as in (14) (see also Yamada 2014).

(14) [TP ...]-*ppoi*

Tense markers like *ru* ‘PRES’ can occur in the clausal complement of *ppoi* since the TP-layer is present. The imperative, volitional, and politeness markers, however, cannot appear due to the lack of the C-domain, which is necessary to host these elements; there is no syntactic position for them.

I furthermore suggest that the (un)availability of NGC in the clausal complements of *teki* and *ppoi* is also due to their size difference. I here assume that genitive case in Japanese is assigned by an N (or D) head through a syntactic dependency (e.g. Bedell 1972, Miyagawa 1993, Miyagawa 2011). To be more specific, I assume that N licenses genitive case through an Agree relation (Miyagawa 2011). (15) shows the standard case of NGC, where the subject in a relative clause is marked with genitive case, like (9) above. In (15), the N head enters an Agree relation with the subject in the relative clause, licensing the genitive case on it. I also assume that relative clauses are TPs in Japanese, following Murasugi (1991), Taguchi (2008), and Park et al. (2017) (see also Saito 1985).

(15) [NP [TP (Relative clause) Subject ...] N]
└──────────┘

Let us then consider NGC in the clausal complement of *ppoi* first. As schematically shown in (16), the N head licenses the genitive subject in the clausal complement of *ppoi*, like the standard case of NGC.

(16) [NP [[TP Subject ...]-*ppoi*] N]
└──────────┘

It should be noted that (16) is slightly different from the standard case of NGC in an unmarked relative clause like (9)/(15) because *ppoi* appears between the prenominal clause and the head noun. If we assume that Agree is subject to the phase impenetrability condition (and assuming Chomsky’s (2000, 2001) approach to phases), *ppoi* (or *teki*), being an adjectival head, is not a phasal head, hence its presence does not block the Agree relation between the embedded subject and the head noun.⁶

⁶In this paper, I treat *teki(-na)* and *ppoi* as simply an A head, leaving aside investigations of the exact structure involved with adjectives, including adjectival inflection and the copula on (nominal) adjectives (see e.g. Nishiyama 1999, Yamakido 2005, 2013 for relevant discussion). What is important for the current discussion is the size difference between the clausal complements of *teki* and *ppoi*, not the structure of these elements themselves.

In the previous section, we have observed that NGC is not allowed in the clausal complement of *teki*, as in (10), repeated below.

- (17) * [[hudan okaasan-no tuku-ru]-teki-na] karee
 usually mother-GEN cook-PRES-TEKI-COP curry
 ‘curry like (the) one the mother usually cooks’

I suggest that the unavailability of NGC here is due to the extra layer the clausal complement of *teki* involves, namely, the C-domain. Since CP is a phase, I claim that C prevents the N head from licensing genitive case, disallowing genitive subjects in CP (see also Miyagawa 2011, Park et al. 2017). This is schematically illustrated in (18).

- (18) [NP [[CP [TP Subject ...]]-teki] N]
└──────────┘

Therefore, the contrast between the clausal complements of *teki* and *ppoi* regarding the availability of imperatives, volitionals, politeness marking, and NGC can be captured under the current analysis, where *teki* and *ppoi* take sentential complements of different sizes; *teki* takes a larger complement than *ppoi*.

One may wonder if the suggested size difference between the clausal complements of *teki* and *ppoi* is only found with these two specific elements. As we will see in the next section, the contrast in question is in fact found with other particles, indicating that the size difference I have suggested in this section is not idiosyncratic to *teki* and *ppoi*.

4 *Mitai* and *yoo*

In the previous section, I have argued that the contrast between the clausal complements of *ppoi* and *teki* is due to their syntactic size difference. In this section, I will show that the same contrast is found with another pair; the evidential particles *mitai* and *yoo*.

Mitai and *yoo* are used to mark inferential evidentiality, as shown in (19). *Mitai* and *yoo* have the same or at least very similar meaning. In fact, Narrog (2009: 169) notes that they are “stylistic variant[s]”.

- (19) Okaasan-ga karee-o tuku-ru-{mitai/yoo}-da.
 mother-NOM curry-ACC cook-PRES-{MITAI/YOO}-COP
 ‘It seems that the mother will cook curry.’

Like *teki* and *ppoi*, these elements can occur in prenominal clauses, as in (20).

- (20) [[okaasan-ga tuku-ru]-{mitai/yoo}-na] karee
 mother-NOM cook-PRES-{MITAI/YOO}-COP curry
 ‘curry like (the) one the mother cooks’

While *mitai* and *yoo* are semantically the same, there are a number of differences regarding properties of the clausal complements *mitai* and *yoo* take. What is crucial for us is that the clausal complements of *mitai* and *yoo* behave just like those of *teki* and *ppoi*, respectively; the clausal complements of *mitai* and *yoo* show the same contrasts as the ones we have observed for *teki* and *ppoi* in §2.

First, the imperative marker can occur in the clausal complement of *mitai*, but not in that of *yoo*, as shown in (21).

- (21) [[asita a-e]-{mitai/*yoo}-na] hito
 tomorrow meet-IMP-{MITAI/YOO}-COP person
 ‘(a) person like (the) one who you should meet tomorrow’

It should be noted here that *mitai* can truly embed its clausal complement. In (22), the pronoun *kare* in the clausal complement of *mitai* refers to the matrix subject John. This reading would be impossible if *mitai* could not truly embed a clause (see (5) above for *teki*).⁷

- (22) John_i-wa Mary-ni [[kare_i-no mise-de tabe-ro]-mitai-na] mono-o
 John-TOP Mary-DAT he-GEN store-at eat-IMP-MITAI-COP thing-ACC
 tutae-ta.
 tell-PAST
 ‘John_i told Mary something like what she should eat at his_i restaurant.’

The same holds for the volitional marker and the politeness marker. As (23) and (24) show, they can appear in the clausal complement of *mitai*, but are disallowed in that of *yoo*.

⁷*Mitai* can also introduce a direct quote. In (i), the pronoun *ore* ‘I’ refers to John under the intended interpretation. *Ore* would refer to the speaker of (i) if (i) could involve only an indirect quote. I will focus here on cases where the clausal complement of *mitai* is truly embedded.

(i) John_i-wa Mary-ni [[ore_i-no ie-ni ko-i]-mitai-na]-koto]-o tutae-ta.
 John-NOM Mary-DAT I-GEN home-to come-IMP-MITAI-COP-thing-ACC tell-PAST
 ‘John_i told Mary something like: “Come to my_i home!”’

- (23) [[asita a-oo]-{mitai/*yoo}-na] hito
 tomorrow meet-VOL-{MITAI/YOO}-COP person
 ‘(a) person like (the) one who I/we will meet tomorrow’
- (24) [[asita a-mas-u]-{mitai/*yoo}-na] hito
 tomorrow meet-POL-PRES-{MITAI/YOO}-COP person
 ‘(a) person like (the) one who I will meet._{POLITE} tomorrow’

Therefore, the clausal complement of *mitai* shows the same syntactic properties as that of *teki* regarding the distribution of the imperative, volitional, and politeness morphemes: these elements can appear in the clausal complements of *mitai* and *teki*. Furthermore, *yoo* and *ppoi* behave in the same way in this regard. In their clausal complements, the imperative, volitional, and politeness markers are all disallowed (see §2 for *teki* and *ppoi*).

Furthermore, the clausal complements of *mitai* and *yoo* show the same contrast as those of *teki* and *ppoi* regarding the availability of NGC. As observed in (20) above, as well as in (25) below, the subject in the clausal complement of *mitai* and *yoo* is usually marked with nominative case, just like regular subjects.

- (25) [[hudan okaasan-ga tuku-ru]-{mitai/yoo}-na] karee
 usually mother-NOM cook-PRES-{MITAI/YOO}-COP curry
 ‘curry like (the) one the mother usually cooks’

Let us then look at NGC in the sentential complements of *mitai* and *yoo*. In the clausal complement of *mitai*, NGC is disallowed, as illustrated in (26). The subject in the *mitai*-clause cannot be marked with genitive case.⁸

- (26) * [[hudan okaasan-no tuku-ru]-mitai-na] karee
 usually mother-GEN cook-PRES-MITAI-COP curry
 ‘curry like (the) one the mother usually cooks’

In contrast, in the clausal complement of *yoo*, like that of *ppoi*, NGC is possible, as in (27).

- (27) [[hudan okaasan-no tuku-ru]-yoo-na] karee
 usually mother-GEN cook-PRES-YOO-COP curry
 ‘curry like (the) one the mother usually cooks’

⁸It should be noted that some speakers find (26) better than NGC in the clausal complement of *teki* (= 17). I put this speaker variation aside in this paper.

The clausal complements of *mitai* and *yoo* thus show the same contrasts as those of *teki* and *ppoi*; in *mitai/teki*-clauses, NGC is disallowed while in *yoo/ppoi*-clauses, NGC is possible.

To account for the contrast between the clausal complement of *mitai* and *yoo*, I suggest that *mitai* and *yoo* take clausal complements of different sizes; *mitai* selects a CP complement while *yoo* selects a TP complement, just like *teki* and *yoo*, respectively.

- (28) a. [CP[TP ...]]-*mitai*
 b. [TP ...]-*yoo*

We can then obtain a parallel explanation for the contrasts between *mitai* and *yoo* as for the contrasts between *teki* and *ppoi*. In the clausal complement of *mitai*, the CP-layer, which provides syntactic positions for imperatives, volitionals, and politeness marking, is present. Hence, these elements can appear. In the clausal complement of *yoo*, however, there is no syntactic position for these elements due to the lack of the C-domain.

Regarding the (un)availability of NGC, there is a phasal head C present in the clausal complement of *mitai*, which blocks genitive case licensing from the N head.

- (29) [NP [[CP [TP Subject ...]]-*mitai*] N]
 └──────────┘
 /

In the clausal complement of *yoo*, on the other hand, due to the absence of the C-layer, there is no intervener for the Agree relation between the subject and the N head. Thus, NGC is possible.

Before concluding this section, a note on syntactic (c-) and semantic (s-) selection is in order. There has been a controversy whether syntactic selection and semantic selection are independent or one can be derived from the other (e.g. Grimshaw 1979, Pesetsky 1982, Pollard & Sag 1987, Chomsky & Lasnik 1993, Bedell 1972, Odijk 1997). In this section, we have observed that, while *mitai* and *yoo* are semantically the same (or at least very similar, recall that Narrog (2009: 169) states that they are stylistic variants), there are a number of differences regarding syntactic properties of their clausal complements, which can be captured under the current analysis. (Recall also that the morphemes *teki* 'like, -ish' and *ppoi* 'like, -ish' are also semantically similar.) If selection of clausal complements of *mitai* and *yoo* were solely semantically determined, the contrast we have observed in this section for *mitai* and *yoo* would be difficult to capture, as the lexical

semantics of *mitai* and *yoo* are (almost) the same. Thus, the contrast between the type of clausal complements of *mitai* and *yoo* provides evidence for the independence of syntactic selection from semantic selection, as argued by Grimshaw (1979) among others.

To wrap up this section, we have observed that the clausal complements of *mitai* and *yoo* behave in the same way as those of *teki* and *ppoi*, respectively, regarding the distribution of the imperative, volitional, and politeness morphemes and the availability of NGC. I have suggested that the contrasts in question are due to the size difference between the clausal complements of *mitai* and *yoo*, just like the contrast between *teki* and *ppoi*. The size differences between the clausal complements of *teki* and *ppoi* are not idiosyncratic to these items. The observed differences in the size of clausal complements have also been argued to provide evidence that syntactic and semantic selection are independent mechanisms.

5 Conclusion

In this chapter, we have observed that the clausal complements of the semantically similar particles *teki* and *ppoi* show differences regarding the distribution of imperatives, volitionals, politeness marking, and nominative genitive conversion. Imperatives, volitionals, and politeness marking can appear in the clausal complement of *teki*, but not in that of *ppoi*. NGC is allowed in the clausal complement of *ppoi*, but not in that of *teki*. I have suggested that this contrast is due to the difference in size of their clausal complements, arguing that *teki* takes a larger sentential complement than *ppoi*. I have also shown that the same contrast is found with the evidential particles *mitai* and *yoo*, which indicates that the size difference in clausal complements I have argued for is not idiosyncratic to the pair of *teki* and *ppoi*. The difference in the size of the clausal complements of the elements in question provides evidence that syntactic (c-)selection is needed independently of semantic (s-)selection.

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Chapter 7

Against embedded modal as control in Japanese: Its relevance to the implicational complementation hierarchy

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In this chapter, I will investigate the nature of one specific sentential complementation in Japanese that has been considered to be a case of obligatory control in the syntactic literature: embedding the modal element, *yoo*. I will propose, contrary to Fujii (2006, 2010), Takano (2010) among others, that it does not exemplify a case of such a control construction, giving another way to get it via indexical shifting. Then, I will also discuss the relevance of the analysis to be proposed in terms of the implicational complementation hierarchy put forth by Wurmbrand & Lohninger (2020).

1 Introduction

This chapter reconsiders one specific construction in Japanese that has been analyzed as a control complement and hence it has been assumed to involve a PRO subject (Fujii 2006, 2010, Takano 2010, Uchibori 2000 among others), where the volitional modal *yoo* is embedded under several kinds of matrix predicates.¹ As we will see, all the instances of the *yoo* complement are *prima facie* the same, but

¹*yoo* has two instantiations, which are phonologically conditioned: *yoo* appears when a verb stem ends with a vowel whereas *oo* appears when it ends with a consonant. However, the polite suffix *mas* is exceptional due to its irregular inflectional paradigm, and we have *mas-yoo* in lieu of the expected *mas-oo*.



a closer look into their semantic properties divulges that they are different in accordance with the types of matrix selecting verbs. Specifically, verbs like *kime*- ‘decide’ exhibit more signatures of clausal complexity in their *yoo* complements than verbs like *kokoromi*- ‘try’. This syntactic disparity regarding the complexity of the *yoo* complement clause is traceable in terms of the semantic properties of the embedded clauses in general. This correlation between the semantic properties of a given complement clause and its syntactic realization is now captured in terms of the universal generalization proposed by Wurmbrand & Lohninger (2020), viz. the the implicational complementation hierarchy.

This chapter goes as follows: in Section 2, I will go over the analysis of English infinitives proposed by Wurmbrand (2014), discussing how the semantic properties of embedded clauses affect the syntactic architecture of them as well as a recent argument made by Wurmbrand & Lohninger (2020) regarding the implicational complementation hierarchy in terms of the clause size of such infinitival complements. Then, Section 3 will look into the nature of the *yoo* complement connecting to different matrix verbs, showing that the *yoo* complement to verbs like *kime*- ‘decide’ is compatible with independent temporal construal and enjoys various subject interpretations, which state of affairs is however not observed in the *yoo* complement clause selected by other verbs like *kokoromi*- ‘try’. In Section 4, I will put forth my analysis, contending that the pertinent contrast is due to the size of the embedded *yoo* complement. The *yoo* complement of *kokoromi*- ‘try’ is very small, so that it is, as we will see, able to undergo long passivization. In Section 5, I then show that the size of the embedded *yoo* is not absolute, and the clause size can be expanded even for ‘try’ verbs if other syntactic/semantic factors such as the presence of an overt embedded subject and the possibility of temporal independence of the embedded clause are taken into consideration. Section 6 will then conclude.

2 English infinitives and the implicational complementation hierarchy

Wurmbrand (2014) proposes an intriguing proposal regarding what has been called the control infinitive (CI). Her approach posed a significant challenge to the widely accepted perspective that the CI is tensed whereas other instances of infinitives (i.e. ECM/raising) are untensed. This disparity is most conspicuously expressed in the “null Case” approach to licensing a PRO (see Martin 2001 and references therein). That is, the subject of the CI complement is licensed as a PRO due to the availability of the pertinent null Case while the subject of the

ECM/raising counterpart must enter into a structural Case dependency with the matrix *v* (ECM) or T (raising) to be Case-marked.

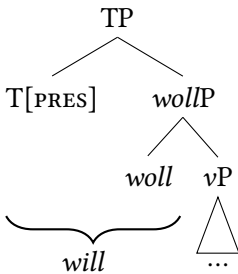
However, even though the following three alleged CI complements are *prima facie* similar for their verbal/infinitival morphology, they exhibit different properties for their temporal interpretations.

- (1) a. Yesterday, John decided/wanted/planned to leave tomorrow.
- b. Yesterday, John tried/began/managed to leave (*tomorrow).
- c. Yesterday, John claimed to be leaving {right then/tomorrow}/*to leave tomorrow. (Wurmbrand 2014: 408)

In (1a), the CI complement of e.g. *decide* denotes future irrealis, allowing modification by *tomorrow*. In contrast, such an interpretation is prohibited in (1b) and (1c): the CI complement of (1b) is *simultaneous* in the sense that the matrix verb and the embedded verb do not permit independent adverbial modification, and the same holds for *claim* in (1c), which is a case of the propositional CI, according to Wurmbrand (2014). It is not a *bonafide* future irrealis complementation due to the impossibility of **to leave tomorrow*. Rather, the CI complement of (1c) is construed as temporally simultaneous with the matrix predicate with the adverb *right then*, or as a planned/scheduled future with *tomorrow* (like *I'm leaving tomorrow* in the matrix context).

Wurmbrand (2014) contends that all the CI complements in (1), even (1a), are tenseless, with the structure where the finite future tense is decomposed into T and *wollP* (see Abusch 1985, 1988 for *wollP*). When T is encoded as [PAST], the combination of T and *woll* will be spelled out as *would*.

- (2) Finite *will*

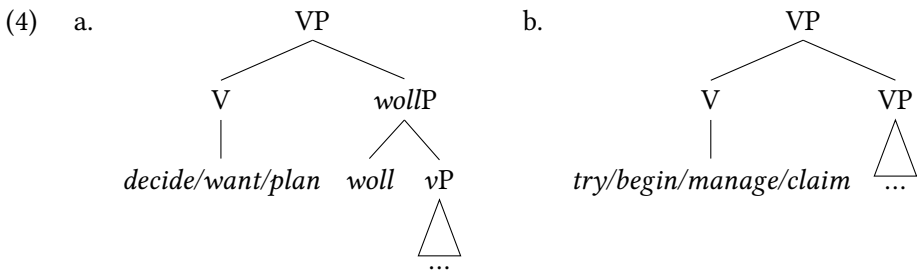


Given (2), the CI complement in (1a) is *wollP* and that of (1b) and (1c) lacks both TP and *wollP*. Since TP is absent in (1a), the future orientation of the embedded *wollP* is not absolute. In this connection, consider (3). In (3a), the matrix verb and the embedded verb are each modified by different adverbs, *a week ago* and

yesterday, respectively. This is not possible in (3b). This is because the embedded clause has finite *will* that results from (2), and *will*'s T is absolute in the sense that it refers to the utterance time (the speaker's now). The availability of *yesterday* in (3a) thus indicates that the future orientation of the CI complement in (3a) is "relativized" to the matrix past tense (Leo's now). Therefore, such a complement lacks tense (hence TP), and the future construal is rendered by the modal *woll*.

- (3) a. Leo decided a week ago to go to the party yesterday.
 b. Leo decided a week ago that he will go to the party (*yesterday).
 (Wurmbrand 2014: 413)

Turning to the other CI complements in (1), the simultaneous interpretation comes, under Wurmbrand's analysis, in the form of bare VP (Wurmbrand 2001: cf.). Details aside, we have at least the following two types of infinitives in English.²



Now, what is interesting at this point is that the infinitive morphology *per se* does not tell us much about the syntactic structure of a given CI complement. Rather, its syntactic interior becomes discernible through examining the properties of selecting verbs.

In this connection, Wurmbrand & Lohninger (2020), examining various European languages, put forth a hypothesis concerning the size of complement clauses that is defined in terms of semantics. According to them, there are three types of complements: *propositions*, *situations* and *events*. Propositions involve speech/epistemic contexts, and they are temporally independent and anchored to the embedding context. Situations denote emotive and irrealis contexts. They lack speaker/utterance-oriented properties, but they have their own time and

²Wurmbrand (2014) also discusses the structure where an aspectual projection, AspP, is projected in tenseless (simultaneous) infinitives. However, I abstract away from it in this paper.

world parameters. Events are semantically a property of events, lacking their own context/time/world parameters. Then, with this trichotomy, clauses that denote propositions are more clausal than those which denote situations, which are in turn more clausal than those which denote events. This structural differences are reflected in various syntactic, morphological and semantic properties, and the presence of some property X in one type of complement implies X's existence or absence in another type of complement left/right-adjacent to it in the clause-size-defining scale, termed the implicational complementation hierarchy (ICH) (Wurmbrand & Lohninger 2020: 6).

Table 1: Implicational complementation hierarchy

MOST INDEPENDENT		LEAST INDEPENDENT	
LEAST TRANSPARENT	Proposition \gg Situation \gg Event	MOST TRANSPARENT	
LEAST INTEGRATED		MOST INTEGRATED	

For instance, if a languages allows clitic climbing from the situation complement, then it should be the case that the event complement also allows it. According to Wurmbrand & Lohninger (2020), the minimal structures of the three types of complements are the following (Wurmbrand & Lohninger 2020: 33):

- (5) a. *Proposition* b. *Situation* c. *Event*
-

Op stands for the operator domain, CP, and TMA signifies the tense-modal-aspect domain. Theta corresponds to the argument structure domain so that it is defined in terms of vP (VP). Since these are the minimal structures, it is still possible to have e.g the situation complement structured as a CP, but it will never be the case that the situation complement comprises only the Theta structure.

As we will see, the same state of affairs holds for what has been analyzed as control in Japanese.

3 Control in Japanese?

3.1 Embedding *yoo*

Although there is no sign of non-finiteness in Japanese in the sense of European languages like English, it has sometimes been argued that Japanese has PROs and hence control constructions. One such case to be discussed throughout the rest of this paper involves a volitional modal element, *yoo* (Fujii 2006, 2010, Uchibori 2000, Shimamura 2015). Observe:³

- (6) a. Kinoo, Taroo-wa [asu syuppatu-si-yoo-to]
yesterday Taro-TOP tomorrow departure-do-MOD-REP
{kime/omot}-ta.
decide/think-PAST
'Yesterday, Taro {decided to leave/thought about leaving} tomorrow.'
- b. Kinoo, Taroo-wa [(*asu) syuppatu-si-yoo-to]
yesterday Taro-TOP tomorrow departure-do-MOD-REP
{kokoromi/si}-ta.
try/do-PAST
'Yesterday, Taro tried to leave (*tomorrow).'

(6a) is just like (1a) in English, allowing two independent time adverbs to occur. In contrast, the event of *leaving* in the complement clause must be simultaneous with the matrix verbs in (6b) (but see (34a) below). However, notwithstanding this apparent similarity between in English and Japanese, I will argue that (6) does not substantiate control constructions, at least in the sense that it does not involve an obligatorily controlled PRO.

3.2 *Yoo* in the matrix context and the interpretation of the agent

The first task I would like to undertake to do is consider whether the complement clauses in (6) are really control complements. In this connection, note that the clause suffixed by *yoo* is in fact used as a root clause that expresses the speaker's intention. Therefore, it is rather difficult to have non-1st person subjects in the

³Regarding the matrix selecting verbs, all the above English examples cannot be replicated in Japanese. This is because some of them cannot take a *yoo* complement, and selects a different type of embedded clause. For instance, 'start' in Japanese is *hazime*-, and the complement clause of this verb is rendered via the complex predicate formation/bare VP-complementation or Restructuring in the sense of Wurmbrand (2001). I thus discuss Japanese data only for those verbs that are compatible with the *yoo* complement.

yoo sentence, and previous researches discussing this modal observe that the 2nd or 3rd person pronouns are incompatible with *yoo* (but see Moriyama 1990 and Narrog 2009). The following judgment represents the standard (widely accepted) observation reported in the literature (cf. Fujii 2006).

- (7) {Boku/#kimi/#kanozyo}-wa syuppatu-si-yoo.
 I/You/She-TOP departure-do-MOD
 ‘{I/#You/#She} will leave.’

However, as Shimamura (2015) points out, the choice of *kimi* ‘you’ and *kare* ‘she’ becomes possible when an appropriate context is set up. For instance, if I am in a privileged position by which I can command ‘you’ or ‘her’ to leave, then I can utter (7) with *kimi* or *kanozyo*.

Also equally important to mention here is the fact that plural subjects are possible, and again, the intention to make a given action (here, *leaving*) to happen is ascribed to the speaker:

- (8) {Boku/kimi/kanozyo}-tati-wa syuppatu-si-yoo.
 I/You/She-PL-TOP departure-do-MOD
 ‘{We/You (PL)/They} will leave.’

Therefore, we need to dissociate the intention holder from the actual doer; the simplest case is such that the former and the latter are identical, hence the case of *I will leave* in (7). Then, I assume that *yoo* has its person parameter fixed to the 1st person, denoting the speaker’s volitional attitude as shown in Figure 1, where the attitude holder of *yoo* is expressed in terms of the person feature on the modal head, and the actual doer (agent) is merged to Spec-vP. Therefore, the agent can be anything, be it 1st person, 2nd person, 3rd person, singular or plural.

Then, what is expected is that when embedded as a(n apparent) control complement, the embedded agent does not have to be identical to the matrix attitude holder. This prediction is borne out, insofar as the selecting verb is *kime*- ‘decide’ or *omow*- ‘think’ among others. Observe (9), where I give a silent subject in the complement clause as *e*. The embedded agent has other members in addition to Taro (represented as +).

- (9) Context: Taro, who is the leader of his trekking team, was thinking about when they should leave, and he reached the conclusion:
 Taro₀₁-wa [asu e_1 + syuppatu-si-yoo-to] {kime/omot}-ta.
 Taro-TOP tomorrow departure-do-MOD-REP decide/think-PAST
 ‘Taro₁ {decided e_1 + to leave/thought about e_1 + leaving} tomorrow.’

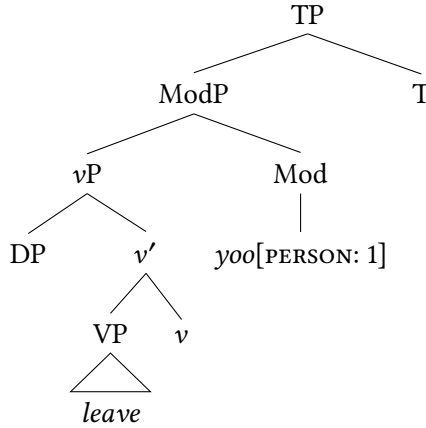


Figure 1: Structure of *yoo* clause

This is like partial control (cf. Landau 2000). Embedding *yoo* also yields a split-control-like construction as in (10), but it is also possible to include additional members other than Taro and Jiro for the embedded agent interpretation.

- (10) Context: Taro, who is the leader of his trekking team, was thinking about when they should leave, and he reached the conclusion, which he told to Jiro:

Taroo₁-wa Ziroo₂-ni [asu e_{1+2+} syuppatu-si-yoo-to] it-ta.
 Taro-TOP Jiro-DAT tomorrow departure-do-MOD-REP say-PAST
 Lit. ‘Taro₁ told Jiro₂ e_{1+2+} to leave tomorrow.’

In passing, (10) is also fine in the context where Taro commands Jiro to leave (with or without other members) tomorrow. In this case, the embedded agent does not include the attitude holder, reminiscent of the ‘you’ option in (7) and (8). In contrast, the simultaneous complement in (6b) (like English) never allows partial control, whence it must be like a case of exhaustive subject control.⁴

- (11) Taroo-wa [$e_1(*+)$ syuppatu-si-yoo-to] {kokoromi/si}-ta.
 Taro-TOP departure-do-MOD-REP try/do-PAST
 ‘Taro₁ tried $e_1(*+)$ to leave.’

To recap, the modal *yoo* is not limited to the embedded context, which is different from the CI in English, and the silent subject (agent) of the control-like

⁴Note that *kokoromi*-/su- cannot take a dative argument, so that they never allow an object-control-like interpretation.

construction in Japanese readily accommodates various interpretations like partial, split and even partial split control. This suggests that *yoo* is not a case of obligatory control (OC), for the OC PRO is not assumed to support such a wide variety of interpretational options of the silent agent (see Landau 2000 and Hornstein (1999, 2003) for the opposing views regarding whether split control exists and (if so) is a case of OC). As we will see next, the Japanese construction under discussion passes other OC diagnostics. However, I suggest that this state of affairs is illusory, due to the shifted person parameter of *yoo* via indexical shifting.

3.3 Obligatory control diagnostics and indexical shifting of *yoo*

The wide range of interpretational possibilities for the embedded agent strongly suggests that embedding *yoo* is not a case of OC. However, other diagnostics such as the availability of *de se/de te* seem to tell us that it is an instance of OC. For instance, Fujii (2006) gives:

- (12) Context: Hiroshi planned to go abroad. He had already got his passport and made a visa available recently. One day, he went to drinking and came home badly drunk. He found the passport on the table, without remembering that this was what he himself got from the embassy. Looking at the picture on the passport and the visa, he thinks, “I don’t know who this guy is, but he seems to be planning to go abroad soon. I wish I could!”
- # Hiroshi₁-wa [*e*₁ gaikoku-ni ik-oo-to] omot-te-i-ru.
 Hiroshi-TOP foreign.country-to go-MOD-REP think-ASP-COP-PRES
 ‘Hiroshi thinks of going abroad.’ (Fujii 2006: 106)

In the provided context in (12), the sentence sounds infelicitous. Also, Fujii (2006) shows, among others, the antecedent of the alleged OC PRO of the *yoo* complement must be “one-clause up”, namely, the ban on long-distance antecedents. Witness:

- (13) * Karera-wa [Hiroshi-ni [*e* otagai-o naguri-a-oo-to] omow
 they-TOP Hiroshi-DAT each.other-ACC hit-RECIP-MOD-REP think
]-ase-ta.
 CAUS-PAST
 Lit. ‘They₁ made Hiroshi think *e*₁ to hit each other.’ (Fujii 2006: 104)

This example shows that the highest subject cannot be the antecedent of the silent subject in the most embedded clause. These data plus the other tests Fujii (2006) discusses may lead us to conclude that the *yoo* complement can be an OC complement (setting aside partial control discussed above).

However, recall that *yoo* in the matrix context must have the attitude holder is the 1st person, and this restriction is lifted when *yoo* is embedded. In this sense, it can be a case of indexical shifting, and relevant to this, Japanese allows imperatives to be embedded, concerning which Sauerland & Yatsushiro (2014) propose that it is possible due to the indexical shifting of the imperative verb. Given this, I assume with Sauerland & Yatsushiro (2014) that in the context where the reporting particle *to* is employed indexical shifting applies obligatorily.⁵ I assume that the monster operator is located in the reporting particle.

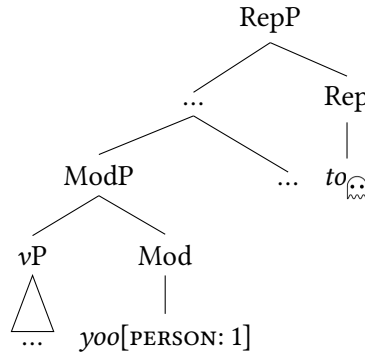


Figure 2: *yoo* complement and indexical shifting

Then, the obligatory *de se* construal is due to indexical shifting, since it has been shown that the first person pronoun of Zazaki, when shifted, must be interpreted as a self-ascription by the matrix subject. Observe:⁶

- (14) Zazaki's indexical shift (Anand 2006: 79)

Heseni va [kɛ ɛz newɛsha.]

Hesen.OBL said that I be.sick.PRES

'Hesen said that he was.'

- a. Hesen says, "I am sick today."
- b. # Hesen, at the hospital for a checkup, happens to glance at the chart of a patient's blood work. Hesen, a doctor himself, sees that the patient is clearly sick, but the name is hard to read. He says to the nurse when she comes in, "This guy is really sick."

⁵Sudo (2012) observes that indexical shifting is optional. However, his discussion is based on the shifted indexicality of the 1st person pronoun, and its shiftability is controversial; see Sauerland & Yatsushiro (2014) and Shimamura (2018) for a detailed discussion on this.

⁶However, see Deal (2020) for the cases where indexical shifting does not lead to the obligatory *de se* interpretation.

Turning to the “one-clause up” requirement, the locus of the reporting particle accounts for the impossibility of long-distance antecedents. That is, since indexical shifting via *to* in (13) is implemented relative to Hiroshi’s context, it is impossible to have the silent subject interpreted relative to the matrix subject, to the extent that the former is identical to Hiroshi, the most natural interpretation.

Then, what is the silent subject? I suggest that it is a silent pronoun, *pro*, readily available in the Japanese grammar. In the default cases of subject-control-like examples i.e. (6), the attitude holder of the shifted *yoo* and the embedded agent should be regarded as identical, so that we apparently get the obligatory *de se* reading. However, as we saw above, the agent does not have to be identical to the attitude holder, and such being the case, it is like a command. For instance:

- (15) Yamada sensei-wa Taroo₁-ni [*e*₁ motto ronbun-o kak-oo-to]
 Prof. Yamada-TOP Taro-DAT more paper-ACC write-MOD-REP
 it-ta.
 say-PAST
 Lit. ‘Prof. Yamada told Taro₁ *e*₁ to write more papers.’

This example seems to be a case of obligatory object control, hence the obligatory *de te* reading. Nevertheless, we can come up with the following example:

- (16) Context: Yuta is hosting a party. He hears that a certain waiter named Yusuke is being a nuisance. Yuta tells the nearest waiter, “Yusuke has to go.” Unbeknownst to him, he’s talking to Yusuke.
 Yuuta-wa Yuusuke₁-ni [*e*₁ koko-kara dete-ik-oo-to] it-ta.
 Yuta-TOP Yusuke-DAT here-from leave-go-MOD-REP say-PAST
 ‘Yuta said to Yusuke₁ *e*₁ to leave here.’

This example clearly shows that the pertinent *de te* reading can be absent.

Another example that can be regarded as problematic to the OC approach to the embedded *yoo* is concerned with the sloppy reading under ellipsis. Building on the fact that OC only allows the sloppy reading in the context of ellipsis (Hornstein 1999), Fujii (2006) observes that examples like (17) only support the sloppy reading.

- (17) a. Taroo-wa Ziroo-ni [*e* ie-ni kaer-oo-to] it-ta.
 Taro-TOP Jiro-DAT house-to return-MOD-REP say-PAST
 ‘Taro told Jiro to go home.’
 b. Saburoo-ni-mo da.
 Saburo-DAT-also COP.PRES
 ‘Saburo, too.’ (Lit. Taro also told Saburo [{Saburo/*Jiro} to go home].)

However, we can have another example, where the strict reading is possible (or sounds more natural). As in (18b), the elided doer is most naturally interpreted as Saburo, not his parents since the common sense says that his parents are not supposed to write any papers to get their son's academics right. Note that making a command to a 3rd person individual is possible as in (19); also, see (7) and (8).

- (18) a. Yamada sensei-wa Taroo₁-ni [*e*₁ motto ronbun-o kak-oo-to]
 Prof. Yamada-TOP Taro-DAT more paper-ACC write-MOD-REP
 it-ta.
 say-PAST
 Lit. 'Prof. Yamada told Taro₁ *e*₁ to write more papers.'
- b. Kare-no oya-ni-mo da.
 he-GEN parent-DAT-also COP.PRES
 'His parents, too.' (Lit. Prof. Yamada also told his (Saburo's) parents [Saburo to write more papers].)

- (19) Otaku-no musuko-san-wa motto ronbun-o kak-oo.
 you-GEN son-POL-TOP more paper-ACC write-MOD
 'Your son should write more papers.'

Given the above discussion, the complement clauses in (6) do not host a(n) OC PRO, but the silent subjects are silent pronouns, namely, *pro*.

4 Proposal

The aim of this section is to explain why the examples in (6), repeated here in (20), behave differently for their temporal and subject interpretations.

- (20) a. Kinoo, Taroo-wa [asu syuppatu-si-yoo-to]
 yesterday Taro-TOP tomorrow departure-do-MOD-REP
 {kime/omot}-ta.
 decide/think-PAST
 'Yesterday, Taro {decided to leave/thought about leaving} tomorrow.'
- b. Kinoo, Taroo-wa [(*asu) syuppatu-si-yoo-to]
 yesterday Taro-TOP tomorrow departure-do-MOD-REP
 {kokoromi/si}-ta.
 try/do-PAST
 'Yesterday, Taro tried to leave (*tomorrow).'

To capture the differences under discussion, I propose the two structures in Figures 3 and 4.

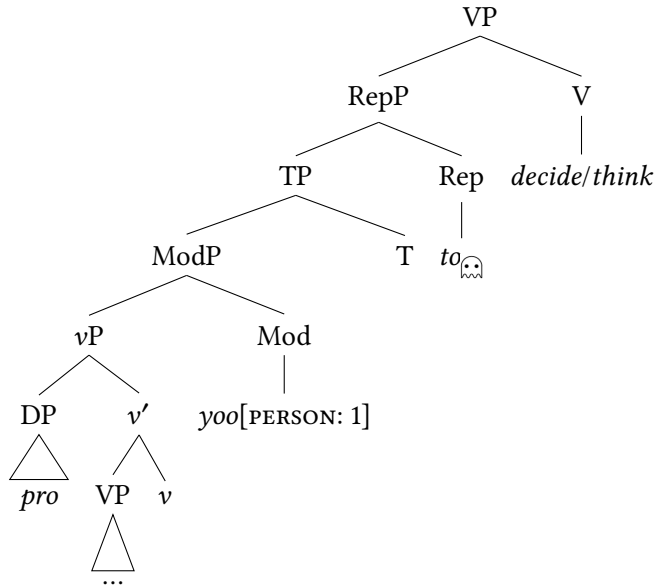


Figure 3: TP-complementation

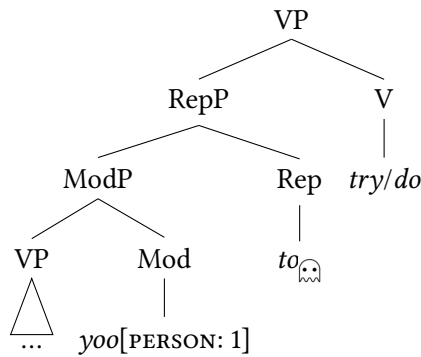


Figure 4: ModP/VP-complementation

In Figure 3, the embedded clause has vP as well as TP, whereas Figure 4 lacks them. Unlike (4a), I assume that TP is present. Note that in Japanese, the finite future can be expressed by the present form if a given verb is eventive, and when

embedded, it is interpreted relative to the matrix reference time (Taro's now in (21)). Observe:

- (21) Taroo-wa [Ziroo-ga koko-ni ku-ru-to] it-ta.
Taro-TOP Jiro-NOM this.place-to come-PRES-REP say-PAST
'Taro said that Jiro would come here.'

Therefore, Japanese is not like English in this respect, but just like English in (3a) it is possible to utter:

- (22) Sensyuu, Taroo-wa [kinoo syuppatu-si-yoo-to]
last.week Taro-TOP yesterday departure-do-MOD-REP
{kime/omot}-te-i-ta.
decide/think-ASP-COP-PAST
'Last week, Taro {decided to leave/thought about leaving} yesterday.'

I thus assume that the future tense is always relative, unlike English (see Ogihara 1995), so the presence of TP is not problematic even for (22).

Also worthwhile to note here is that I do not assume that Rep is a complementizer, contrary to the widely accepted view; see Shimamura (2018) and references therein. For instance, Shimamura discusses a case where non-clausal items like names are embedded:

- (23) a. Kare-wa zibun-no misume-o Aoi-to nazuke-ta.
he-TOP self-GEN daughter-ACC Aoi-REP name-PAST
'He named his daughter Aoi.'
b. *Kare-wa zibun-no misume-{ga/o} Aoi-da-to nazuke-ta.
he-TOP self-GEN daughter-NOM/ACC Aoi-COP.PRES-REP name-PAST
Intended: 'He named his daughter Aoi.'

As in (23b), any property that signalizes a clausal structure is excluded: that is, nominative case, which is assumed to be assigned by the (finite) C-T association (Chomsky 2008), is impossible and the copula cannot appear either. Thus, this means that Rep directly attaches to the name. Note also that this is not a case of direct quotation since we can ask the name as follows:

- (24) Kare-wa zibun-no misume-o nan-to nazuke-ta-no.
he-TOP self-GEN daughter-ACC what-REP name-PAST-Q
'What did he name his daughter?'

Then, the structure in Figure 3 can be considered to be more “biclausal” than that in Figure 4, which is supported by the fact about the Negative Concord Items (NCI); the combination of *wh*-pronouns and *-mo* ‘also’ yields NCIs such as *dare-mo* (who-also) ‘anyone’, which requires the presence of a negation as in (25), and unlike negative polarity items, NCIs need a given negation to be in the same clause where they are located, as shown in (26).

- (25) a. Taroo-wa dare-mo seme-naka-ta.
 Taro-TOP who-also blame-NEG-PAST
 ‘Taro didn’t blame anyone.’
 b. *Taroo-wa dare-mo seme-ta.
 Taro-TOP who-also blame-PAST
- (26) a. Taroo-wa [Ziroo-ga dare-mo seme-naka-ta-to] it-ta.
 Taro-TOP Jiro-NOM who-also blame-NEG-PAST-REP say-PAST
 ‘Taro said that Jiro didn’t blame anyone.’
 b. *Taroo-wa [Ziroo-ga dare-mo seme-ta-to] iw-anakat-ta.
 Taro-TOP Jiro-NOM who-also blame-PAST-REP say-NEG-PAST

Then, consider the following contrast:

- (27) a. Taroo-wa [dare-ni-mo aw-oo-to.]
 Taro-TOP who-DAT-also see-MOD-REP
 {*kime-nakat/?omow-anakat}-ta.
 decide-NEG/think-NEG-PAST
 Lit. ‘Taro didn’t {decide to meet/think about meeting} anyone.’
 b. Taroo-wa [dare-ni-mo aw-oo-to] {?kokoromi/si}-nakat-ta.
 Taro-TOP who-DAT-also see-MOD-REP try/do-NEG-PAST
 Lit. ‘Taro didn’t try to meet anyone.’

In (27a), the NCI cannot be licensed by the matrix negation with *kime*- ‘decide’. Note that *omow*- ‘think’ is relatively fine, but it is a typical neg-raising verb, so it may be irrelevant here. What is crucial is then that the NCI in (27b) is licensed. It is obvious that both *kokoromi*- ‘try’ and *si*- ‘do’ are not neg-raising verbs, yet the NCI is possible. This suggests that the embedded clause in (27a) is smaller than that in (27b).

At this point, the structures in Figures 3 and 4 give us another interesting prediction: that is, the accusative case that is assigned to the embedded object

stems from the embedded verb in Figure 3 and the matrix verb in Figure 4 since an accusative case, by assumption, is assigned by (transitive) *v*, so that long passive should be possible in Figure 4, but not in Figure 3. This prediction turns out to be true as follows:⁷

- (28) a. * Sono kenkyuusya-niyotte sin'yaku-ga umidas-oo-to
 that researcher-by new.medicine-NOM create-MOD-REP
 {kime-rare/omow-are}-te-i-ta.
 decide-PASS/think-PASS-ASP-COP-PAST
 Lit. 'A new medicine had been {decided to create/thought about
 creating} by the researcher.'
- b. Sono kenkyuusya-niyotte sin'yaku-ga umidas-oo-to
 that researcher-by new.medicine-NOM create-MOD-REP
 {kokoromi-rare/s-are}-te-i-ta.
 try-PASS/do-PASS-ASP-COP-PAST
 Lit. 'A new medicine was being tried to create by the researcher.'

Having established that the two *yoo* complements are different in their sizes, we are ready to explain why temporal interpretations and subject (agent) interpretations are different between them. That is, since the *yoo* complement in Figure 3 hosts *T* and *pro*, it is compatible with two independent time adverbs and various kinds of agent interpretations. In contrast, Figure 4 lacks *T* and *pro*, so that it must be temporally simultaneous with the matrix event time, and the agent of the embedded event must be the same as the matrix subject just like *Restructuring* discussed by Wurmbrand (2001).

5 How much structure we need in the *yoo* complement

Before I conclude, I will discuss a couple of empirical issues of the proposed analysis. Although Japanese does not have e.g. clitic climbing, it has scrambling. It is widely known that scrambling out of the proposition complement must be an instance of *A'*-movement (i.e. *A'*-scrambling) (Saito 1992: among many others). In contrast, the situation complement is transparent to *A*-scrambling (Nemoto 1991; but see Takano 2010), so that the event complement should also allow *A*-scrambling from it. This is indeed the case: in (29), the pronoun *soko* 'that place' needs to be *A*-bound by some quantified expression in order to function as a

⁷Some of my language consultants did not like (28b), but they still saw the clear contrast between (28a) and (28b), observing that (28b) is much more acceptable than (28a).

bound variable. In (29a), since it is not A-bound by any quantifiers, the bound variable interpretation is not possible, whereas A-scrambling the embedded object in front of the matrix subject that has the relevant pronoun makes the bound variable reading possible.

- (29) a. *Soko_{*2}-no bengosi₁-ga [e₁ mittu-izyoo-no kigyoo₂-o
that.place-GEN lawyer-NOM 3.CL-more.than-GEN company-ACC
uttae-yoo-to] kime-ta.
sue-MOD-REP decide-PAST
Lit. ‘Their_{*2} lawyers decided to sue [more than three companies]₂.’*
- b. *[Mittu-izyoo-no kigyoo₂-o]₃ soko₂-no bengosi₁-ga [e₁ t₃
3.CL-more.than-GEN company-ACC that.place-GEN lawyer-NOM
uttae-yoo-to] kime-ta.
sue-MOD-REP decide-PAST
Lit. ‘[More than three companies₂]₃, their₂ lawyers decided to sue t₃.’*

Then, it follows that the event complement is also transparent for A-scrambling. For the current discussion, the complement clause of *kokoromi*- ‘try’ and *su*- ‘do’ should be of this kind since it is tenseless/simultaneous.

- (30) a. *Soko_{*2}-no bengosi₁-ga [e₁ mittu-izyoo-no kigyoo₂-o
that.place-GEN lawyer-NOM 3.CL-more.than-GEN company-ACC
uttae-yoo-to] {kokoromi/si}-ta.
sue-MOD-REP try/do-PAST
Lit ‘Their_{*2} lawyers tried to sue [more than three companies]₂.’*
- b. *[Mittu-izyoo-no kigyoo₂-o]₃ soko₂-no bengosi₁-ga [e₁ t₃
3.CL-more.than-GEN company-ACC that.place-GEN lawyer-NOM
uttae-yoo-to] {kokoromi/si}-ta.
sue-MOD-REP try/do-PAST
Lit. ‘[More than three companies₂]₃, their₂ lawyers tried to sue t₃.’*

Now, let us consider the proposed analysis of the control-like construction in Japanese in light of the ICH. As is obvious from Figures 3 and 4, what I have argued is that embedding *yoo* involves reduced clausal complements. Since they are transparent to A-scrambling, it should be that CP is absent (unless we assume that the CP that embeds *yoo* is somehow transparent, and this is like what Uchibori 2000 claims). In contrast, the NCI licensing is different between Figures 3 and 4, and this is another instance of the ICH effect. Also, the differences in the temporal/subject interpretations are also understood in terms of the ICH.

Figure 3 is a situation complement, realized as a TP; Figure 4 is an event complement, which is however realized as a ModP. I assume that modals are relative to an event rather than a world of evaluation (Hacquard 2006), so that it is still possible to have the *yoo* complement tenseless. In a sense, assuming that *yoo* can be with or without T is tantamount to decomposing *will/would* into T and *woll*, although unlike *woll*, *yoo* itself does not contribute to the future interpretation, only expressing the speaker's volition. Anyway, the differences in the temporal/-subject interpretations follow from the size of the complement clause.

However, things are not so simple as we expect; for instance, it is predicted that Figure 3, but not Figure 4, is compatible with an overt embedded subject. Notwithstanding this prediction, my language consultants and I do not see any robust contrast between the 'decide/think' complement and the 'try/do' complement.

- (31) Taro₀₁-wa [yotee-doori-ni zibun₁-ga syuppatu-si-yoo-to]
 Taro-TOP plan-way-COP.INF self-NOM departure-do-MOD-REP
 {kime/omot/?kokoromi/?si}-ta.
 decide/think/try/do-PAST
 Lit. 'Taro₁ {decided self *e*₁ to leave/think of self₁ leaving/tried self₁ to leave} as planned.'

However, the ICH does not say that the event complement must be the Theta domain. Since it is concerned with the minimal structure, such a complement can still be organized as some structure bigger than *vP/VP*. As we have seen, the NCI can be licensed when the selecting verbs are *kokoromi*- 'try' and *si*- 'do'. However, even those verbs seem incompatible with an NCI downstairs and its licensing negation upstairs when the embedded subject is overt.

- (32) Taro₀-wa [(?*zibun₁-ga) dare-ni-mo aw-oo-to]
 Taro-TOP self-NOM who-DAT-also see-MOD-REP
 {?kokoromi/si}-nakat-ta.
 try/do-NEG-PAST
 Lit. 'Taro didn't try to meet anyone.'

Although I would not say that the overt embedded subject renders (32) completely ungrammatical, its presence makes it much harder to accept it. Also, long passive becomes impossible if the embedded subject is overt.⁸

⁸I assume with Sudo (2012) that indexical shifting of pronouns are optional in Japanese.

- (33) a. Taroo₁-wa [yotee-doori-ni kare₁-ga sono sigoto-o si-yoo-to
Taro-TOP plan-way-COP.INF he-NOM that job-ACC do-MOD-REP
] {kokoromi/si}-ta.
try/do-PAST
Lit. 'Taro tried to do the job as planned.'
- b. * [Sono sigoto-ga]₂ Taroo₁-niyotte [yotee-doori-ni kare₁-ga t₂
that job-NOM Taro-by plan-way-COP.INF he-NOM
si-yoo-to] {kokoromi-rare/s-are}-te-i-ta.
do-MOD-REP try-PASS/do-PASS-ASP-COP-PAST
Lit. 'That job was tried by Taro that he would do as planned.'

In a similar vein, some of my informants reported that they can have two independent time adverbs even with *kokoromi*- 'try'/*si*- 'do' as in:

- (34) a. ? Kyoo Taroo₁-wa [yotee-doori-ni asu sono sigoto-o
today Taro-TOP plan-way-COP.INF tomorrow that job-ACC
si-yoo-to] {kokoromi/si}-ta.
do-MOD-REP try/do-PAST
Lit. 'Today Taro tried to do the job tomorrow as planned.'
- b. * Kyoo [sono sigoto-ga]₂ Taroo₁-niyotte [yotee-doori-ni
today that job-NOM Taro-by plan-way-COP.INF
asu t₂ si-yoo-to] {kokoromi-rare/s-are}-te-i-ta.
tomorrow do-MOD-REP try-PASS/do-PASS-ASP-COP-PAST
Lit. 'Today, that job was tried by Taro that he will do tomorrow as planned.'

Although cases like (6b) are bad, (34a) can still sound possible if the intended construal is such that Taro's attempt to arrange something for him to do the job tomorrow was done today. However, long passive is excluded as (34b) shows. In addition, the NCI licensing, as is expected, also becomes impossible:

- (35) * Kyoo Taroo₁-wa [asu dono sigoto-mo si-yoo-to]
today Taro-TOP tomorrow which job-also do-MOD-REP
{kokoromi/si}-nakat-ta.
try/do-NEG-PAST
Lit. 'Today Taro didn't try to do any jobs tomorrow.'

These indicate that even the complement clauses of 'try' verbs in Japanese can have more structure than what is given in Figure 4. However, this is fine under

the ICH, since it is concerned with, as I said, the minimal structure, and the clause size can vary across languages or even within a language (or among speakers of a given language), to the extent that it obeys the ICH (e.g. no situation complement that is organized only in the form of the Theta domain).

6 Conclusion

In this chapter, I have investigated the nature of one specific sentential complementation in Japanese that has been considered to be a case of (OC) control: embedding the modal element, *yoo*. I have argued contrary to the literature that it does not exemplify a case of control, proposing a way to get such a construction via indexical shifting. It has also been argued throughout this chapter that the size of the complement clause can vary in accordance with a given selecting (matrix) predicate. This is captured by the ICH proposed by Wurmbrand & Lohninger (2020). Although their discussion is mainly concerned with data from several European languages, Japanese, as we have seen, nicely fits the relevant generalization, so the validity of it is now reinforced by one of the east Asian languages.

Acknowledgements

This chapter is a “syntactically” extended version of my semantics generals paper submitted to UConn (Shimamura 2015). I thank two anonymous reviewers for comments and suggestions, which improved this chapter a lot. Also, *Danke schön* to Susi, whose inspiration and tutelage during my time at UConn had and still have enormous influence on me, so I dedicate this chapter to her. This research is funded by JSPS KAKENHI (20K13017), so I hereby acknowledge it.

Abbreviations

ACC	accusative	INF	infinitive	PRES	present tense
CAUS	causative	MOD	modal	RECIP	reciprocal
CL	classifier	NOM	nominative	REP	reporting particle
COP	copula	PASS	passive	TOP	topic
GEN	genitive	PAST	past tense		
DAT	dative	POL	polite		

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Chapter 8

Some notes on the scope properties of nominative objects in Japanese

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This chapter aims to provide novel support for a phrasal complementation approach to restructuring phenomena on the basis of an analysis of some novel observations concerning the scope properties of nominative objects in Japanese. It is first shown that nominative objects must take scope under the potential suffix when subjects receive an instrumental case. It is then argued that the obligatory narrow scope of nominative objects under consideration follows from the phrasal complementation approach, which dictates that the nominative object is base-generated below the potential suffix. The observation is difficult to capture with an alternative complex head approach, in which the nominative object is always base-generated above the potential suffix.

1 Introduction

Although there have been several proposals on restructuring (clause union) constructions (see Miyagawa 1987, Saito & Hoshi 1998, Cinque 2006, Wurmbrand 2001, 2015a, 2015b, Bobaljik & Wurmbrand 2005, 2007, Nomura 2005, Takahashi 2011, Shimamura & Wurmbrand 2014, among others), the precise nature of restructuring is still under debate. This chapter aims to provide novel support for the phrasal complementation approach advocated by Wurmbrand (2001, 2015a, 2015b), Bobaljik & Wurmbrand (2005, 2007), Nomura (2005), Takahashi (2011), and Shimamura & Wurmbrand (2014), among others, on the basis of an analysis of novel observations concerning the scope properties of nominative objects in Japanese.



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It has been observed in the literature that while transitive objects in Japanese usually must receive the accusative case, they can receive the nominative case when a transitive predicate is accompanied by a potential suffix (Kuno 1973):

- (1) Kodomo-tati-ga kanzirensyuu-o/*ga tuzuke-ru.
child-PL-NOM kanji.practice-ACC/NOM continue-PRS
'Children continue kanji practice.'
- (2) Kodomo-tati-ga kanzirensyuu-o/ga tuzuke-rare-ru.
child-PL-NOM kanji.practice-ACC/NOM continue-can-PRS
'Children can continue kanji practice.'

The transitive verb *tuzuke* 'continue' in (1) can only assign the accusative case to the object *kanzirensyuu* 'kanji practice.' In addition, when *tuzuke* 'continue' is accompanied by the potential suffix *-rare* 'can', as in (2), the object *kanzirensyuu* 'kanji practice' can receive either the accusative case or the nominative case. Notably, accusative and nominative objects behave differently with respect to scope (see Sano 1985, Tada 1992, Koizumi 1998, 2008, Ura 1999, Yatsushiro 1999, Takano 2003, Nomura 2005, Bobaljik & Wurmbrand 2007, Takahashi 2011, Shimamura & Wurmbrand 2014, Funakoshi & Takahashi 2014, Ochi & Saruwatari 2014, Kasai 2018, among others).

- (3) a. Kodomo-tati-ga kanzirensyuu-dake-o tuzuke-rare-ru.
child-PL-NOM kanji.practice-only-ACC continue-can-PRS
'Children can continue only kanji practice.'
'Children can continue kanji practice without doing any other things.'
(can > only)
'It is only kanji practice that children can continue.'
(?*only > can)
- b. Kodomo-tati-ga kanzirensyuu-dake-ga tuzuke-rare-ru.
child-PL-NOM kanji.practice-only-NOM continue-can-PRS
'Children can continue only kanji practice.'
'Children can continue kanji practice without doing any other things.'
(can > only)
'It is only kanji practice that children can continue.' (only > can)

The verb *tuzuke* 'continue' in (3a) and (3b) is accompanied by the potential suffix *-rare* 'can', and the two examples differ only in the case of the object. Interestingly, while the accusative object in (3a) must take scope under the potential

suffix, the nominative object in (3b) can take scope over the potential suffix.¹ The rest of this chapter elucidates that the scope properties of nominative objects interact with the case of subjects. It is then argued that the observation under consideration provides further credence to the phrasal complementation approach, which dictates that the nominative object is base-generated below the potential suffix (see Wurmbrand 2001, Bobaljik & Wurmbrand 2005, 2007, Nomura 2005, Takano 2011, Funakoshi & Takahashi 2014, Shimamura & Wurmbrand 2014). Conversely, the observation is hard to capture with an alternative complex head approach (Saito & Hoshi 1998), in which the nominative object is always base-generated above the potential suffix.

This chapter is organized as follows. §2 shows that nominative objects must take scope under the potential suffix when a co-occurring subject receives an instrumental case. §3 provides an analysis of the data provided in §2, essentially following Kishimoto (2010) and Shimamura & Wurmbrand (2014). §4 discusses an alternative analysis in terms of the complex head approach and shows that such an analysis has difficulty capturing the data in question. §5 presents further consequences of the proposed analysis, and §6 concludes this chapter.

2 Instrumental subjects and the scope properties of nominative objects

This section provides the core observations discussed in this chapter. In particular, it is shown that nominative objects must take scope under the potential suffix when co-occurring subjects receive an instrumental case. While the above examples all involve nominative subjects, it is well known that Japanese allows several non-nominative subjects (see Kishimoto 2017 for an overview). Below is an example of a subject that receives the instrumental case (see Kishimoto 2005, 2010, Takubo 1984, Inoue 1998):

- (4) a. *Kodomo-tati-ga kanzirensyuu-o tuzuke-ru.*
 child-PL-NOM kanji.practice-ACC continue-PRS (cf. 1)
 b. *Kodomo-tati-de kanzirensyuu-o tuzuke-ru.*
 child-PL-with kanji.practice-ACC continue-PRS
 ‘Children continue kanji practice.’

¹Contrary to earlier works that assume that nominative objects must take scope over the potential suffix (see Tada 1992, Koizumi 1998, Saito & Hoshi 1998, Takano 2003), I assume, in alignment with more recent works, that nominative objects can take scope under the potential suffix (see Nomura 2005, Koizumi 2008, Takahashi 2011, Funakoshi & Takahashi 2014, Ochi & Saruwatari 2014, Kasai 2018). See below for discussion.

While the subject in (4a) receives the nominative marker *-ga*, the subject in (4b) receives *-de*, which is usually employed to mark instruments (e.g., *naifu-de* ‘with a knife’). Following Kishimoto (2005, 2010), I dub subjects that receive *-de* INSTRUMENTAL SUBJECTS.² As shown below, instrumental subjects can appear in the potential construction.

- (5) a. Kodomo-tati-ga kanzirensyuu-o/ga tuzuke-rare-ru.
 child-PL-NOM kanji.practice-ACC/NOM continue-can-PRS (= 2)
 b. Kodomo-tati-de kanzirensyuu-o/ga tuzuke-rare-ru.
 child-PL-with kanji.practice-ACC/NOM continue-can-PRS
 ‘Children can continue kanji practice.’

The transitive verb *tuzuke* ‘continue’ is accompanied by the potential suffix *-rare* ‘can’, and the object can receive either the accusative or nominative case. The subject of this construction can receive either the nominative case, as in (5a), or the instrumental case, as in (5b). Significantly, the scope of nominative objects appears to correlate with the case of the subjects (see Ebina 2020):

- (6) a. Kodomo-tati-ga kanzirensyuu-dake-ga tuzuke-rare-ru.
 child-PL-NOM kanji.practice-only-NOM continue-can-PRS
 ‘Children can continue only kanji practice.’ (= 3b)
 ‘Children can continue kanji practice without doing other things.’
 (can > only)
 ‘It is only kanji practice that children can continue.’ (only > can)
 b. Kodomo-tati-de kanzirensyuu-dake-ga tuzuke-rare-ru.
 child-PL-with kanji.practice-only-NOM continue-can-PRS
 ‘Children can continue only kanji practice.’
 ‘Children can continue kanji practice without doing any other things.’
 (can > only)
 ‘It is only kanji practice that children can continue.’ (?*only > can)

As reported in the literature, the nominative object can take scope over the potential suffix when the former appears with the nominative subject, as in (6a). However, the nominative object must take scope under the potential suffix when the former appears with the instrumental subject, as in (6b). The following section provides an analysis of the contrast between (6a) and (6b), essentially following the analysis of the instrumental subjects proposed by Kishimoto (2010) and the structure of the potential construction proposed by Shimamura & Wurmbrand (2014).

²Instrumental subjects must be plural (see Takubo 1984, Kishimoto 2005, 2010). I thus use plural subjects for all the relevant examples in the text.

3 An analysis

3.1 Instrumental subjects

Kishimoto (2010) makes two important claims about nominative and instrumental subjects, each of which is addressed below:

- (7) a. Nominative and instrumental subjects are genuine “subjects” (i.e., elements in *vP* Spec).³
- b. While nominative subjects move to TP Spec, instrumental subjects do not move to TP Spec.

Regarding (7a), Kishimoto (2010) shows that both instrumental subjects and nominative subjects can be targets of subject honorification (see Harada 1976, Shibatani 1978), which is claimed to target elements in *vP* Spec (see Takano 2011, Kishimoto 2012). Subject honorification is allowed only when the subjects are worthy of respect:

- (8) a. Ito-sensee-ga John-kara hon-o o-uketori-ni-nat-ta.
Ito-professor-NOM John-from book-ACC HON-receive-HON-PST
‘Prof. Ito received a book from John.’
- b. (adapted from Kishimoto 2010: 649)
John-ga Ito-sensee-kara hon-o o-uketori-ni-nat-ta.
John-NOM Ito-teacher-from book-ACC HON-receive-HON-PST
‘John received a book from Prof. Ito.’

Ito-sensee ‘Prof. Ito’ in (8a) is the nominative subject, and the predicate *uketori* ‘receive’ receives a specific morphology for subject honorification (i.e., *o...ni nar*). *Ito-sensee* ‘Prof. Ito’ in this example acts as the target of honorification. In contrast, *Ito-sensee* ‘Prof. Ito’ in (8b) is the source argument and cannot be the target of subject honorification. The only possible target in (8b) is *John*, which usually would not count as a suitable target for honorification. Importantly, instrumental and nominative subjects can be targets of subject honorification.

- (9) a. Sensee-tati-ga o-aruki-ni-nat-ta.
teacher-PL-NOM HON-receive-HON-PST
- b. (adapted from Kishimoto 2010: 649)
Sensee-tati-de o-aruki-ni-nat-ta.
teacher-PL-with HON-receive-HON-PST
‘The teachers walked.’

³See Saito (2006), Takano (2011), and Kishimoto (2012) for the definition of subjects as elements in *vP* Spec. As one reviewer points out, this definition of subjects requires passive and unaccusative subjects to move to *vP* Spec (see Saito 2006, Takano 2011, Kishimoto 2012). It remains to be seen if this definition of subjects holds cross-linguistically.

In (9a) and (9b), *sensee-tati* ‘teachers’ acts as the target of subject honorification, which indicates that agent arguments that receive *-de* are genuine subjects. Assuming that the elements in *vP* Spec function as subjects, Kishimoto (2010) proposes that nominative and instrumental subjects are both base-generated in *vP* Spec:⁴

- (10) [TP [vP SUBJ [vP V]] T]

Regarding (7b), Kishimoto (2010) points out that nominative and instrumental subjects behave distinctly with respect to scope (see Kishimoto 2010 for details). The difference can also be observed in the following examples (cf. Kitaoka 2014):

- (11) a. *Sensee-tati-dake-ga aruk-ana-katta.*
 teacher-PL-only-NOM walk-NEG-PST
 ‘Only the teachers did not walk.’
 ‘It is not the case that only the teachers walked.’ (not > only)
 ‘It is only the teachers that did not walk.’ (only > not)
- b. *Sensee-tati-dake-de aruk-ana-katta.*
 teacher-PL-only-with walk-NEG-PST
 ‘Only the teachers did not walk.’
 ‘It is not the case that only the teachers walked.’ (not > only)
 ‘It is only the teachers that did not walk.’ (*only > not)

The nominative subject in (11a) can take scope over or under negation (see Sakai 2000 and also Kataoka 2006), while the instrumental subject in (11b) must take scope under negation. On the basis of this observation, I assume, in line with Kishimoto (2010), that while nominative subjects move to TP Spec, instrumental subjects stay within *vP* (see Kishimoto 2010 for other arguments):

⁴Here, I assume that subject honorification is an instance of subject agreement (see Ura 1999, Takano 2011, Kishimoto 2012). One reviewer asks why instrumental subjects, which bear *-de*, can be targets of honorific agreement. As the reviewer correctly points out, *-de* ‘with’ is usually classified as a postposition, rather than as a case marker, such as the nominative marker *-ga* and the accusative marker *-o*. Given that PPs in many languages are invisible to (phi-)agreement, it might be puzzling that instrumental subjects can undergo honorific agreement. One approach to this difference is to assume that honorific agreement in Japanese is not conditioned by case (see Kishimoto 2012), while phi-agreement in languages like English is conditioned by case (see Chomsky 2000). As PPs usually do not bear case, phi-agreement with a PP is prohibited in languages like English. By contrast, honorific agreement is not conditioned by case, hence instrumental subjects can be targets of subject honorification. If movement into TP Spec is conditioned by case, it also follows that instrumental subjects fail to undergo subject raising (cf. Kishimoto 2010).

- (12) a. [TP SUBJ_{NOM} [NegP [vP t_i] Neg] T] (= 11a)
 b. [TP [NegP [vP SUBJ_{INST}] Neg] T] (= 11b)

The nominative subject in (12a) moves from vP Spec to Spec TP. The subject thus takes scope over Neg at Spec TP or takes scope under Neg at vP Spec via reconstruction. In contrast, the instrumental subject in (12b) stays within vP and obligatorily takes scope under negation.⁵

3.2 Nominative object construction

Shimamura & Wurmbrand (2014) argue that nominative object construction is an instance of *functional restructuring* (cf. Wurmbrand 2001), where the potential suffix directly selects VP-complement.

- (13) [ModP [_{can}P SUBJ [vP OBJ V] *can*] Mod]

Here, the subject is base-generated as an argument of the potential suffix (indicated as *can*), and the object is selected by the verb. Furthermore, Shimamura & Wurmbrand (2014) suggest that the potential suffix moves to the Mod(al) head for modal force. I assume (i) that the potential suffix cannot assign the accusative

⁵Two reviewers ask how cases like the following that concern “predicate fronting” (see Hoji et al. 1989) can be made consistent with the analysis developed in the text (one reviewer provided the version of (i.b) that involves the instrumental subject) :

- (i) a. Kodomo-tati-ga/de kanzirensyuu-o tuzuke-sae-su-ru.
 child-PL-NOM/with kanji.practice-ACC continue-even-do-PRS
 ‘Children even continued kanji practice.’
 b. [_{XP} Kanzirensyuu-o tuzuke-sae]_i kodomo-tati-ga/de t_i su-ru.
 kanji.practice-ACC continue-even child-PL-NOM/with do-PRS

In (i.a), the verb *tuzuke* ‘continue’ is followed by a focus particle *sae* ‘even’, which is, in turn, followed by the verb *su* ‘do’. In (i.b), the phrase that consists of the object *kanzirensyuu* ‘kanji practice’ and the verb (indicated as XP) is moved to the sentence-initial position. If the fronted category is vP and *su* ‘do’ is inserted to support the Tense morpheme (see Yatsushiro 1999), then it is unclear why the instrumental subject, which must stay within vP, is not included in the fronted category. However, we can understand the acceptability of (i.b) if we assume that the fronted category in (i.b) is not vP but VP (see Kitaoka 2014, Funakoshi 2020); as the VP does not involve the subject (vP Spec), the instrumental subject (as well as the nominative subject) are not included in the fronted constituent. Alternatively, we can assume with Saito (2006b) that *su* ‘do’ is a main predicate that can take a nominalized VP due to the attachment of *sae* ‘even’. The fronted XP in (i.b) under this analysis is the nominalized VP complement, which also excludes the instrumental subject (as well as the nominative subject), which are external arguments.

case to the object and (ii) the nominative object and the nominative subject are case-licensed by Tense via Multiple Agree (see Ura 1999, Hiraiwa 2001, 2005, Takahashi 2011); I set aside the movement of the nominative phrases for the moment.⁶

- (14) [TP [ModP [_{canP} SUBJ_{NOM} [VP OBJ_{NOM} V] *can*] Mod] T]
-

3.3 Putting all the pieces together

Let us now consider how the above assumptions work together. The contrast that must be accounted for is given below:

- (15) a. Kodomo-tati-ga kanzirensyuu-dake-ga tuzuke-rare-ru.
 child-PL-NOM kanji.practice-only-NOM continue-can-PRS
 ‘Children can continue only kanji practice.’ (= 6a)
 ‘Children can continue kanji practice without doing any other things.’
 (can > only)
 ‘It is only kanji practice that children can continue.’ (only > can)
- b. Kodomo-tati-de kanzirensyuu-dake-ga tuzuke-rare-ru.
 child-PL-with kanji.practice-onlyNOM continue-can-PRS
 ‘Children can continue only kanji practice.’ (= 6b)
 ‘Children can continue kanji practice without doing any other things.’
 (can > only)
 ‘It is only kanji practice that children can continue.’ (?*only > can)

While the nominative object can take scope over the potential suffix in the presence of the nominative subject, as in (15a), the nominative object fails to take scope over the potential suffix in the presence of the instrumental subject, as in (15b). Given that the nominative subject moves to TP Spec (see 12a), I propose that the nominative object can move above the potential suffix in the presence of the nominative subject (see Koizumi 1998, Nomura 2005). (15a) is thus analyzed as in Figure 1.

The nominative subject is base-generated in *canP* Spec and moves to TP Spec. The nominative object also moves to TP Spec and takes scope over the potential suffix as the nominative object c-commands the potential suffix after movement.

⁶I assume that nominative case is assigned via (downward) Agree (Chomsky 2000). However, see Shimamura & Wurmbrand (2014) for an analysis based on Reverse Agree (see Wurmbrand 2014 for Reverse Agree). The choice does not affect the discussion in this section.

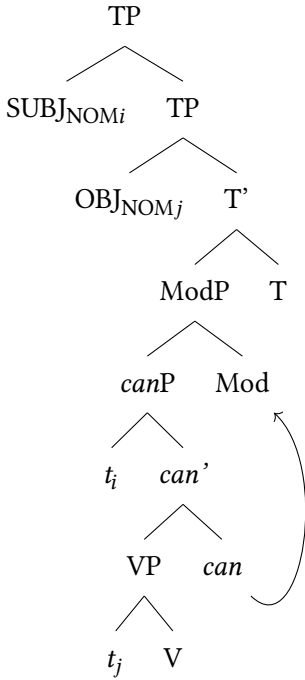


Figure 1: Structure of (15a)

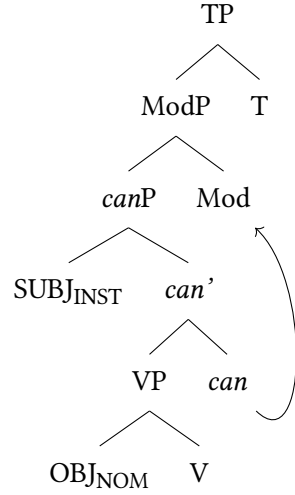


Figure 2: Structure of (15b)

Furthermore, the object can take scope under the potential suffix via reconstruction.⁷

Let us now consider the case in which the nominative object co-occurs with the instrumental subject (15b). Given that the instrumental subject in transitive sentences stays within vP (12b), I propose that the instrumental subject in the potential construction stays within *canP*. This entails that the nominative object in (15b), which follows the nominative subject, stays within the VP (Figure 2).

Given that the instrumental subject stays within the *canP*, the nominative object, which is clearly located below the subject, stays within the VP in Figure 2. I assume that quantified elements, including NPs with the focus particle *dake* ‘only’, can take scope without movement into a node of type $\langle t \rangle$ (see Blok 2017 for discussion). Thus, the nominative object can be interpreted in its base-generated position.⁸

⁷It might be the case that the nominative object stays within the VP for narrow scope interpretation (see Nomura 2005, Ochi & Saruwatari 2014).

⁸Note that the nominative object is not forced to stay within the VP complement in the pres-

In sum, I have argued in this section that the obligatory narrow scope interpretation of the nominative object in the presence of the instrumental subject (see 15b) follows if we assume that the nominative object in question must stay within *canP* when the former follows the instrumental subject. Note that the above analysis crucially relies on the phrasal complementation approach to restructuring, which posits a full VP structure below a restructuring predicate (i.e., a potential suffix) and requires the nominative object to be base-generated below the potential suffix. The next section discusses an alternative analysis in terms of the complex head approach and shows that such an analysis fails to capture the contrast between (15a) and (15b).

4 An alternative: Complex head analysis

This section explores a major alternative analysis of restructuring phenomena in terms of the complex head approach and how the analysis fares with the observations made in this chapter. In the complex head approach proposed by Saito & Hoshi (1998), the potential suffix and the embedded predicate form a single complex head when the embedded object receives nominative case, which is assumed to be assigned by the potential suffix (Kuno 1973). In this analysis, all arguments (and adjuncts) that are associated with the embedded predicate are base-generated above the complex head. The analysis thus assigns an identical

ence of an instrumental subject; rather, the nominative object can be positioned above the instrumental subject via “overt movement,” in which case the former can take scope over the potential suffix:

- (i) a. [_{canP} Kodomo-tati-de [_{VP} kanzirensyuu-dake-ga tuzuke]-rare]-ru.
 child-PL-with kanji.practice-only-NOM continue-can-PRS
 ‘Children can continue only kanji practice.’
 ‘Children can continue kanji practice without doing other things.’ (can > only)
 ‘It is only kanji practice that children can continue.’ (?*only > can) (= 15b)
- b. [_{TP} Kanzirensyuu-dake_i-ga [_{canP} kodomo-tati-de [_{VP} t_i tuzuke]-rare]-ru].
 kanji.practice-only-NOM child-PL-with continue-can-PRS
 ‘Children can continue only kanji practice.’
 ‘Children can continue kanji practice without doing other things.’ (can > only)
 ‘It is only kanji practice that children can continue.’ (only > can)

In (i.b), the nominative object is moved to the sentence-initial position, which I assume to be TP. The nominative object in this example can take scope over the potential suffix. Given that Japanese has scrambling (Saito 1985), the movement in question may be scrambling. Alternatively, given that Tense assigns case to the nominative object, the nominative object may undergo raising to TP Spec. I leave the choice open here.

structure to the nominative object construction with the nominative subject (see 15a) and that with the instrumental subject (see 15b), as shown in Figures 3 and 4.

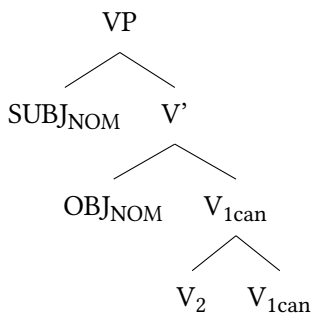


Figure 3: Structure of (15a) in complex head analysis

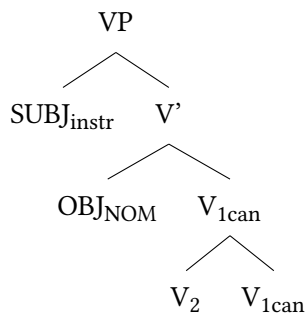


Figure 4: Structure of (15b) in complex head analysis

Figures 3 and 4 verify that the structure of the nominative object construction is the same regardless of the case of the subject: the nominative object is always base-generated above the potential suffix. Figures 3 and 4 thus predict that the scope property of the nominative object should not be affected by the case of the subject. Saito & Hoshi (1998) assume (i) that the scope of the potential suffix is determined by the lower segment of the $[V1, V1]$ and (ii) that the potential suffix as a whole (i.e., $[V1, V1]$) dominates the lower segment of the potential suffix (i.e., $V1$). The nominative object thus asymmetrically c-commands the lower segment of the potential suffix. The analysis therefore predicts that the nominative object in Figures 3 and 4 should always take scope over the potential suffix. Consequently, it would be difficult to capture the reason the scope of the nominative object depends on the case of the subject.⁹

⁹The contrast between (15a) and (15b) also raises a question regarding an approach that posits the covert movement of a quantifier for the wide scope interpretation of the nominative object (see Bobaljik & Wurmbrand 2007, Takahashi 2011, Funakoshi & Takahashi 2014). Note that Blok (2017) claims that while type mismatch is resolved via type shifting, scope shifting is yielded by quantifier raising. We would then expect that the nominative object (or the focus particle *dake* ‘only’) could covertly move to a position above the potential suffix (I thank one reviewer for pointing this out). Given the unambiguity of (15b), we might have to conclude that the relevant covert scope shifting operations are indeed absent in Japanese, in which case we are led to reconsider some observations that are understood in terms of covert scope shifting operations in Japanese (see Takahashi 2011, Bobaljik & Wurmbrand 2012, Oku 2018).

5 Further considerations

This section considers some consequences of the analysis developed in §3. First, further examinations of relevant examples lead us to one important interpretive property of the potential suffix. The structure of the nominative object construction with the nominative subject (see Figure 1) and with the instrumental subject (see Figure 2) is given in Figures 5 and 6, respectively.

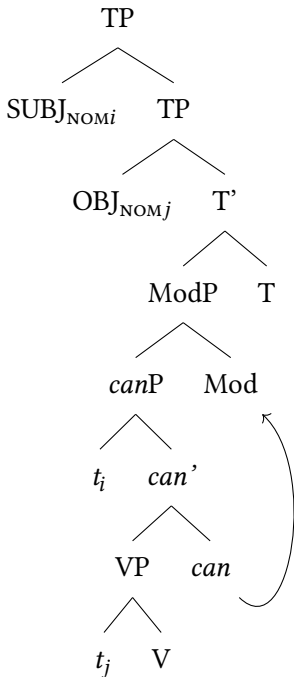


Figure 5: Nominative subject (see Figure 1)

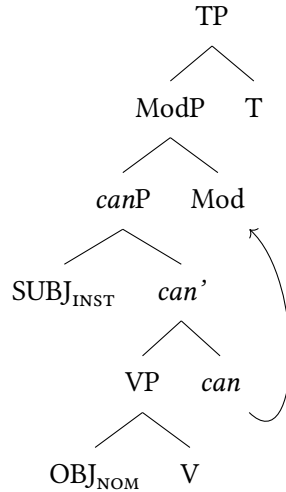


Figure 6: Instrumental subject (see Figure 2)

The nominative subject in Figure 5 c-commands the potential suffix after the subject movement and is c-commanded by the potential suffix before the subject movement. The instrumental subject in Figure 6 c-commands the potential suffix before movement of the latter and is c-commanded by the raised potential suffix. Therefore, it may be predicted that the nominative and instrumental subjects can take scope over or under the potential suffix. However, the following examples show that both types of subject interact with the potential suffix unambiguously:

- (16) a. Kodomo-tati-dake-ga kanzirensyuu-ga tuzuke-rare-ru.
 child-PL-only-NOM kanji.practice-NOM continue-can-PRS
 ‘Only children can continue kanji practice.’
 ‘Children can continue kanji practice without other people around.’
 (*can > only)
 ‘It is only children who can continue kanji practice.’ (only > not)
- b. Kodomo-tati-dake-de kanzirensyuu-ga tuzuke-rare-ru.
 child-PL-only-with kanji.practice-NOM continue-can-PRS
 ‘Children can continue only kanji practice.’ (= 6b)
 ‘Only children can continue kanji practice.’
 ‘Children can continue kanji practice without other people around.’
 (can > only)
 ‘It is only children who can continue kanji practice.’ (*only > not)

While the nominative subject in (16a) necessarily takes scope over the potential suffix, the instrumental subject in (16b) takes scope under the potential suffix. I assume that the obligatory wide scope interpretation of the nominative subject in (16a) reduces to a well-known observation in the literature that sentence-initial nominative phrases must receive exhaustive-listing interpretation when a predicate is individual-level (see Kuno 1973). The obligatory narrow scope interpretation of the instrumental subject in (16b) follows if the potential suffix is interpreted only in its derived position, which asymmetrically c-commands the instrumental subject.¹⁰

Furthermore, the proposed analysis predicts that the nominative object can take scope over the potential suffix when a non-nominative subject moves to TP Spec. This is because when the subject moves into TP Spec, the object that follows the subject can also move into TP Spec. This is illustrated below:

- (17) a. $[_{TP} \uparrow [_{MODP} [_{canP} SUBJ [_{VP} OBJ_{NOM} V] can] Mod] T]$
 * (arrow from SUBJ to OBJ_{NOM})
- b. $[_{TP} SUBJ_i OBJ_{NOMj} [_{MODP} [_{canP} t_i [_{VP} t_i V] can] Mod] T]$
 (arrow from SUBJ_i to t_i)

When the subject stays within canP Spec, the nominative object following the subject must stay within the VP. This is the case of the nominative object with

¹⁰Note that the contrast between (16a) and (16b) provides another argument against complex head analysis; as such analysis requires that the subjects always be base-generated above the potential suffix, it fails to capture the availability of the narrow scope interpretation of the instrumental subject observed in (16b).

the instrumental subject (see 17a). Conversely, when the subject moves into TP Spec, the nominative object can also move into TP Spec. This is the case of the nominative object with the nominative subject (see 17b). We then expect that the nominative object can move into TP Spec when a non-nominative subject moves into TP Spec. This prediction is borne out. In contrast to the instrumental subject, the dative subject can take scope over negation:

- (18) a. Kodomo-tati-dake-de kanzirensyuu-ga tuzuke-rare-na-i.
 child-PL-only-with kanji.practice-NOM continue-can-NEG-PRS
 ‘Only children can’t continue kanji practice.’
 ‘It is not the case that only children can continue kanji practice.’ (not > only)
 ‘It is only children who cannot continue kanji practice.’ (*only > not)
- b. Kodomo-tati-dake-ni kanzirensyuu-ga tuzuke-rare-na-i.
 child-PL-only-DAT kanji.practice-NOM continue-can-NEG-PST
 ‘Only children cannot continue kanji practice.’
 ‘It is not the case that only children can continue kanji practice of kanji.’ (?not > only)
 ‘It is only children who cannot continue kanji practice.’ (only > not)

Although the instrumental subject in (18a) cannot take scope over negation, the dative subject in (18b) can take scope over negation. The contrast indicates that while the instrumental subject stays within *canP*, the dative subject moves into TP Spec, just like the nominative subject (see Ura 1999, Kishimoto 2010):

- (19) a. [_{TP} SUBJ_{NOM/DAT} [_{NegP} [_{CANP} *t_i*] Neg] T] (see 12a)
 b. [_{TP} [_{NegP} [_{CANP} SUBJ_{INST}] Neg] T] (see 12b)

We would then expect that the nominative object that co-occurs with the dative subject can take scope over the potential suffix. This prediction is borne out (see Ura 1999, Takahashi 2011):

- (20) a. Kodomo-tati-de kanzirensyuu-dake-ga tuzuke-rare-ru.
 child-PL-with kanji.practice-only-NOM continue-can-PRS
 ‘Children can continue only kanji practice.’ (= 15b)
 ‘Children can continue kanji practice without doing any other things.’
 (can > only)
 ‘It is only kanji practice that children can continue.’ (?*only > can)

- b. Kodomo-tati-ni kanzirensyuu-dake-ga tuzuke-rare-ru.
 child-PL-DAT kanji.practice-only-NOM continue-can-PRS
 ‘Children can continue only kanji practice.’
 ‘Children can continue kanji practice without doing any other things.’
 (can > only)
 ‘It is only kanji practice that children can continue.’ (only > can)

As we have observed above, the nominative object in (20a), which co-occurs with the instrumental subject, only takes scope under the potential suffix. By contrast, the nominative object in (20b), which co-occurs with the dative subject, can take scope over the potential suffix. The contrast between (20a) and (20b) provides further credence to the current analysis, which dictates that the nominative object can take scope over the potential suffix when the string-vacuous movement of the latter is not blocked by the intervening subject.

In sum, I have discussed some consequences of the analysis developed in the previous sections. In particular, I have shown (i) that the scope of the potential suffix is determined in its derived position and (ii) that nominative objects that co-occur with a non-nominative subject sometimes take scope over the potential suffix.

6 Conclusion

In this chapter, I have provided a new argument for the phrasal complementation approach to restructuring on the basis of some new observations concerning the scope properties of nominative objects in the Japanese potential construction. Specifically, I have shown that the nominative object must take scope under the potential suffix in the presence of the instrumental subject, which the phrasal complementation approach accommodates. In contrast, the observation in question is hard to account for with the complex head approach, which always requires the nominative object to be base-generated above the potential suffix. I have also shown that the wide scope behavior of the nominative object interacts with subject movement on the basis of the analysis of the nominative object that co-occurs with the dative subject.

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Chapter 9

Greek aspectual verbs and the causative alternation

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In this paper we examine a particular type of causative construction in Greek, built on the basis of the verb *matheno* ‘learn’ and aspectual verbs like *arhizo* ‘start’. Focusing on the latter and building on Amberber (1996) and Anagnostopoulou (2001), we will analyze causative constructions involving aspectual verbs as a sub-case of the (anti-)causative alternation. We will further propose to correlate this with the fact that aspectual verbs in Greek have been shown to be ambiguous between control and raising interpretations, following Mourounas & Williamson (2019). Finally, we speculate that the cross-linguistic variation between Greek and English can be attributed to the cross-linguistic availability of the conative alternation.


1 Introduction

In this paper, we investigate a certain type of causative construction in Greek, recently discussed in Anagnostopoulou & Sevdali (2020). These are built on the basis of the verb *matheno* ‘learn’ and aspectual verbs like *arhizo* ‘start’, *ksekinao* ‘start’ and *sinehizo* ‘continue’ and are illustrated in (1) and (2):

- (1) a. I Maria emathe dhisko/dhiskovolia.
 The Mary.NOM learned discus.ACC
 ‘Mary learned discus.’
- b. O proponitis emathe tis Marias / tin Maria
 The trainer.NOM learned the Mary.GEN the Mary.ACC
 dhisko/dhiskovolia.
 discus.ACC
 ‘The trainer taught Mary discus.’



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- (2) a. I Maria arhise Aglika.
 The Mary.NOM started English.ACC
 ‘Mary started (to learn) English.’
- b. Tha { tis / tin } arhiso { tis Marias / tin Maria }
 FUT CL.GEN CL.ACC start.1SG the Mary.GEN the Mary.ACC
 Aglika.
 English
 ‘I will make Mary start (to learn) English.’

In this paper, we will focus on (2), the examples with aspectual verbs. Building on insights in Amberber (1996) and Anagnostopoulou (2001) on ingestive predicates, e.g. *eat* but also *learn*, we will analyze the alternation in (2) as a sub-case of the (anti-)causative alternation, cf. Levin (1993), and Mourounas & Williamson (2019). This will straightforwardly explain why such examples encode causative semantics. Specifically, we will consider (2a) a dyadic anticausative predicate, and (2b) the causative variant thereof. According to Amberber (1996) and Anagnostopoulou (2001), the unexpected behavior of ingestive verbs has to do with the fact that the goal argument is interpreted as an Agent, when no external argument is present. We will show that (2) is an ingestive structure and thus subject to the same principle. In (2a) the goal argument is interpreted as an Agent, as there is no external argument present. This is not the case in (2b), where the external argument is present. While (2a) is transitive on the surface, it does not behave like a typical transitive verb, as it cannot undergo passivization. On this view, (2b) is a causative construction in which the subject is the cause of the initial sub-event of a Mary learning English event, and (2a) is its anticausative variant. Following Mourounas & Williamson (2019), we will propose to correlate this with the fact that aspectual verbs in Greek have been shown to be ambiguous between control and raising interpretations (Alexiadou & Anagnostopoulou 1999, Roussou 2009, Alexiadou et al. 2010, 2012, 2014), just as in English. In previous work, we argued that aspectual verbs in Greek form restructuring-type biclausal domains via a Long Distance Agree chain between the matrix and the embedded, semantically null, T with fully specified φ -features. This forces coindexation between the matrix and the embedded subject and Obligatory Backward or Forward Control and Raising/Long Distance Agreement phenomena. Following Mourounas & Williamson (2019), we will propose that aspectual verbs have a single lexical entry for both subjunctive and nominal complements. (2b) is in fact similar to Grano’s (2016) example *John started Bill smoking* and provides evidence against the claim that aspectual verbs do not permit overt subjects in their non-finite

complements (cf. Grano's (2016) *overt embedded subjects* generalization). As we take the examples in (2) to involve ingestive predicates, we will conclude that the cross-linguistic variation between Greek and English can be attributed to the cross-linguistic availability of the conative alternation. English allows the counterpart of (2b) if the theme argument is introduced via a PP; Greek does not have a systematic conative alternation and, therefore, it does not require a PP in constructions comparable to that in (2b).

2 The anticausative alternation with Greek aspectual verbs

As is well known, in English and in Greek verbs like *break* or *open* undergo the causative alternation:

- (3) a. John broke the window.
b. The window broke.
- (4) a. O Janis anikse to parathiro.
The John opened.3SG the window.ACC
'John opened the window.'
b. To parathiro anikse.
The window.NOM opened.3SG
'The window opened.'

One diagnostic to distinguish anticausatives from passives discussed at length in Alexiadou et al. (2015), building on Levin & Rappaport Hovav (1995), is the availability of the *by-itself* modifier. While anticausatives allow the *by-itself* phrase, passives disallow it. Alexiadou et al. (2015) argue that this relates to the *no particular cause* interpretation associated with the *by-itself* phrase in English and its counterparts across languages. This is incompatible with the interpretation of the passive, which implies the presence of an external argument. By contrast, English passives, but not anticausatives, allow agentive *by*-phrases:

- (5) a. The window was broken *by itself/by John.
b. The window broke by itself/*by John.

Mourounas & Williamson (2019) argue that aspectual verbs undergo the causative alternation in English, as they do not tolerate agentive *by* phrases as opposed to the passive variant, see (6):

- (6) a. The official began the London marathon.
 b. The London marathon began.
 c. The London marathon was begun by the official.
 d. The London marathon began (*by the official).

Greek aspectual verbs behave similarly. They form actively marked anticausatives and can be modified by *by-itself*. While *begin* does not have a non-actively marked passive variant, the non-actively marked variant of *stop* is marginally acceptable and is interpreted as passive (7c), similarly to non-actively marked intransitive variants of Greek de-adjectival verbs.¹

- (7) a. O astinomikos stamatisē tin kikloforia.
 The policeman stopped the traffic
 b. I kikloforia stamatisē apo moni tis.
 The traffic stopped by itself
 c. %I kikloforia stamatithike apo tus astinomikus.
 The traffic was stopped by the policemen

We argue that the examples in (2), repeated below, are a further instantiation of the causative alternation, the difference being that (2a) is a dyadic anticausative.²

- (8) a. I Maria arhise Aglika.
 The Mary.NOM started English.ACC
 ‘Mary started (to learn) English.’
 b. Tha { tis / tin } arhizo { tis Marias / tin Maria }
 FUT CL.GEN CL.ACC start.1SG the Mary.GEN the Mary-ACC
 Aglika.
 English
 ‘I will make Mary start (to learn) English.’

¹As Alexiadou et al. (2015) and references therein discuss at length, Greek also has several anticausatives which bear Non-Active morphology. In the case of de-adjectival verbs, the authors point out that the anticausative bears active morphology and the further intransitive variant, which bears Non-Active, is interpreted solely as a passive.

²An anonymous reviewer asks if all aspectual verbs behave alike. In our judgement, they do, but they differ with respect to the realization of the theme argument. With *stamatao* ‘stop’, *sinexizo* ‘continue’, the theme argument must be a DP, and it can’t be a bare NP, unlike the complement of *arhizo* ‘start’ in (8). This is an interesting difference which relates to the fact that there is a presupposition associated with these verbs that a particular event has started. Entities that are known both to the speaker and the hearer are DPs in Greek, see also Footnote 5. With *teliono* ‘finish’, the theme is introduced via the preposition *me* ‘with’.

Support for this comes from the observation that (2a) resists passivization:

- (9) *Ta Aglika arhistikan apo ti Maria.
 The English.NOM started.NACT by the Mary.ACC
 ‘English was started by Mary.’

Building on Anagnostopoulou (2001), in (2b), the DP argument is interpreted as a goal as there is a higher agent present. A characteristic property of (2b) is that the embedded verb is necessarily interpreted as ‘learn’, which describes acquisition of information that may be viewed as a type of ingestion. The existence of examples where the embedded verb can also be ‘eat’ or ‘drink’ in (10) supports the claim that these constructions belong to the broader class of ingestives (Levin 1993: 213–217), construed as ‘taking something into the body or mind (literally or figuratively)’ (Masica 1976: 46):

- (10) a. Tha { tis / tin } arxiso { tis Marias / tin Maria } fruta.
 FUT CL.GEN CL.ACC start.1SG the Mary.GEN the Mary.ACC fruit
 ‘I will make Mary start (to eat) fruit.’
 b. Tha { tis / tin } arxiso { tis Marias / tin Maria } gala.
 FUT CL.GEN CL.ACC start.1SG the Mary.GEN the Mary.ACC milk
 ‘I will make Mary start (to drink) milk.’

Ingestive verbs are known in the literature to display exceptional behavior across languages, a fact which has been related to the observation that the person that consumes e.g. food, liquids (as in *eat* or *drink*) or knowledge (as in *learn*, *study*) not only controls but is also affected by the consumption event. Cross-linguistic evidence suggests that languages treat ingestive verbs differently from ordinary transitive verbs (see Jerro 2019 for a recent summary, cf. Amberber 1996, Jackendoff 1990). In e.g. Amharic these verbs pattern with unaccusatives rather than with transitives with respect to causativization (Amberber 1996). This in turn can be related to the fact that in the presence of an external argument the DP is interpreted as a goal, while in the absence of an external argument, the DP is interpreted as an agent, as suggested in Anagnostopoulou (2001) for *learn*.³ Because of this, (2a) is in principle compatible with agentive adverbials, a fact

³Different implementations of this have been put forth in the literature. Anagnostopoulou (2001) argues that the interpretation of the DP as an agent or a goal depends on the presence of an external argument. Amberber (1996) proposes that in the anticausative structure the Agent and the Goal role are coindexed. Krejci (2012) claims that ingestive verbs are inherent reflexives, an analysis adopted in Jerro (2019). He argues that the subject of *eat* is associated with various entailments that are split across two arguments in *feed*.

that we attribute to the particular interpretation associated with ingestive structures, despite the fact that this argument is not introduced by Voice, the head canonically introducing agents.⁴

With respect to the case patterns exhibited in (2b), Anagnostopoulou & Sevdali (2020) extensively argue that the optionality in the case of the causee argument is only apparent. When the lower direct object is definite, as in examples (11), only the genitive causee is licit; the accusative one is ungrammatical.

- (11) a. Pjos {^{ok}tis / *tin } emathe {^{ok}tis Marias / *tin
Who ^{ok}CL.GEN *CL.ACC learned ^{ok}the Mary.GEN *the
Maria } ta Aglika?
Mary.ACC the English?
'Who taught Mary the English language?'
- b. Tha {^{ok}tis / *tin } arhiso {^{ok}tis Marias / *tin
FUT ^{ok}CL.GEN *CL.ACC start.1SG ^{ok}the Mary.GEN *the
Maria } ta Aglika.
Mary.ACC the English
'I will make Mary start (to learn) English.'

The case of the causee argument is thus sensitive to the realization of the lower object: when this object is a definite DP, the causee must be genitive. It is only in the presence of a lower bare NP, as in (1) and (2) that both cases are possible.⁵ Anagnostopoulou & Sevdali (2020) argue at length that the above described case distribution can be naturally accounted for if genitive case in Greek is dependent case upward which is assigned in the vP domain in opposition to a lower DP while accusative case is dependent case downward assigned in the TP domain in opposition to a higher DP. When the lower object is a bare NP it only optionally counts as a case competitor for the assignment of dependent genitive. Genitive is assigned when the lower NP counts as a case competitor and accusative (dependent case in opposition to the external argument) is assigned

⁴Many thanks to an anonymous reviewer for pointing this out to us.

⁵An anonymous reviewer asks if it is the DP vs. NP distinction that is crucial here or the definite/non-definite distinction, as one could think of English as definite (proper name like) even in the absence of a determiner. In Greek, unlike in English, proper names necessarily appear with a determiner. Alexopoulou & Folli (2011, 2019) have argued that Greek definite determiners are not expletive when they appear with proper names, but rather have a semantic effect. It brings about an interpretation, according in which the noun is known both to the speaker and the hearer. The same reviewer asks if the anticausative of (12) is possible in Greek, which it is.

when it doesn't. This conclusion is reinforced by the observation that when the lower argument is a PP, which does not count as a case competitor, the higher one must bear accusative case and cannot have dependent genitive, as shown in (12).

- (12) Pjos { *tis / ^{ok}tin } emath-e { *tis Maria-s / ^{ok}tin
 Who *CL.GEN ^{ok}CL.ACC learn-PST.3SG *the Maria-GEN ^{ok}the
 Maria } s-ta narkotika?
 Maria.ACC to-the drugs.ACC?
 'Who got Maria addicted to drugs?'

The final point that we would like to make with respect to aspectual verbs is that they can also take subjunctive complements and in this case they have been argued to be ambiguous between control and raising interpretations, see Alexiadou & Anagnostopoulou (1999) and Roussou (2009). Unlike English, Greek lacks infinitival complements: sentences that correspond to infinitivals in English are introduced by the subjunctive particle *na*. Agent-oriented adverbs are possible with aspectual verbs and they necessarily have matrix scope, as shown in (13). Moreover, they form imperatives, as shown in (14):

- (13) a. Epitidhes arhisa na magirevo stis 5.00.
 on purpose started.1SG SUBJ cook.1SG at 5.00
 'I started on purpose to cook at 5:00.'
- b. Epitidhes stamatisa na perno ta farmaka.
 on purpose stopped.SG SUBJ take.1SG the medicine
 'I stopped on purpose to take medication.'
- (14) a. Arhise na diavazis!
 Start.2SG SUBJ read.2SG
 'Start reading!'
- b. Stamata na kapnizis!
 Stop.2SG SUBJ smoke.2SG!
 'Stop smoking!'

On the basis of idiomatic expressions, Alexiadou & Anagnostopoulou (1999) show that aspectual verbs can be raising verbs. In Greek, fixed nominatives as part of idiomatic expressions occur in postverbal position.

- (15) a. Mu bikan psili st'afia.
 CL.1SG.GEN entered.3PL fleas.NOM in the ears
 'I became suspicious.'

- b. * Psili mu bikanst'aftia.

Examples like (15a) can be embedded under *arhizo* and *stamatao*. The subject in the embedded clause agrees with the embedded and the matrix verb:

- (16) Stamatisan / arhisan na mu benun psili
 Stopped.3PL started.3PL SUBJ CL.1SG.GEN enter.3PL fleas-NOM.PL
 st'aftia.
 in the ears
 'I stopped being/started becoming suspicious.'

In (16) the nominative depends on the lower verb for its interpretation and yet it agrees with both verbs obligatorily. Lack of agreement, leads to ungrammaticality, as shown in (17):

- (17) *Stamatisen / arhisen na mu benun psili
 Stopped-3SG started-3SG SUBJ CL.1SG.GEN enter-3PL fleas-NOM
 st'aftia.
 in the ears
 'I stopped being/started becoming suspicious.'

Alexiadou & Anagnostopoulou (1999) point out that the fact that agreement between the subject and the matrix verb is obligatory, is an argument that these constructions display Agree without movement. They conclude that aspectual verbs are ambiguous between a control and a raising interpretation, see also Roussou (2009).⁶

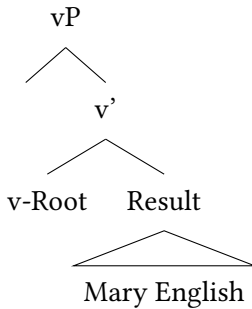
3 Towards an analysis

Following Mourounas & Williamson (2019), we propose that there is a single lexical entry associated with both subjunctive and nominal complements of aspectual verbs. Adopting the analysis proposed in Alexiadou et al. (2015), we assign the structures in (18) to anticausative and causative variants of aspectual verbs in Greek. Greek sentences like (2a) have an anticausative analysis, (18a). The

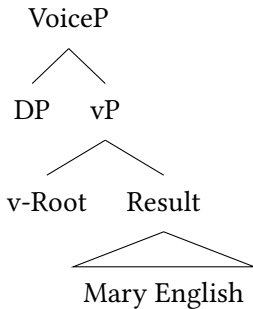
⁶An anonymous reviewer points out that the behavior of *arhizo* that we describe here is reminiscent of other embedding verbs that have been argued to alternate between a causative and a non-causative meaning, depending on whether the embedded verb is controlled or not, e.g. *prospatho* 'try'. An attempt to relate the behavior of *prospatho* to our alternation here would bring us too far afield.

subject DP originates in the ResultP, which can be seen as a small clause consisting of the subject and a DP which has a coerced event interpretation ('English' understood as 'learn English'). The subject of the small clause undergoes 'raising' entering Agree with T. On the other hand, (18b) is the causative counterpart which projects a Voice above the v+Root combination introducing an external argument. The subject DP in (18b) enters Agree with T and 'Mary' receives either dependent genitive or dependent accusative depending on the nature of the lower DP (NP or DP or PP).

- (18) a. *anticausative begin*: Greek *Mary started English* (comparable to 'Mary started the journey', 'Mary started smoking' in English)



- b. *causative begin*: Greek *I started Mary English* (comparable to 'I started John smoking' in English)



Building on Mourounas & Williamson (2019), we correlate the anticausative structure of aspectual verbs with the raising interpretation, while the causative structure with the control interpretation, as in (19):

- (19) a. *anticausative begin, TP compl. raising*
 $[T\varphi_k [_{vP} [_{RootP} \text{start/ stop} [_{MoodP} \text{na} [_{TP} T\varphi_k DP\varphi_k]]]]]$
- b. *causative begin, TP compl. control*
 $[T [_{VoiceP} DP [_{vP} [_{RootP} \text{start/ stop} [_{MoodP} \text{na} [_{TP} [_{VoiceP} PRO]]]]]]]$

In (19a), the raising structure, no Voice is projected above matrix VP (the Root + v combination) and the embedded subject undergoes Raising or enters Long Distance Agreement with the matrix T. On the other hand, Voice is present above the matrix DP introducing a matrix subject which enters an obligatory control relation with a null PRO embedded subject. Mourounas & Williamson (2019), building on Wurmbrand (2001, 2002, 2014), assume that in languages with infinitives like English, complements of aspectual verbs are vPs which lack a TP component. This is not the case in Greek which provides evidence for the presence of a semantically empty T head and a Mood head occupied by the subjunctive particle *na*, see Alexiadou & Anagnostopoulou (2021).

In the above sketched system, the control analysis of aspectuals is captured by the presence of VoiceP in the matrix clause. By contrast, the raising analysis is captured by the fact that these verbs undergo causative alternation and their intransitive variants lack Voice. This naturally provides an explanation for the causative interpretation associated with aspectual verbs observed in (2b) and for the alternation between (2a) and (2b) which originates in the presence of an external argument in the causative construction (2b) and its absence in the (anti-)causative (2a).

Before closing this squib, we briefly address two questions. First, why is it that aspectuals in Greek may license ECM with small clauses of the type illustrated in (2b) but not with full clausal complements (20b), and why is it that (20a) is grammatical but (20b) is not?

- (20) a. I Maria arhise na matheni Aglika.
The Mary.NOM started-3SG SUBJ learn.3SG English
'Mary started to learn English.'
- b. *Arhisa tin Maria na matheni Aglika.
started.1SG the Mary.ACC SUBJ learn.3SG English

Second, what explains the fact that constructions like (2a) and (2b) are possible in Greek but not in English?

With respect to the first question, we will follow Grano (2016) and Mourounas & Williamson (2019), who propose that the semantics of subject-introducing infinitives are interpretable incompatible with the lexical semantics of aspectual verbs. ECM infinitives (whether they are CPs introduced by 'for' or TPs) necessarily encode modality (Kratzer 2006, Moulton 2009, Grano 2016), and they are uninterpretable when combined with non-modal eventualities such as those introduced by aspectual verbs. As a result of this, only non-modal properties of

eventualities may serve as interpretable restrictors of the event variable introduced by aspectual verbs. We will adopt this analysis and will assume that it also applies to ECM subjunctives. In the Greek small clause constructions under discussion of the type seen in (2b) as well as in examples like ‘I started John smoking’ in English, there is no modal operator blocking embedding under aspectuals, and the relevant constructions are licit. Similarly, raising infinitives as in (20a) do not encode modality.

With respect to the second question, we note that even in English it is possible to construct (2), however in the transitive variant the DP argument is introduced by *on*, see Levin (1993):⁷

- (21) a. Mary started English in the third grade.
b. John started Mary on English.

We tentatively propose that *on* is required to license an aspectual interpretation signaling continuation and that this should be linked to the conative alternation in English which, according to Levin (1993: 42) “expresses an “attempted” action without specifying this action was actually carried out”. Usually the PP employed in the intransitive conative variant is headed by *at* but, interestingly, sometimes *on* surfaces with certain verbs of ingesting, as pointed out by Levin (1993):

- (22) a. The mouse nibbled the cheese.
b. The mouse nibbled at/on the cheese.

We would like to speculate that the *on* seen in (21b) is a trace of the conative construction. Greek does not have a systematic conative alternation and, therefore, it does not require a PP in constructions comparable to (21b). The issue awaits further research.

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⁷We are grateful to an anonymous reviewer for bringing these examples to our attention.

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Chapter 10

Tales of an unambitious reverse engineer

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This paper suggests a non-standard explanation for the limited range of semantics available to constructions in which certain elements of a normal finite TP are phonologically absent. These include English AUX-drop questions (Fitzpatrick 2006) and infinitival clauses (Wurmbrand 2014), where the proposal suggests an answer to some particularly vexing questions arising from the derivational (“exfoliation”) theory of infinitivization that I have advanced elsewhere (Pesetsky 2019). The core idea attributes apparent restrictions on the constructions themselves to restrictions on a hearer’s creativity in positing possible identities for material deleted in the speaker’s derivation (with “hearer” understood as an abstract concept, including self-monitoring by the speaker). Specifically, the hearer may consider only the minimally semantic contentful possibilities compatible with the morphosyntactic environment, in obedience to a *principle of unambitious reverse engineering* (PURE).

1 Introduction

Every time I hear a talk by Susi Wurmbrand, discuss syntax with her, or read one of her papers, my view of the world changes. Not only do I learn about new discoveries and novel approaches to complex problems, I myself am inspired to think new thoughts and explore new topics I never thought of exploring. She is one of the great linguists of our time, and it is our privilege to be her contemporaries. She has the important gift of spotting the inner simplicity in ridiculously tangled puzzles, and the equally important gift of discovering new puzzles for all of us, thus making our intellectual lives simultaneously easier and harder (just as a great colleague should). It is my personal good fortune that the two of us



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share several research interests – most notably *finiteness* – which means that I have been especially able to benefit from these gifts of hers.

By an extraordinary coincidence, the invitation to contribute to this volume arrived shortly after I had prepared several of Wurmbrand's recent papers on non-finite complementation for a graduate seminar that I was co-teaching with my colleague Athulya Aravind, and was contemplating writing a paper in direct response to one of these papers. This portion of the seminar was of particular importance to me as the author of recent work (Pesetsky 2019) that argued for a crucially *derivational* theory of finiteness. In this work, I revived the idea originated by Lees (1963) and Rosenbaum (1965, 1967), that non-finite clauses are derived from full and finite clauses in the course of the syntactic derivation, as a response to cross-clausal processes such as raising and control. Could this proposal of mine be reconciled (I wondered) with Wurmbrand's compelling findings about such clauses, which presupposed the opposite view: that non-finite clauses are non-finite from the outset, and have properties (most notably, *tenselessness*) that distinguish them throughout the derivation from their finite counterparts?

A centerpiece of that class was Wurmbrand (2014), a brilliant paper that explores the full range of English non-finite complement clauses formed with *to*, and makes a strong case for their deep *tenselessness*. As I prepared that work for class, however, it seemed to me that there might be a way to retain all the logical threads that Wurmbrand traced from construction to construction in support of her central claim, while reaching a very different conclusion.¹ The origins of the paper that you are reading now can be traced directly to that class and the fruitful discussions it engendered.

In her paper, Wurmbrand argued for the *tenselessness* of English infinitival complements by showing that no matter what element one might propose as the finite counterpart of infinitival tense, the infinitival version differs in its behavior in multiple respects, in ways explainable as consequences of *tenselessness*. I will suggest that a different conclusion is at least equally plausible: that the semantics of tense in the English infinitives studied by Wurmbrand fails to correspond to any single finite counterpart because it actually ranges in principle across the full gamut of possible finite counterparts (as expected if infinitives are derived from finite clauses), behaving in some cases like a present or past modal, in other cases like non-modal present or past tense, and in still other cases (closely following Wurmbrand's discussion) copying its tense value from the embedding verb.

Of course, it is also well-known that the semantics of English infinitival clauses is much more restricted in its possibilities than is the semantics of finite clauses.

¹As noted below, it turned out that this was not the first time this realization had dawned on me, at least for one class of constructions discussed in Wurmbrand's paper.

So while it might be the case that the semantics of infinitival tense does range *in principle* across the full gamut of finite possibilities, in reality, the actual possibilities are tightly constrained. While Wurmbrand argues that these constraints reflect deep tenselessness, I will argue that they are actually extra-grammatical, reflecting strong limitations on the ability of a hearer to “reverse engineer” the derivation behind a speaker’s utterance, precisely when obligatory elements such as tense have been generated but not phonologically interpreted. This explanation for the limitations on the interpretation of infinitival complements, I will suggest, dovetails with an explanation for the properties of a seemingly different puzzle studied by Fitzpatrick (2006), for which he proposed an ingenious but ultimately self-contradictory solution that the approach suggested here resolves. I will also briefly suggest that this “reverse engineering” mode of explanation for the phenomena charted by Wurmbrand suggests new approaches to other phenomena as well.

The data discussed in this paper are almost entirely drawn from Fitzpatrick (2006), Pesetsky (2019), and Wurmbrand (2014). This is thus a “new perspectives” paper, and not a “new empirical discoveries” paper. It is the dovetailing with Fitzpatrick’s puzzles and the proposals that I argued for in Pesetsky (2019) that may argue for my perspective over Wurmbrand’s, not (at least for now) new empirical predictions of the new approach. As I noted at the outset, Wurmbrand’s work does not only teach, it also inspires. I am delighted to offer this paper as a modest but characteristic example.

2 The factative effect in English AUX-drop

2.1 Fitzpatrick’s discoveries

Fitzpatrick (2006) studied a type of yes/no question, common in spoken Standard English, in which the auxiliary verb that is moved to C is omitted. He called this the *AUX-drop* construction:

(1) AUX-drop (English)

- a. Anybody want a hot dog? (= *Does anybody want a hot dog?*)
- b. Anyone seen John today? (= *Has anyone seen John today?*)
- c. Anybody going to the game? (= *Is anybody going to the game?*)
(Fitzpatrick 2006: 400, ex. 1)
- d. Anybody accused of a crime today? (= *Was anybody accused of a crime today?*)

Fitzpatrick provides several arguments that an AUX-drop clause is generated as a full interrogative CP in which an auxiliary verb moves from T to C, just as it does in the more formal non-AUX-drop counterparts given in parentheses above. Fitzpatrick shows first that AUX-drop questions are at least as large as TP, by noting that they may contain negation (*Anybody not like John?*) and higher adverbs (*Everyone probably coming tomorrow?*). A subject pronoun in an AUX-drop question must be nominative (*He here yet?*/**Him here yet*), as expected if the pronoun is a normal subject in a finite T (despite the absence of any overt finite auxiliary verb or exponent of T).

Fitzpatrick then proceeds to show that an AUX-drop question is even larger than TP, and in particular, that it is generated as a full CP, in which an auxiliary verb in T has moved to C. As he notes first, if the interpretation of examples like (1a–d) as yes/no questions relies on semantics crucially provided by an interrogative C (as in most accounts of such questions), an AUX-drop clause must have been generated as a CP. An additional argument rests on the observation that licensing a negative polarity item like *anyone* and *anybody* in examples (1a–d) correlates with movement of AUX to C in less controversial matrix yes/no questions. For example, *how come* differs from its near-synonym *why* in not triggering AUX-to-C movement, and also differs in not licensing NPIs:

(2) *Why* vs. *how come* as NPI licenser

a. Why did you ever give anyone that?

b. *How come you ever gave anyone that?

(Fitzpatrick 2006: 409, adapted from ex. 21)

Likewise, though *You gave him that?* with a rising intonation but no movement of AUX to C may be understood as a question requiring a *yes* or *no* answer (perhaps reflecting a variety of interrogative C that fails to trigger AUX-to-C movement), here too an NPI is not licensed:

(3) AUX-to-C vs. its absence correlates with NPI licensing

a. Did you ever give anyone that?

b. *You ever gave anyone that?

(Fitzpatrick 2006: 409, adapted from ex. 20d–e)

In addition, both AUX-drop and non-AUX-drop yes/no questions show the effects of what is arguably an adjacency requirement preventing an adverb from intervening between the subject and the auxiliary verb that has moved to C, as (4a–b)

show. This requirement (perhaps a case filter effect) is not found when AUX-to-C movement has not taken place, as the embedded question in (4c) shows:²

- (4) AUX-subject adjacency condition with and without AUX-drop
- a. *Is now everyone aware of the problem?
 - b. *Now everyone aware of the problem?
 - c. I wonder whether (now) everyone (now) is aware of the problem.
(Fitzpatrick 2006: 408, adapted from ex. 18–19)

Constructions that arguably require semantic parallelism with a full CP provide additional arguments (not from Fitzpatrick). For example, an AUX-drop question may be disjoined with a negative alternative in which AUX has moved to C, as (5) shows, and may provide an antecedent for null complement anaphora where the non-null version would be a full-CP *whether* question:

- (5) Disjunction with full CP alternative
You give your talk or didn't you?
- (6) Antecedent for null complement anaphora of a *whether* question
- a. You giving your talk tomorrow, or don't you know yet Δ ?
 - b. A: Anyone want coffee?
B: I'll find out Δ .

If these arguments are correct, AUX-drop questions are generated as normal interrogative CPs in which the auxiliary verb moves to C, but some property of the grammar permits the auxiliary verb in C to remain unpronounced.

Fitzpatrick makes several further crucial observations. First, he observes that an auxiliary may be silenced by AUX-drop only if it has raised to C. A declarative clause like *It has given me a headache*, for example, cannot lose its auxiliary: **It given me a headache*. The same is true of an embedded yes/no question in which the auxiliary remains in situ: **I wonder whether Mary written a letter*. Furthermore, AUX-drop is limited to root clauses. The examples in (7) below also show

²Fitzpatrick does not ground either the correlation between NPI licensing and AUX-to-C movement or the AUX-subject adjacency condition in deeper principles, with the result that these arguments might weaken as we learn more about these effects. Note that an embedded yes/no question introduced by *whether* or *if* does license a subject NPI, despite the absence of AUX-to-C, but at the same time permits an adverb to intervene between C and the subject (*I wonder whether/if now everyone is aware of the problem*), a difference between the two diagnostics that will need an explanation.

that movement of AUX to C in the antecedent of a counterfactual conditional, an embedded environment, does not have a variant with AUX-drop. The additional examples in (8) show that when AUX moves to C in an embedded yes/no question, which is possible in informal spoken English (McCloskey 2006), AUX-drop is also impossible.³

(7) AUX-drop only at the root: counterfactual inversion

- a. Had you written a better speech, Sue would probably have won the election.
- b. *You written a better speech, Sue would probably have won the election.
(Fitzpatrick 2006: 409, adapted from ex. 20d–e)

(8) AUX-drop only at the root: T-to-C movement in embedded questions

- a. Each actress wanted to know had she been chosen for the part or not.
- b. *Each actress wanted to know she been chosen for the part or not.

Fitzpatrick concludes that what yields the AUX-drop construction is the *optional non-interpretation by the phonology of the top layer of a fully built syntactic structure*. Though information about the entire structure dominated by the highest TP gets sent to the phonology during the course of the derivation, the contents of the root CP are not. This option makes sense, as Fitzpatrick notes, in the model of phase-by-phase interpretation proposed by Chomsky (2001), according to which the merging of each phrase head triggers phonological interpretation of the phase head's *complement*, as well as semantic interpretation of the complement, to which I return below.

The crucial case for the AUX-drop construction concerns the merger of C, which triggers interpretation of its complement TP. Chomsky's (2001) regime for phase-by-phase interpretation of syntactic structure works hand in hand with the additional hypothesis that constituents interpreted by this process are impenetrable for the remainder of the syntactic derivation. This impenetrability hypothesis both permits and requires apparent instances of extraction from phasal constituents to proceed through the phase edge, merging as a specifier of each phasal head on the path to its final destination.

As Fitzpatrick notes, however, this proposal comes at a cost: the theory must posit a special clean-up rule to interpret the final CP layer at the root. This fact lies at the heart of Fitzpatrick's account of AUX-drop: namely, "that this extra

³The binding of *she* by *each actress* in this pair helps ensure that the yes/no question is normally embedded, and is not a quotation (cf. Fitzpatrick 2006 p. 420 fn. 24).

operation need not apply in all cases, and that AUX-drop is one case where it fails to apply.” This proposal, however, raises serious questions concerning semantic interpretation. These questions embroil Fitzpatrick’s account in a contradiction for which this paper suggests a new resolution. It is this resolution, in turn, that will serve as a model for a reinterpretation of Wurmbrand’s (2014) findings concerning the tense properties of English infinitives.

Fitzpatrick discovered a remarkable semantic property of AUX-drop that makes immediate sense if phonological and semantic interpretation apply together as a unit (Chomsky’s 2004 rule of “TRANSFER”). In particular, AUX-drop sentences show a phenomenon made famous by Déchaine (1991), which she called the *factative effect* (adapting terminology from Africanist linguistics credited to Welmers 1973, 346). In some languages, a clause may lack overt tense marking but nonetheless be interpreted as tensed. Crucially, how tense is understood in such clauses depends on whether its main predicate is eventive (episodic) or non-eventive (e.g. stative). If the predicate is non-eventive, the tense is understood as PRESENT, but if it is eventive, the tense may or must be understood as PAST. The contrast in (9) demonstrates the factative effect in Haitian declarative clauses. Fitzpatrick cites additional examples from Fòngbè, Yoruba, and Igbo. Example (10) illustrates Fitzpatrick’s key discovery: a similar effect at work in the English AUX-drop construction:

(9) Factative effect: Haitian Kreyòl

- | | | |
|----|--|--------------------------------------|
| a. | Pyè vann bèf yo.
Pyè sell cattle DET
‘Pyè sold the cattle.’ | <i>eventive</i> → <i>past</i> |
| b. | Sisi renmen chat mwen.
Sisi like cat my
‘Sisi likes my cat.’ | <i>non-eventive</i> → <i>present</i> |

(10) Factative effect: English AUX-drop

- | | | |
|----|--|--|
| a. | You sell that cattle?
‘Did you sell that cattle?’ | <i>eventive</i> → <i>past</i> |
| b. | You like my cat?
‘Do you like my cat?’ | <i>non-eventive</i> → <i>present</i>
(Fitzpatrick 2006: 414, ex. 27a–d) |

Following Déchaine (1991), Fitzpatrick suggested that the factative effect arises when no tense features are available to semantic interpretation. For languages

like Haitian that show the factative effect in simple declarative clauses, Fitzpatrick posited a semantically underspecified but syntactically present T in sentences like (9a–b). By contrast, the English AUX-drop construction involves a fully-specified T that moves to C as part of the auxiliary verb, by the normal process that builds matrix non-AUX-drop questions. Fitzpatrick also proposed the following: just as the phonological properties of the tensed auxiliary in C are not submitted to phonological interpretation in the AUX-drop constructions, its semantic properties are also not submitted to semantic interpretation. As far as the semantics is concerned, therefore, the tense specification of T might as well never have been generated in the first place (even though it was). Because the contents of C are not interpreted, an AUX-drop sentence is understood as if it entirely lacked tense, yielding the same factative effect found in Haitian when T actually does entirely lack a tense specification.

2.2 Reverse-engineering an AUX-drop derivation

As mentioned above, Fitzpatrick's proposal ends up enmeshed in an apparent contradiction concerning the semantic interpretation of the silent material in the AUX-drop construction. The remarkable cross-linguistic correlation highlighted by Fitzpatrick between the factative effect and the absence of overt tense does indeed suggest that the phonological suppression of a tensed auxiliary has semantic repercussions. For English AUX-drop, however, the claim that these repercussions arise from total non-interpretation of the root CP contradicts some of the very evidence that argued that an entire CP had been built in the first place. That evidence had a crucial semantic component: normal yes/no question semantics correlating with T-to-C movement, correlating in turn with NPI licensing. Fitzpatrick noted this problem (p. 422), but left it unresolved. He also noted an additional related puzzle (p. 419): though the failure to submit the root CP layer to semantic interpretation might entail the lack of access to tense information that had been lodged in C thanks to T-to-C movement – given the copy theory of movement – that information should still be present on T in its original position (rendering the factative effect especially mysterious, as Carlo Geraci, personal communication, notes). Since reconstruction phenomena in other domains teach us that unpronounced earlier positions of moved elements may be semantically interpreted, it is puzzling that T-to-C movement followed by AUX-drop should be an exception.⁴

⁴Fitzpatrick (2006) offered a tentative conjecture that the components of meaning relevant to question interpretation and NPI licensing might actually be contributed by a phasal head lower

I believe that a different approach to Fitzpatrick's discovery can resolve these issues in a new way. This approach will turn out to have implications for the proper treatment of other clauses with "missing" content, such as nonfinite clauses.

Let us accept as convincing the data (mostly) from Fitzpatrick with which we began this section, which seem to show that though the contents of the CP layer in the AUX-drop construction are not subject to phonological interpretation, they *are* submitted to semantic interpretation. The interpretation of AUX-drop clauses as yes/no questions may thus rely on the semantic properties of interrogative C, and the availability of NPI licensing in such clauses will follow from whatever factors turn out to be relevant in non-AUX-drop yes/no questions.

What should we then make of the correlation between the phonological absence of the tensed auxiliary verb and the factative effect, which limits tense interpretation to PRESENT with non-eventive predicates, and PAST with eventive predicates? I propose that this correlation does not reflect the *grammar* of non-pronunciation and semantic interpretation at all, but reflects an entirely different consequence of non-pronunciation. When a speaker produces an utterance based on a derivation in which elements that normally receive a phonological interpretation are unpronounced, the language system of the hearer must *reverse-engineer* the speaker's derivation, supplying its own guesses concerning the identity of the unpronounced elements. If the speaker produces an AUX-drop question, for example, missing its tensed auxiliary verb, the language system of the hearer must rely on its own resources to supply the missing auxiliary verb and tense.

But what are those resources? I propose that they are limited, as a property of the human language faculty, and that it is the tightly limited capacity of a hearer for reverse-engineering the speaker's syntactic derivation, not the architecture of that derivation itself, that lies behind the factative effect in the English AUX-drop construction.

Let us begin by noting, with Fitzpatrick himself (p. 14), that AUX-drop is impossible when the auxiliary is "semantically contentful". The auxiliary verbs whose pronunciation can be suppressed (supportive *do*, perfect *have*, progressive and passive *be*) are those that arguably lack semantics of their own, and are inserted to satisfy independent requirements of their morphosyntactic environment (cf. Grønn & von Stechow 2021, Section 3 on perfect *have*). By contrast, as Fitzpatrick points out, modals that do have semantics of their own cannot be omitted as part of the AUX-drop construction:

than C but higher than T, a head that is submitted to semantic interpretation as the (actual) complement to C. No additional evidence was offered for the existence of such a head with the properties attribute to it, and various problems are raised by this conjecture, briefly discussed in a footnote (p. 422, fn. 26).

(11) No modal AUX-drop

- a. Anyone pick up John at the airport?
Impossible with the meaning ‘Can anyone pick up John at the airport?’
- b. Anyone play the piano at the party tomorrow?
Impossible with the meaning ‘Will anyone play the piano at the party tomorrow?’
(Fitzpatrick 2006: 412, ex. 25a–b)

I propose that this fact itself should be understood as a consequence of a general limitation on the reverse-engineering of phonologically suppressed material. This limitation dictates that the reverse-engineering process must be semantically *unambitious*, positing as little semantics as possible that is not unambiguously reconstructable from the input provided by the speaker. I will call this limitation the *principle of unambitious reverse engineering* (PURE). In essence, PURE is a version of the much-debated principle of “recoverability of deletion” (Chomsky 1964: 41 and Katz & Postal 1964: 79ff), now viewed as an extra-grammatical property of the hearer’s language system attempting to parse input from a speaker.

(12) Principle of unambitious reverse engineering (PURE)

When determining the identity of unpronounced material in the course of reverse-engineering a speaker’s syntactic derivation, the language system of the hearer considers only the *minimally semantically contentful possibilities* compatible with the morphosyntactic environment.

I use the phrase “language system of the hearer” to emphasize that the discussion does not concern conscious decisions of the hearer, but rather the automatic behavior of the cognitive systems that parse linguistic input, determine its meaning, and communicate this information to other cognitive systems. In what follows, I will sometimes refer directly to the hearer’s language system with the word “hearer” to keep the prose simple, but it is the hearer’s language system that I intend throughout. I also assume that a speaker’s language system self-monitors in the process of speech production, functioning as hearer as well as speaker, so that the planning of an utterance takes into account the restricted range of interpretations a hearer is permitted to entertain by the principle proposed below. So the term *hearer* in this paper stands for an emphatically abstract concept.

Our intuitions that certain derivations do not permit AUX-drop, on this view, are hearer-side intuitions concerning what derivations can and cannot be reverse-engineered (in response to a signal in which the root CP is unpronounced), not

limitations on what the grammar can generate in the first place. The speaker's grammar thus overgenerates, and the effects of PURE have the logical status of a filter.⁵

Let us consider how PURE interacts with examples like (11a–b), where the hearer must posit an auxiliary verb in C. Here a semantically contentless supportive *do* is minimally semantically contentful and compatible with the morphosyntactic environment (since the highest audible verb is in the morphological bare form that cooccurs with auxiliary *do*). As a consequence, PURE guides the hearer of an utterance like (11a) or (11b) to posit a suppressed form of *do* and prevents the positing of a suppressed modal such as *can* or *will*. Likewise, because the morphosyntactic environment of an AUX-drop shows T movement to C, the least semantically contentful possibility for reverse-engineering the contents of C features an interrogative complementizer. We might also attribute to PURE the fact that the hearer is not free to assume that the CP of an AUX-drop construction contains any contentful *wh*-phrase other than the yes/no operator, conceivably the least contentful *wh*-form (as it invokes two fixed focus alternatives and is phonologically null in main clauses independent of AUX-drop), but I will leave the details of this aspect of the puzzle for later work.⁶

I return now to the factative effect in AUX-drop, which I suggest is just another consequence of PURE. When it is necessary to reverse-engineer a derivation in which a tensed but unpronounced auxiliary verb has raised to C, PURE requires the hearer to posit a semantically minimal specification for the unpronounced T.

But why should PAST qualify as a minimally contentful tense for an eventive predicate, while only PRESENT counts as minimally contentful for a non-eventive predicate? If PRESENT is a tense bound to the utterance time, then this relation may count as ubiquitous component of the “morphosyntactic environment” of any utterance, licensing the hearer to posit PRESENT as the tense specification of a

⁵Carlo Geraci (personal communication) notes a similarity between these considerations and aspects of the “perceptual loop” theory of self-monitoring advanced by Levelt (1983: 96, 1989: chapter 12), as developed and debated in subsequent work. Levelt proposes a monitoring process that is “normally, opaque to the speaker, [which] should, rather, be regarded as based on the parsing of inner or overt speech”. “The great advantage of [such] a perceptual theory,” he continues, “is that controlling one’s own speech is like attending to somebody else’s talk. This makes it natural for the speaker to apply the same parsing procedures and sources of knowledge to his own speech as to other people’s speech” (Levelt 1983: 96–97). PURE and its consequences as discussed in this paper thus have obvious psycholinguistic implications, which I will not explore here, for lack of expertise, but hope may be clarified in future work.

⁶Carlo Geraci (personal communication) notes an unsolved problem for this approach: the fact that silencing of a *wh*-phrase other than *whether* is blocked even when the selectional properties of an obligatorily transitive verb might render this compatible with PURE. Thus **You wear?* is not acceptable, for example with the reading *What did you wear?*, despite the transitivity of *wear*. I leave this issue open.

silenced T, in keeping with PURE. A PAST specification for T, however, would add *anteriority* to the meaning of PRESENT, and thus qualify as less minimally semantically contentful. PURE might therefore prevent the hearer's parser from positing PAST with a non-eventive predicate, all things being equal. This derives the obligatorily PRESENT interpretation of an AUX-drop clause with a non-eventive predicate.

Why then should an eventive predicate license the positing of PAST by the hearer as the tense of the speaker's derivation that is being reverse-engineered? Note that eventive predicates are incompatible with the simple PRESENT, unless coerced into a habitual or generic use (a fact that will be important in our discussion of infinitival clauses below):

- (13) Present tense incompatible with eventive predicates (unless coerced)
- a. *Mary sings in the shower now. / *Alice reads a book now. / *Bob sells that car now.
[unless habitual]
 - b. Sue owns a car now. / John likes my cat now. / Bill knows German now.
etc.

I propose that it is precisely because of the incompatibility of the English PRESENT with an eventive predicate that PURE permits the hearer to posit an underlying PAST in an AUX-drop construction where the unpronounced auxiliary in C is *do* and the main predicate is eventive. PAST is the least semantically contentful option compatible with the morphosyntactic environment. I will leave it as an open question whether this suggestion for English AUX-drop illuminates the roots of the factative effect in other languages such as Haitian Kreyòl.⁷

⁷Déchaine (1995) offers a more detailed proposal concerning the tense interpretation of eventive predicates in these constructions, which I believe could be incorporated into the present discussion. Her account also correctly predicts the fact that Haitian Kreyòl favors a non-past generic interpretation for eventive predicates with a bare indefinite direct object, a fact also found in the AUX-drop construction when the direct object is a mass singular or bare plural (an observation also made by Michelle Sheehan, personal communication):

- a. Pyè vann bèf. *eventive/indefinite object* → *present*
Pyè sell cattle
'Pyè sells cattle.' Déchaine (1995: 74, ex. 37a)
- b. You sell cattle/cars?
'Do you sell cattle/cars?'

I am grateful to Athulya Aravind (personal communication) for bringing Déchaine (1995) to my attention.

We may now adopt Fitzpatrick's proposal that AUX-drop arises from the more general possibility of leaving the highest layer of the root clause phonologically uninterpreted, without the contradictions that arose from extending this possibility to semantic interpretation as well. If the proposal advanced here is correct, there is no comparable optionality for semantic interpretation. The syntactic derivation is subject to semantic interpretation up to the root. The factative effect is a by-product of failing to phonologically interpret the CP layer of the main clause, just as Fitzpatrick proposed. But it is not a direct result of the grammatical derivation per se, but instead reflects the strictures imposed by PURE on the hearer forced to reverse-engineer the speaker's derivation. In the absence of evidence concerning the value of T that was included in the speaker's syntactic derivation, the hearer must assume a maximally unmarked value compatible with the morphosyntactic environment.⁸

3 Exfoliation and the tense interpretation of infinitives

3.1 The derivational theory of infinitivization

We are now in a position to take up the main topic of this paper: a second environment in which I have recently argued that tense and other material ends up unpronounced due to a property of the grammar that absolves this material from phonological interpretation, though for reasons quite different from those relevant to AUX-drop. Here juxtaposition of these arguments with the semantic findings reported by Wurmbrand (2014) raises questions similar to the contradictions that I have attempted to resolve concerning Fitzpatrick's theory of English AUX-drop. Once again, I will suggest a reverse-engineering reinterpretation of Wurmbrand's discoveries resolves these contradictions. Rather than reflecting semantic consequences of the speaker's syntactic derivation, as Wurmbrand proposes, I will suggest that they actually reflect the restrictions placed by PURE on the hearer's ability to reverse-engineer that derivation.

⁸Our discussion leaves several important unresolved questions unanswered. We must ensure, for example, that a hearer's disambiguation of a syncretic form ambiguous between PAST and PRESENT such as *put* or *hit* is not subject to PURE. Ignorance concerning the precise identity of an item that has been phonologically interpreted (albeit confusingly) is evidently not the same problem for the hearer as determining the identity of an item that has avoided phonological expression entirely. Ellipsis is another, much larger elephant in the room of this analysis. There it is tempting to view the "surface anaphora" property of ellipsis (the need for a linguistic antecedent) as a sign of the strictures of PURE at work, but I leave the possible development of this idea for future work as well.

In work reported in Pesetsky (2019), I have argued for a *derivational theory of infinitival complementation*. On this view, all embedded clauses are generated by the syntax as full and finite CPs. Infinitival clauses are the result of a rule of *exfoliation*, which strips away the outer layers of a finite CP, leaving behind an infinitival clause, under very specific circumstances: namely, when a probe external to CP finds a goal internal to that CP that does not occupy its edge. Exfoliation eliminates as many clausal layers as is necessary to place that goal at the edge of what remains, so it can interact with that goal (see Figure 1).⁹

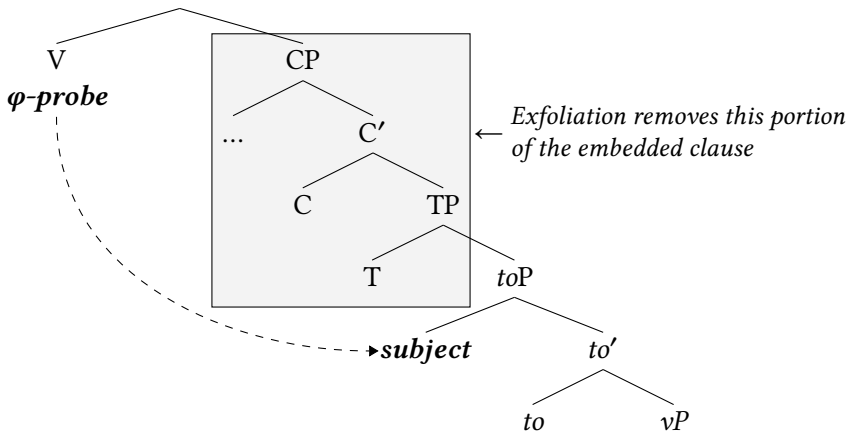


Figure 1: Exfoliation

Arguments from several directions have been advanced to support this proposal.¹⁰

First, I argued that *paradigms of acceptability for infinitival complementation* do indeed correlate with probe-goal relations across the clause boundary. Whenever a probe capable of triggering Raising successfully contacts an element in the specifier of *toP* across a CP boundary, that CP is reduced to an infinitive, but not otherwise. The presence of a Raising probe on the higher V in (14a), and on the

⁹Crucial to the proposal as an account of English infinitives is the existence of a *to* projection lower than T, and a principle (argued to have more general applicability) that leaves *to* unpronounced when exfoliation does not strip away the projections higher than *to*. See Pesetsky (2019) for discussion and argumentation.

¹⁰In a Festschrift honoring Susi Wurmbrand, it is especially important to note that this proposal does not necessarily include Restructuring infinitives in its purview. Restructuring clauses of the German type studied by Wurmbrand are not in any obvious sense a response to cross-clausal probing, and might represent small constituents generated as such. I leave the integration of exfoliation with the phenomenon of Restructuring for future work.

higher *v* in (14b) accounts for the infinitivization of the embedded clause, while the absence of any comparable probe in (14c–f) accounts for the impossibility of infinitivization in these examples.

(14) Nominal subjects of an infinitival clause

- | | | |
|----|--|-------------------------------------|
| a. | Sue considers Mary to have solved the problem. | |
| | | <i>Raising to Object (spec,VP)</i> |
| b. | Mary seems to speak French well. | <i>Raising to Subject (spec,vP)</i> |
| c. | *It seems Mary to have solved the problem. | <i>unaccusative V</i> |
| d. | *It was believed Mary to speak French well. | <i>passive V</i> |
| e. | *Mary is aware Bill to be the best candidate. | <i>A</i> |
| f. | *Mary's belief it to have been raining | <i>N</i> |

The standard competitor to this proposal is the traditional claim that infinitives are not derived from finite clauses but are generated nonfinite, with Case Theory accounting for contrasts like those in (14), on the assumption that the subject of a nonfinite clause can only pass the case filter if some external element such as the higher verb in (14a) or the higher T in (14b) case-licenses it. The fact that non-nominals that otherwise do not need to pass the case filter, such as CP subjects and fronted adjectival predicates, show exactly the same paradigm, however, argues against this standard competitor:

(15) Clausal subjects of an infinitival clause

- | | |
|----|---|
| a. | Sue considers [that the world is round] to be a tragedy. |
| b. | [That the world is round] seems to be a tragedy. |
| c. | *It seems [that the world is round] to be a tragedy. |
| d. | *It was believed [that the world is round] to be a tragedy. |
| e. | *Mary is aware [that the world is round] to be a tragedy. |
| f. | *Mary's belief [that the world is round] to be a tragedy. |

(16) Predicate fronting in an infinitival clause

- | | |
|----|--|
| a. | Sue considers [even more important than linguistics] to be the fate of the planet. |
| b. | [Even more important than linguistics] seems to be the fate of the planet. |

- c. *It seems [even more important than linguistics] to be the fate of the planet.
- d. *It was believed [even more important than linguistics] to be the fate of the planet.
- e. *Mary is aware [even more important than linguistics] to be the fate of the planet.
- f. *Mary's belief [even more important than linguistics] to be the fate of the planet.

Other more complex arguments reinforce the claim that the distribution of infinitival complements reflects conditions on exfoliation rather than factors such as subject case licensing traditionally claimed to be at work in these paradigms. The reader is referred to Pesetsky (2019) for these arguments, as well as for answers to certain obvious questions raised by this proposal that I will not attempt to answer here, such as the analysis of English infinitives introduced by *for*. To keep the discussion simple, let us also imagine that Control infinitives, like their counterparts created by Raising, also involve a probe-goal interaction between the embedded subject occupying the specifier of *toP* and an some element in the higher clause, as in the movement theory of control (Bowers 1973: 675 ff. 1981, Wehrli 1980: 115–131, 1981, Hornstein 1999), though Pesetsky (2019) presents an alternative possibility that I will not address here.

A second type of argument advanced for this proposal is the fact that it generalizes to configurations in which a probe finds a goal occupying a position higher than the specifier of *toP*. When this happens, the embedded clause is once again reduced by exfoliation, but now to something larger than an infinitive. This provides an account of the well-known *complementizer-trace effect* (Perlmutter 1968, 1971; see Pesetsky 2017 for a survey of subsequent discussion), in which an otherwise possible overt complementizer is obligatorily absent when a subject or subject-like phrase is extracted, leaving behind a clause that lacks its complementizer but remains finite:

(17) Complementizer-trace effect

- a. Who do you think (that) Sue met ____ .
- b. Who do you think (*that) ____ met Sue.
- c. Exactly how much more important than linguistics did she say (that) the fate of the planet was ____ ?
- d. Exactly how much more important than linguistics did she say (*that) ____ was the fate of the planet?

If the overall proposal is correct, the explanation for complementizer-trace effects falls together with an explanation for why nonfinite clauses should exist in the first place, uniting two phenomena previously viewed as quite distinct.

Finally and most significantly in the present context, Pesetsky (2019) presents *derivational opacity* arguments for the proposal that infinitival clauses are born full and finite, and become infinitives during the course of the syntactic derivation. The core of one such argument can already be seen in the predicate fronting examples (16a–b). A traditional account of infinitival clauses that attributes to the case filter the unacceptability of the starred examples in (14) not only struggles to explain the parallel effect in (15) and (16) but also struggles to explain how the postverbal nominal passes the case filter at all, since there is neither an accusative-assigning verb in its immediate vicinity, nor an available instance of finite T. The much-discussed Icelandic phenomenon exemplified by (18) below presents the same problem in a stronger form. Here an infinitival from which Raising has taken place has a quirky case-marked subject. Not only is the postverbal object of the embedded clause acceptable, but it bears NOM case morphology, with no visible instance of finite T that could have entered an agreement relation with the it that results in NOM case:

(18) Quirky subject + NOM object in an infinitival complement (Icelandic)

Læknirinn_i telur barninu (í barnaskap sínum_i) hafa
 the.doctor.NOM believes the.child.DAT (in foolishness his) have.INF
 batnað veikin.
 recovered.from the.disease.NOM
 ‘The doctor_i believes the child (in his_i foolishness) to have recovered from
 the disease.’ (Yip et al. (1987: 242), adapted)

This is of course one of the phenomena that inspired Yip et al. (1987) and Marantz (1991) to abandon the proposal that NOM depends on agreement with finite T in the first place (and with it, the proposal that nominals need to be licensed at all), in favor of a theory in which NOM morphology is a default assigned to a nominal in an appropriate position when other case rules fail to apply.

On an exfoliation account, however, licensing and NOM morphology in examples like (18) pose no problem for theories that posit a connection between NOM case assignment and finite T.¹¹ Since the embedded infinitival clause started its

¹¹One might reject this connection for other reasons, of course, but it does appear to be cross-linguistically robust in environments without the special characteristics of (16a–b) and (18) and others for which an exfoliation derivation might be plausible.

life full and finite, the postverbal nominal could enter an agreement relation with finite T within the embedded clause, just as it would in a clause that remained finite throughout the derivation. The interaction between the quirky subject and a Raising probe in the higher clause triggers exfoliation, which left the embedded clause infinitival, but this operation came later than the licensing of the postverbal nominal and the assignment of NOM case to it. On this view, the presence of NOM morphology on the postverbal subject is a relic of its earlier life as a nominal in an agreement relation with finite T, an instance of derivational opacity, since the T that played the crucial role in these events has been eliminated in the course of the derivation. Pesetsky (2019) provides independent evidence for this proposal from the observation that the anaphor-agreement effect blocks a reflexive as the postverbal object in these constructions, despite the absence of any visible agreement.

The derivational approach to the existence of nonfinite clauses faces an important problem, however, concerning semantic interpretation. All things being equal, we might expect to find straightforward derivational opacity arguments in this domain as well. Just as NOM morphology is preserved on the postverbal subject in (18) even after the T with which it agreed and from which it (arguably) received NOM has been eliminated, so we might expect the various tenses and modals available to finite clauses to continue to show semantic signs of their former presence. In fact, however, tense interpretation in infinitival clauses is severely restricted, in a manner illuminated and clarified by Wurmbrand (2014). Why do infinitival clauses not show the full range of semantic possibilities available to finite clauses? If they did, it would furnish a semantic derivational opacity argument analogous to the morphosyntactic arguments that support the exfoliation theory of infinitivization.

One response might be to reject the derivational view of infinitivization (in favor of a more standard approach according to which nonfinite clauses are generated as such, and problems like those raised above are solved in some other way). Another response might propose that some aspects of semantic interpretation apply late in the derivation, after exfoliation has taken place. This is a logical possibility mentioned in Pesetsky 2019, but entails that semantic interpretation does not apply entirely cyclically during the course of the syntactic derivation, contradicting results such as those reported by Fox (1999: 66–73) and others that argue that semantic interpretation is strongly cyclic, fully interspersed with the syntactic derivation.

A variant of this second response might acknowledge that semantic interpretation is interspersed with the syntactic derivation, but permit the semantics of a

constituent targeted by exfoliation to be *revised*, deleting or altering those components of meaning that owed their existence to material deleted by the exfoliation operation.¹² Phonological interpretation might work this way as well, if it too is fully interspersed with the syntactic derivation. If, for example, a fully built CP undergoes phonological interpretation, only to lose its outer layers to exfoliation later in the derivation, we must entertain a theory according to which cyclic phonological interpretation is subject to later revision, and it would not be surprising to learn that semantic interpretation follows a similar pattern. As I noted in the introduction to this paper, Wurmbrand (2014) argues that English nonfinite clauses are deeply *tenseless*, a proposal that might seem to fit this variant response quite neatly. Semantic tenselessness is a natural outcome if the elimination of TP by exfoliation triggers elimination of the semantics that TP introduced.¹³

Nonetheless, I will argue for an entirely different solution to this puzzle here. I will suggest that semantic interpretation is *not* revised in the wake of exfoliation, and thus that the interpretation of nonfinite clauses is always an interpretation inherited from derivational period when it was full and finite. On this view, the semantic effects charted by Wurmbrand are not indications of tenselessness, and in fact, are not restrictions on the semantics of infinitival complements at all. They are actually PURE effects: limitations on a hearer's ability to ascribe semantic properties to phonologically suppressed material, when reverse-engineering the derivation behind a speaker's utterance. I believe this alternative is more attractive because the semantics of nonfinite clauses (in English at least) do not actually point in the direction of tenselessness. The mapping among the semantic possibilities available to nonfinite and finite clauses is indeed complex (as we

¹²I am grateful to Carlo Geraci and Michelle Sheehan for helping me clarify the reasoning in this paragraph.

¹³Michelle Sheehan (personal communication) makes the interesting observation that under Chomsky's (2001: 13, ex. 9) proposal concerning the timing of phonological and semantic interpretation, one might be able to adopt this variant without any notion of revision. According to this proposal, a phase is spelled out (its contents transferred to PF and to LF) and rendered impermeable to processes such as movement only when the *next* phase head is merged. On this view, a clausal complement to V will not be subject to spell-out and rendered impermeable until the higher *vP* has been completed. By this time, exfoliation of that clausal complement will already have taken place, since the relevant triggers are all contained in that *vP* phase. The entire *raison d'être* of exfoliation as developed in Pesetsky (2019), however, rests on the impermeability of non-edge positions within the embedded clause to movement across the clause boundary. Exfoliation takes place precisely so as to leave the goal for the *vP*-internal probe at the edge of what remains of the embedded clause, rendering it accessible for movement triggered by that probe. Though one can imagine reformulations that might render versions of the two proposals compatible, they are clearly at odds with respect to the status of the pre-exfoliation embedded clause.

shall see). Nonetheless, the set of temporal and modal interpretations available to nonfinite clauses appears to be a *proper subset* of the set of interpretations available to tensed finite clauses, its tense (and modal) semantics always corresponding to that of some type of tensed clause, with no *sui generis* possibilities that might indicate total tenselessness. I take this to be an important observation that may favor the approach developed below over the approach developed by Wurmbrand (2014).

On the speaker's side of the story, I therefore suggest that in principle, any tense or modal in T may be eliminated by exfoliation in the process of generating an infinitival clause. Crucially, the semantics provided by this tense or modal remains intact and unrevised through the end of the derivation. It is the *hearer's* side of the story that imposes the restrictions documented by Wurmbrand and discussed below. Though in theory any tense or modal can be exfoliated away in the course of the speaker's derivation, in practice a hearer can posit only those tenses and modals to the embedded clause that are semantically *minimal* and compatible with their environment, in the cases at hand, compatible with the selectional properties of the higher predicate and the ubiquitous availability of the utterance time as an anchor for tense. This is the source of our sense that infinitival clauses are inherently restricted in the tense and modal specifications that they can express. Not every meaning producible by a speaker's derivation can be reverse-engineered and attributed to it by the hearer.

Though the proposal advocated here is essentially the opposite of Wurmbrand's (interpretation as tensed vs. deep tenselessness), my presentation will be entirely derivative of the findings reported in Wurmbrand (2014), including her classification of the phenomena she discovered. Following Wurmbrand, I first consider future infinitives (complements to verbs like *want* and *decide*) and then propositional infinitives (complements to verbs like *claim* and *believe*), followed by a brief discussion of infinitival clauses understood as simultaneous in tense with the clause in which they are embedded (complements to verbs like *manage* and *seem*). We are able to reach such different conclusions from the same set of findings because we pursue different strategies of argumentation concerning these findings. These can be summarized as follows:

(19) Strategies of argumentation

- a. Wurmbrand (2014): The behavior of future, propositional, and simultaneous infinitives cannot be exclusively identified with any single value that tense may bear in a corresponding finite clause. These complements do display behavior consistent with tenselessness. Therefore they are deeply tenseless.

- b. This paper: The behavior of future, propositional, and simultaneous infinitives may be identified with the *union of behaviors* expected from all the semantically minimal values for tense that a hearer can posit when unambitiously reverse-engineering the pre-exfoliation portion of the speaker's derivation (as required by PURE). Therefore they are not deeply tenseless.

Crucially, if the alternative advocated in this paper is correct, we do have a derivational opacity argument for tense semantics after all, since the tense interpretation of an infinitive does reflect the pre-exfoliation tense properties of a T that is later deleted, a fact obscured by the severe restrictions imposed on the hearer by PURE. This will leave us with one apparent discrepancy between the outcome of PURE for AUX-drop and its outcome for infinitivization, but this discrepancy follows from the difference between (1) non-pronunciation of syntactically present structure (AUX-drop, following Fitzpatrick), and (2) actual deletion of syntactic structure by exfoliation.

3.2 PURE and future infinitives

Following Wurmbrand, I consider first the class of infinitival complements with future (or irrealis) semantics, like the Raising (ECM) complement (20a) and the Control complement in (20b):

(20) Future infinitives

- a. Yesterday, Mary wanted/needed John to leave tomorrow.
- b. Yesterday, Mary decided/wanted/planned to leave tomorrow.
(Wurmbrand 2014: 408, adapted from ex. 6)

Future infinitives have often been described as “tensed” in the literature since Stowell (1981, 40ff.; 1982). Such theories entail that these infinitives contain in some fashion a silent variant of English *will* or *would*. Wurmbrand sought to dispel this idea, by demonstrating that the properties of future infinitives are not identical to those of either English *will* or *would*, which she analyzes (following Abusch 1985, 1988) as bimorphemic auxiliary verbs consisting of an abstract modal *woll* plus PRESENT tense (*will*) or PAST tense (*would*). She argues at length that the properties of future infinitives favor a theory according to which such infinitives are *deeply tenseless*. Specifically, they contain *woll* but no specification for PAST or PRESENT whatsoever. If her conclusions are correct, future infinitives present the exact opposite of a derivational opacity argument for the syntactic

derivation of nonfinite clauses by exfoliation. They present a derivational conundrum for an exfoliation theory. If a future infinitive was indeed tensed in its derivational youth, as the exfoliation proposal claims, the theory must somehow ensure that no residue of its tensed beginnings survives in the semantics of its final infinitival form. Below, I survey these arguments and suggest an alternative.

Wurmbrand first contrasts the behavior of future infinitives with the behavior of present-tense *will*. *Will* places a situation in the absolute future with respect to the utterance time, while a future infinitive may pick out a time that merely follows the time of the higher clause:

(21) Future infinitive \rightarrow relative future vs. *will* \rightarrow absolute future

- a. Leo decided a week ago [that he will go to the party (*yesterday)].
- b. Leo decided a week ago [to go to the party yesterday].

(Wurmbrand 2014: 414, ex. 22)

Sequence of tense (SOT) effects also reveal ways in which future infinitives do not behave as though they contain *will*. Following Ogihara (1996), Wurmbrand assumes that sequence of tense effects are the result of a rule that deletes a tense at LF, if it is in the immediate scope of another tense with the same value, and binds the situation time of the lower clause to that of the higher clause. For this reason, as she notes, the embedded clause in *We found out that Mary was happy* does not require the time of the embedded clause to precede the time of finding out, but permits the time of the embedded clause to overlap that time, as a consequence of the higher occurrence of PAST deleting the embedded occurrence.

As she also notes, citing Ogihara, the sequence of tense rule applies in the same way to PRESENT in a sentence like *John will see the unicorn that is walking*, yielding a possible interpretation under which the unicorn's walking takes place at the seeing time, not utterance time. Crucially, it is the PRESENT component of *will* that triggers the deletion at LF of embedded PRESENT (resulting of the binding of the lower situation time by the higher).

Wurmbrand now considers the three-clause structure in (22a) in which PAST in the highest clause is separated from PAST in the lowest clause by an intervening clause containing *will*, which as we have seen contains PRESENT. As predicted, PAST in the lowest clause cannot be deleted, since the intermediate clause contains PRESENT, and the closest higher instance of PAST is in the highest clause. Crucially, however, replacing *will* in the middle clause with a future infinitive in (22b) yields a different result, the possibility of an SOT interpretation of the embedded clause, which Wurmbrand interprets as directly triggered by PAST in

the highest clause. PAST in the highest clause can trigger SOT deletion of PAST in the lowest clause, Wurmbrand suggests, because the intermediate clause is truly tenseless, and in particular does not contain a null counterpart to the PRESENT-tense *will* in (22a).

(22) *Will* blocks SOT deletion of PAST, but future infinitive does not

- a. [_{PAST} John promised me yesterday [_{will} that he will tell his mother tomorrow [_{PAST} that they were having their last meal together]]].

**telling time = meal time*

- b. [_{PAST} John promised me yesterday [_{FUT INFIN} to tell his mother tomorrow [_{PAST} that they were having their last meal together]]].

✓*telling time = meal time*

(Wurmbrand 2014: 415, ex. 24, 25a), building on Abusch 1988)

Wurmbrand next contrasts the behavior of future infinitives with the behavior of past-tense *would*. As she notes, an idiosyncrasy of *would* is the fact that (except in the consequent of a conditional) it is permitted only in an SOT environment where its PAST feature can be deleted by PAST in the immediately containing clause. It is therefore blocked in a main clause (except as the consequent of a conditional missing its antecedent, e.g. **Yesterday, I would be king*), and blocked in an embedded clause if the immediately containing clause is not PAST, as illustrated in (23a), where the higher clause contains PRESENT-tense *will*. Crucially, a future infinitive is possible in the same environment where *would* is blocked, as (23b) shows:

(23) *Would* is excluded in non-PAST SOT environment, but future infinitive is not

- a. * [_{will} John will promise me tonight [_{would} that he would tell his mother tomorrow ...]]

- b. [_{will} John will promise me tonight [_{FUT INFIN} to tell his mother tomorrow [_{PAST} that they were having their last meal together]]].

(Wurmbrand 2014: 415, ex. 29a, 30a)

Furthermore, as Wurmbrand also notes, the most embedded clause in (23b) lacks any SOT reading that could permit the meal-eating time to be identical with the telling time, as we would expect if the future infinitive could be understood as a silent version of PAST-tense *would* (perhaps immune for some reason to the

restriction to PAST SOT environments). It is therefore clear that the future infinitive cannot be uniformly identified as a silent version of *would* any more than it can be uniformly identified as a silent version of *will*. Once again, Wurmbrand concludes that future infinitives are simply tenseless, containing an untensed *woll*.

In fact, however, another interpretation of these findings is possible, mentioned by Wurmbrand herself, who attributes the observation to “David Pesetsky and a reviewer” (p. 440).¹⁴ Although the future infinitive does not behave *uniformly* like either *will* or like *would*, wherever it fails to behave like *will* it behaves like *would*, and wherever it fails to behave like *would*, it behaves like *will*.

Consider first the availability of SOT deletion of PAST in the lowest clauses of (22a–b), impossible if the middle clause contains *will*, but possible if the middle clause contains a future infinitive. Wurmbrand took these data to show that the middle clause is untensed, but they could equally well show that the middle clause contains a silenced PAST-tense *would*:

- (24) Substituting *would* for *will* in (22a) permits the missing reading
 [PAST John promised me yesterday [_{would} that he would tell his mother tomorrow [_{PAST} that they were having their last meal together]]].
 ✓ *telling time = meal time*

On this view, it is PAST in the middle clause, not PAST in the highest clause, that deletes PAST in the lowest clause, yielding the SOT interpretation under which the telling time and the meal-eating time are identical. Note that the PAST feature of this silence *would* will itself be deleted under the influence of PAST in the highest clause, but that is exactly what overt *would* requires. Assuming that SOT applies cyclically, we have an instance of LF derivational opacity, since the tense responsible for deleting PAST in the lowest clause is not present in the final LF representation.

Now consider the availability of the future infinitive in (23b) in an environment where *would* is blocked. Once again, though this possibility is compatible with Wurmbrand’s view that the middle clause is untensed, it could equally well show that here the future infinitive contains a silenced PRESENT-tense *will*, which is not blocked in this environment. And indeed, (23b) can be paraphrased with overt *will* in the middle clause:

- (25) Substituting *will* for *would* in (23a) eliminates the star
 [_{will} John will promise me tonight [_{will} that he will tell his mother tomorrow ...]]

¹⁴I have no memory of making this observation.

The view that a future infinitive may be understood as containing either a silenced *will* or a silenced *would* is exactly what we expect under the exfoliation hypothesis for nonfinite clauses, according to which they are generated by Merge as full and finite CPs, with exfoliation responsible for stripping them of their CP and TP layers in the course of the derivation. On this view, all things being equal, the source of a future infinitive must be a finite clause with future content, but that content may in principle be either *will* or *would*. From this vantage point, the discovery that both possibilities are in fact instantiated comes as no surprise. Example (22b) is acceptable on an SOT reading because there is a derivation in which its middle clause was generated with *would*, while (23b) is acceptable because there is a derivation in which its middle clause was generated with *will*.

Now note that because *would* (except as the consequent of a conditional) is idiosyncratically restricted to SOT environments, the two kinds of future modals that may be generated in a complement clause bear either PRESENT tense at LF (*will*) or no tense whatsoever at LF, due to the tense-deleting action of SOT (*would*). If these modals disappear in the course of the derivation as a consequence of exfoliation, yielding an infinitive, the hearer of such a clause faces a reverse engineering task not unlike that posed by an English AUX-drop clause. In particular, the hearer's parser must assign content to the finite T of the derivational ancestor of the infinitival clause. If PURE is correct as stated in (12), the hearer's options are tightly restricted, limited to "least semantically contentful possibilities compatible with the morphosyntactic environment".

Is the distribution and range of possible interpretations for a future infinitives compatible with PURE? If *semantic selection* and *binding* count as elements of the morphosyntactic environment relevant to PURE, the answer is yes. Assuming with Wurmbrand that *will* and *would* are the PRESENT and PAST tense forms, respectively, of an abstract morpheme *woll*, we need to ask (1) whether PURE permits the positing of *woll* in infinitival complement clauses where no form of the modal is visible, and (2) whether PURE permits positing both PRESENT and PAST in free alternation as the tense of this modal. I believe the answer is plausibly yes.

If selection is a component of the morphosyntactic environment relevant to PURE, then the positing of an "ancestral" *woll* in the complement to a verb like *promise* can be justified by the semantic selectional properties of *promise* and any other predicate that describes an attitude towards a future situation. *Woll* adds no semantics to what is required by the morphosyntactic environment, and therefore should count as "minimal" in the sense relevant to PURE.

What about PRESENT, the non-modal component of *will*? Building on the proposals advanced in Section 2.2, if PRESENT is a tense bound to the utterance time,

this relation alone should license positing PRESENT as the tense specification of T in a future infinitive, without violating PURE.

Finally, what about PAST, the non-modal component of *would*? Continuing to build on the proposals advanced in Section 2.2, a PAST specification for T that survived until LF should count as non-minimal, since it adds *anteriority* to the meaning of PRESENT. PURE should therefore prevent the hearer from positing ancestral PAST as part of the derivation of a future infinitive, all things being equal, with one important qualification. If an instance of PAST makes no semantic contribution at all because it is deleted by the SOT rule, positing such an instance of PAST will be perfectly compatible with the strictures of PURE. As Wurmbrand noted and as discussed above, *would* is in fact restricted to SOT environments. It thus follows that the hearer's parser should be free to posit ancestral *would* as an auxiliary verb of a future infinitive, just as suggested above.

Summarizing the crucial properties of the speaker and the unambitious reverse-engineering hearer in this domain:

(26) Speaker and hearer summary: Future infinitives

Speaker: Free to posit any content whatsoever for T of the embedded clause

Hearer (restricted by PURE):

- a. Hearer posits *will* because it is selected by the higher verb. No other modal is possible.
- b. Hearer may posit PRESENT as the pre-exfoliation tense of the future modal because it is semantically minimal (as we saw in discussing AUX-drop), yielding *will*.
- c. Hearer may posit PAST as the pre-exfoliation tense of the future modal so long as it is semantically inert due to SOT (as is always the case with *would*).

3.3 PURE and propositional infinitives

I turn now to non-future infinitival clauses with propositional semantics, such as Raising/ECM complements to verbs like *believe* (e.g. *She believes Mary to be the winner*) and control complements to verbs like *claim* (*She claimed to be the winner*). As Wurmbrand notes (cf. Pesetsky 1991), these complements have aspectual properties strongly reminiscent of the English PRESENT, resisting eventive interpretation of simple VPs, as briefly discussed in Section 2.2 above:¹⁵

¹⁵Wurmbrand uses the term “episodic”, where I use “eventive” for consistency with other discussion. If there are crucial differences between these notions that might compromise the overall argument, I leave that issue for future research.

(27) Eventive interpretation: propositional infinitives that pattern with English PRESENT tense

- a. Bill knows German well. ✓ *non-eventive*
- b. They believe Bill to know German well.
- c. They claim to know German well.
- d. *Mary sings in the shower right now. **eventive*
- e. *They believe Mary to sing in the shower right now.
- f. *They claim to sing in the shower right now.

(Wurmbrand 2014: 431, adapted from ex. 55–56)

The English PAST does license eventive interpretation, but infinitival complements to verbs like *believe* and *claim* cannot be understood as bearing PAST tense semantics (without the addition of HAVE+*-en*, discussed below), regardless of eventivity:

(28) Propositional infinitives that may not be understood as PAST tense

- a. They knew German well when they were young.
- b. *They believe(d) Bill to know German when they were young.
- c. *They claim(ed) [to know German well when they were young].
- d. Mary sang in the shower yesterday at 8:00.
- e. *They believe(d) Mary to sing in the shower yesterday at 8:00.
- f. *They claim(ed) to sing in the shower yesterday at 8:00.

Let us first consider these observations from an exfoliation perspective. If infinitival clauses like those in (27b–c) are derived from full finite clauses, once again the hearer of such a complement must reverse-engineer the speaker's derivation, and posit a tense value for T in that clause. If PURE permits the hearer to posit ancestral PRESENT but not PAST, for the reasons just discussed, the contrasts in (27) and (28) are immediately predicted. If the hearer posits ancestral PRESENT, it is no surprise that eventive interpretation is restricted just as it is in PRESENT tense clauses that have not been reduced to infinitives by exfoliation. Positing PAST is ruled out by PURE, since PAST is not semantically minimal as PRESENT is.

Wurmbrand, however, presents an SOT environment in which infinitival complements like these behave differently from PRESENT tense finite clauses. The argument once again involves SOT in a three-clause structure in which the infinitival clause is the middle clause:

(29) Propositional infinitives that appear not to block SOT

- a. [_{PAST} A year ago, they believed Mary [_{PROP INFIN} to know [_{PAST} that she was pregnant]]].
- b. [_{PAST} A year ago, Mary claimed [_{PROP INFIN} to know [_{PAST} that she was pregnant]]]. (Wurmbrand 2014: 433, ex. 59b, 59c)

As Wurmbrand points out, the pregnancy time in the examples of (29) may be understood as bound by the believing/claiming time, a clear sign that the SOT rule has deleted PAST in the embedded clause. This is of course not possible if the infinitival middle clause is understood as containing PRESENT, since SOT deletes a lower tense under identity with the most immediately superordinate tense. Wurmbrand concludes that it is the PAST tense of the main clause that triggers deletion of the PAST tense of the most embedded clause, and therefore the infinitival middle clause must be viewed as tenseless.

Once again, however, the exfoliation/reverse engineering approach suggests an alternative. The contrasts in (28) show that a hearer cannot posit ancestral PAST for the infinitival complement of a verb like *believe* or *claim*, where PAST should survive until LF and receive its normal interpretation. If a hearer were to posit ancestral PAST in the middle clause of (29), it could be deleted by the SOT rule (since the tense of the higher clause is also PAST). When this happens, PAST in the middle clause will make no contribution of its own to LF interpretation, and will consequently count as a PURE-compatible choice for the hearer reverse-engineering the derivation of the middle clause. On this view it is PAST in the *middle* clause that triggers SOT deletion of PAST in the lowest clause (before it itself is deleted), not PAST in the highest clause. The logic is essentially the same as the logic behind our proposal for (23b).¹⁶

¹⁶Wurmbrand once again mentions the possibility that these infinitives might contain a “deleted PAST” (p. 432, fn. 25), but rejects this possibility as incapable of explaining “why the PAST must always delete, and how this is [im]possible [*correcting a probable typo*] in non-SOT contexts (e.g. *Julia claims to be pregnant* cannot mean ‘Julia claims that she was pregnant’). In the logical structure of the alternative suggested here, it is PURE that fills this explanatory gap. Undeleted (and unselected) PAST is not semantically minimal, and therefore cannot be posited by the (obligatorily unambitious) hearer in the process of reverse-engineering the derivation that produced an infinitival complement by exfoliation.

Wurmbrand notes a related contrast between infinitival complements to verbs like *believe* and *claim* amenable to the same alternative view. In examples like (30a–b), PRESENT embedded under PAST receives an obligatory *double-access reading*, according to which Julia’s pregnancy held at both the believing/claiming time (five years ago) and at utterance time (now), which is biologically impossible. The infinitival complements in (30c–d), by contrast, do not require a double-access interpretation, and permit the pregnancy time to be identified with the believing/claiming time. I thus cannot assume that these infinitival clauses are derived with any form of PRESENT:

- (30) Propositional infinitives that do not require double access reading (unlike PRESENT)
- a. #Five years ago, it was believed that Julia is pregnant.
 - b. #Five years ago, Julia claimed that she is pregnant.
 - c. Five years ago, Julia was believed to be pregnant.
 - d. Five years ago, Julia claimed to be pregnant.

(Wurmbrand 2014: 432, ex. 58)

As before, Wurmbrand concludes that these infinitives are deeply tenseless. Once again, however, the exfoliation/reverse engineering alternative permits these clauses to contain ancestral PAST. Since this instance of PAST is deleted by SOT, its presence may be posited in the reverse-engineering process without violating the strictures of PURE. Note that in the end, an infinitival clause that started its life with its tense specified as PAST ends up tenseless, just as in Wurmbrand’s theory. The crucial difference is derivational. I am not proposing that infinitival clauses are intrinsically tenseless. Under the analysis suggested here, some are interpreted as containing PRESENT, since that tense is minimal, even though others do end up truly tenseless, thanks to SOT deletion of PAST.

- (31) Speaker and hearer summary: propositional infinitives under verbs like *believe* and *claim*

Speaker: Speaker is free to posit any content whatsoever for T of the embedded clause (as before).¹⁷

¹⁷By “any content whatsoever”, I mean any content compatible with the rules that govern speaker’s derivations. Thus, for example, as Michelle Sheehan notes, the fact that a verb such as *plan* requires a semantically future complement will impel the speaker to include a form of *woll*. I should also note that some verbs impose post-exfoliation selectional requirements that reject derivations in which exfoliation has not created a nonfinite clause, as discussed in Pesetsky (2019). Such requirements also restrict the speaker’s derivation.

Hearer (restricted by PURE):

- a. Hearer may not posit a modal because none is selected.
- b. Hearer may posit PRESENT as the pre-exfoliation tense of the future modal because it is semantically minimal (as we saw in discussing AUX-drop), yielding *will* (as before).
- c. Hearer may posit PAST as the pre-exfoliation tense of the future modal so long as it is semantically inert due to SOT (as is always the case with *would*) (as before).

3.4 Why do propositional infinitives show only one side of the factative effect

I have suggested that AUX-drop and infinitival complementation tell a unified story about the effects of PURE. On one important point, however, the two discussions seem to point in different directions. In this section, I will suggest a way to reconcile them, though much remains to be worked out.

The factative effect for AUX-drop permits a silenced T to be understood by a hearer as PAST when the verb phrase it embeds is eventive, but not when it is a non-eventive. I suggested in Section 2.2 that PAST is available with an eventive verb phrase precisely because PRESENT is independently blocked with eventive predicates (unless they are understood as habitual or generic). For this reason, PURE permits the hearer to reverse-engineer a derivation in which the tense of the unpronounced auxiliary verb in C has the value PAST. This is the minimally semantically contentful choice compatible with the morphosyntactic environment. Why then do we not find a similar effect with propositional infinitives, where the same logic should permit a PAST interpretation for the embedded infinitival clauses of examples like (28e–f)?

(32) AUX-drop vs. propositional infinitive PAST-tense possibilities

- a. You see John yesterday? (AUX-drop)
'Did you see John yesterday?'
- b. *We believed Mary to see John yesterday. (*propositional infinitive*)
intended: 'We believed that Mary saw John yesterday.'
- c. *Sue claimed to see John yesterday.
intended: 'Sue claimed that she saw John yesterday.'

An important clue may lie in a fact pointed out to me by Susi Wurmbrand (personal communication). In propositional infinitives like those under discussion here, simple PAST can actually be overtly expressed by the use of auxiliary verb *have* plus the past participle, a combination that is obligatorily interpreted as perfect tense in clauses that remain finite:

- (33) Propositional infinitives in which *have*+participle \rightarrow PAST
- a. They believe(d) Mary to have seen John yesterday at 8:00.
 - b. They claim(ed) to have sung in the shower yesterday at 8:00.
 - c. They believe(d) [Bill to have known German when they were young].
 - d. They claim(ed) [to have known German well when they were young].

Independent of the puzzle of (32), the facts in (33) present an additional challenge to an exfoliation approach to non-finite clauses, since they display another unexpected difference in the semantics of finite clauses and their infinitival counterparts. I suggest that solving the puzzle of (33) may help solve the puzzle of (32) as well.

The nature of the English perfect tense is a hotly debated topic, but it appears that one of the several hypotheses still in the running (recently defended by Klecha 2016) is the claim that auxiliary HAVE-*en* is a realization of PAST, yielding present perfect interpretation when the T that selects it is PRESENT, and pluperfect interpretation when that T is PAST (see Grønn & von Stechow 2021: Section 3 (esp. 3.1), for discussion and summary). Suppose we accept this proposal. We must now ask why HAVE-*en* cannot be used as the sole tense-denoting element in a finite clause, which would incorrectly permit a sentence like *They have seen John* to be understood as a simple PAST-tense utterance, rather than a perfect. Let us imagine that an English clause must obey the following surface filter on the featural content of T:

- (34) T-valuation filter
 * T unless specified for PAST or PRESENT.

In a clause that contains T throughout the derivation, HAVE-*en* will never be able to serve as the sole bearer of tense. In any such clause, T must be PAST or PRESENT so as to not violate (34).¹⁸ The combination of T with HAVE-*en* will thus

¹⁸In constructions in which HAVE-*en* is embedded under an epistemic modal, its interpretation as PAST is extremely salient, e.g. *Sue must have seen John yesterday at 8:00*. HAVE-*en* is not

produce the semantics of pluperfect or perfect tense, depending on the value of T chosen.¹⁹

If, however, T is eliminated by exfoliation, then even if it was never valued PAST or PRESENT, it should not produce any sense of deviance: an instance of “salvation by deletion”. Such a derivation will produce no detectable violation of (34) precisely because the T that might have violated the filter is no longer present at the end of the derivation (after exfoliation). This is why HAVE-*en* may be the sole bearer of PAST in an infinitival clause, explaining the pure PAST-tense interpretation available to the embedded clauses of (33).²⁰

Returning now to the puzzle in (32), we might explain the unavailability of a PAST interpretation for a propositional infinitive as the result of the hearer’s strategy in (35):

- (35) Constraint on hearer’s ability to posit PAST in an infinitival clause
Because PAST can be overtly expressed in an infinitival clause, the hearer will assume that speaker would have expressed it overtly (using HAVE-*en* if PAST interpretation had been intended, and will therefore never posit PAST as a value for T in the absence of HAVE-*en*).

This proposal conforms to the spirit of PURE, since it continues to enforce unambitiousness when the hearer considers positing unpronounced material, but does not directly follow from it as stated. I leave that as a problem for future work. Crucially, note that (35) concerns PAST-tense *interpretation*, and therefore still does not prevent the hearer from positing a PAST specification for T that is deleted at LF by the SOT rule, as discussed in preceding sections.²¹

the sole bearer of tense here, however. Though *must* does not show a morphologically overt PRESENT~PAST alternation like *can~could*, we may presume that it is specified as PRESENT, and that (34) is therefore satisfied. I am grateful to Asia Pietraszko (personal communication) for raising this point. As Athulya Aravind (personal communication) notes, future perfect constructions make the same point even more clearly, e.g. *Sue will have seen John yesterday at 8:00*. Here of course, we have independent evidence that *will* includes a second instance of tense (*woll* + PRESENT); cf. *They claimed that Sue would have seen John by then* (with *woll* + PAST).

¹⁹The SOT rule does delete the PAST or PRESENT feature of T, and might be understood as producing a violation of the T-valuation filter as stated in (34), but the rule also binds the tense specification of the T that undergoes that rule to that of the T that triggered the rule. I will assume that for this reason a T that undergoes the SOT rule still counts as “specified” and does not violate (34).

²⁰Perfect interpretation is also possible. For example, *Mary lived here for many years* differs from *Mary has lived here for many years* in implying that she no longer lives here, but *I believe Mary to have lived here for many years* permits this reading.

²¹Interestingly, I do not believe SOT applies to instances of PAST whose sole exponent is HAVE-*en*. *Mary claimed to have been happy* lacks any reading in which happiness time overlaps claiming

The most important question facing us now, however, concerns AUX-drop. Why doesn't (35) prevent the hearer from positing PAST as an underlying value for T in an AUX-drop clause with an eventive predicate, as it does in a propositional infinitive? The answer is in fact straightforward. In AUX-drop as analyzed above (building on Fitzpatrick's proposals), T is never deleted. No exponent of T is heard by the hearer, true, but that is not because T has been deleted, but because T-to-C movement has applied and the contents of C were not interpreted by the phonology. In an AUX-drop question, T is present throughout the derivation, so no end run around (34) occurs (no "salvation by deletion"). As a consequence, HAVE-*en* can never be the sole bearer of tense in an AUX-drop clause, as illustrated by (36).

- (36) HAVE-*en* in AUX-drop yields present perfect meaning only (not PAST)
- a. *Mary written that message yesterday at 8:00? (*attempt at PAST*)
 - b. Mary written that letter yet? (*present perfect*)

To summarize: though both entail non-pronunciation of an exponent of tense, AUX-drop and infinitivizing instances of exfoliation are quite distinct processes. AUX-drop involves mere non-pronunciation of T in C, while infinitivizing exfoliation involves actual removal of T from the derivation. Their divergent behavior faced with an eventive predicate, seen in (32), follows from this difference. The T of clause that ends up non-finite may violate filter (34) without incurring any penalty. This in turn makes it possible for HAVE-*en* to produce a clause with simple PAST semantics, a possibility that prevents the hearer from positing PAST as the underlying specification for pre-exfoliation T in an infinitival clause without violating PURE, given (35). The T of an AUX-drop clause is never deleted. Consequently filter (34) prevents HAVE-*en* from ever being the sole tense in the clause, (35) is never invoked, and PAST interpretation for an eventive VP is compatible with PURE. At the same time, though AUX-drop and infinitivizing instances of exfoliation differ in this way, they impose a common burden on the hearer, who is faced in both cases with unpronounced instances of otherwise pronounced structure, hence their core similarity: the fact that T cannot be blithely posited as

time. This too makes (35) irrelevant for cases in which I have proposed that the hearer may posit PAST as a pre-exfoliation value for T without violating PURE because it is deleted by SOT (and thus counts as semantically minimal). Why SOT fails to apply to HAVE-*en* in the first place, however, is unclear to me. Carlo Geraci suggests that SOT might be more generally constrained to apply only across a clause boundary. This would also explain why PAST T + HAVE-*en*, e.g. *Mary had written the letter already*, can only be understood as a pluperfect, and not a present perfect, as one might expect if the PAST semantics of HAVE-*en* could be deleted at LF by the SOT rule.

bearing the value *PAST* for a non-eventive predicate, unless later deleted by SOT, but can only be identified as *PRESENT* (or tenseless, when an end run around (35) is made possible by exfoliation).²²

3.5 Predicates imposing simultaneity

Finally, we must take note of a third class of predicates discussed by Wurmbrand. These take infinitival complements, some of which have propositional semantics, but are fully compatible with eventive predicates and *PAST* interpretation of the complement, so long as the selecting predicate is itself *PAST* tense.

- (37) Predicates imposing their reference time on infinitival complement: *PAST*
- a. Yesterday, John tried/began . . . /managed . . . to sing (*tomorrow/*next week).
 - b. The bridge began/seemed to tremble (*tomorrow/*next week).
(Wurmbrand 2014: 436, ex. 66)

Substituting *PRESENT* tense for *PAST* eliminates the possibilities seen in (37):

- (38) Predicates imposing their reference time on infinitival complement:
PRESENT
- a. *John seems to sing right now.
 - b. John seems to know German. (cf. Wurmbrand 2014: 437)

Wurmbrand concludes that in the usage seen in (37), at least, these are “matrix predicates [that] impose their reference time as the reference time of the embedded infinitive” (p. 437). Once again, she proposes that these infinitival complements are deeply tenseless. Once again, the very fact that the matrix predicate imposes its reference time on the embedded infinitive can be understood as licensing the hearer to posit the corresponding tense specification as part of the pre-exfoliation derivation of the complement clause, as permitted by *PURE*.²³

²²Should tenselessness outcompete *PRESENT* as a value for *T* that may be assumed by a hearer reverse-engineering a propositional infinitive? If both count as maximally unambitious possibilities (total absence of value vs. value linked to always-available utterance time), the answer should be no, but some sharpening of the statement of *PURE* might be necessary.

²³Wurmbrand also discusses contexts in which predicates such as *seem* behave more like *believe*, which I will not summarize here. I believe the results of this discussion can be incorporated in the alternative advanced in this paper without change.

4 Conclusions

This paper has suggested an alternative to Wurmbrand's (2014) analysis of English infinitives as inherently tenseless. This analysis is not merely compatible with the exfoliation approach to infinitivization that I proposed in Pesetsky (2019), but also helps resolve a paradox lurking in the overall approach: the fact that infinitival clauses did not seem to present a derivational opacity argument for exfoliation from tense semantics parallel to the argument they offer from case morphology in examples like (16a–b) and (18). While NOM morphology survives the deletion of its finite T assigner, PAST tense and modal semantics in T does not.²⁴ If the proposal sketched here is correct, semantics does present a comparable derivational opacity argument in principle, but we are prevented from seeing it clearly by PURE, which prevents us as hearers from attributing non-minimal semantic content to a tense or modal that has been deleted by exfoliation. An additional argument for this approach came from the English AUX-drop construction, where PURE resolves a key contradiction arising from Fitzpatrick's otherwise optimal account.

If this style of explanation is fruitful, we should ask whether there are other problems and paradoxes that might be resolved by permitting the class of producible derivations to misalign with the class of reverse-engineerable derivations, as I have proposed in this paper. I have suggested that certain problems might be resolved if certain derivations producible by the speaker may not be reproduced by the hearer. Perhaps other problems might be resolved in the opposite manner, if the reverse engineering process hosted by the hearer permits options that are in fact barred for the speaker. For example, imagine that when the hearer attempts to reproduce the syntactic derivation of the speaker, they are free to ignore EPP features, so that a raised nominal in the speaker's utterance might remain unraised in the reverse-engineered hearer's derivation. In this respect, the hearer's

²⁴There are a number of important elephants in the room, which I have ignored here (in keeping with normal usage of the elephant metaphor). To mention just two that demand immediate attention:

Any instance of morphological syncretism, for example, raises issues for PURE. Why is *the sheep must leave* ambiguous between singular and plural *sheep*, and likewise, why is *They put up with it* ambiguous between PRES and PAST? Material unpronounced as a consequence of a morphological paradigm must somehow be excluded from PURE calculations.

Likewise, the phenomenon of "surface anaphora" (Hankamer & Sag 1976), whereby certain kinds of ellipsis demand an overt linguistic antecedent, is very much in the spirit of PURE (the antecedent licensing the otherwise non-minimal content posited as underlying the ellipsis), but recent work by Rudin (2019), among others has called renewed attention to instances of ellipsis whose interpretation includes material unsupported by the overt antecedent, another challenge for PURE. I thank Peter Grishin, personal communication, for raising this issue.

reverse engineering might show some ambition after all, in its reconstruction of the speaker's syntax, if not their semantics. This might be an approach to reconstruction phenomena worth exploring. Conversely, if one imagines that the hearer is free to assume EPP features not present in the speaker's derivation, one might be led to a new view of phenomena normally viewed as covert movement internal to the speaker's syntactic derivation. I will leave the question of whether these are (or are not) promising avenues of investigation open – a topic, I hope, for future conversation and debate with the dedicatee of this volume.

Acknowledgments

For useful discussion, I am grateful to the students in my Fall 2019 graduate seminar at MIT, where I first presented this material, and especially to my co-teacher and colleague Athulya Aravind. I have also benefited from the comments of students and visitors at a January 2020 class at the University of Vienna and the 2021 Winter Virtual New York Institute; from questions following a presentation at the 13th Brussels Conference on Generative Linguistics; and from discussions with Jeroen van Craenenbroeck, Sabine Iatridou, Donca Steriade, Esther Torrego, and Susi Wurmbrand. I am particularly grateful to Carlo Geraci and Michelle Sheehan for valuable comments on an earlier draft which improved the discussion substantially.

A December 2020 consultation on Facebook left me unclear whether “reverse engineer” or “reverse engineerer” is the better term. Strong views were offered by friends and colleagues on both sides of the question. I hope the dedicatee of this paper is content with my ultimate decision.

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Part II

Size beyond clausal complements

Chapter 11

On the size of Spell-Out domains: Arguments for Spell-Out of intermediate projections

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It is a widely held assumption in the Minimalist framework that Spell-Out domains are uniformly complements of phase heads. Contrary to this, the present paper proposes that a traditional intermediate or bar-level projection of phase heads constitutes Spell-Out domains if a phase head is in a spec-head agreement relation. I defend this proposal by examining cases of Spell-Out at CP-phase levels, discussing two types of phenomena which are sensitive to the size of Spell-Out domains. First, I discuss Richards's (2010) Distinctness. It regulates the distribution of functional items within a Spell-Out domain. Case resistance effects observed by Stowell (1981) are investigated in terms of Distinctness and it is shown that the distribution of different types of clauses is correctly accounted for by the proposed analysis, but not by the standard account of Spell-Out. Second, I discuss ellipsis under the view that ellipsis sites correspond to Spell-Out domains. It is shown that this approach to ellipsis accounts for Merchant's (2001) sluicing-COMP generalization and its exception when combined with the proposed analysis.

1 Introduction

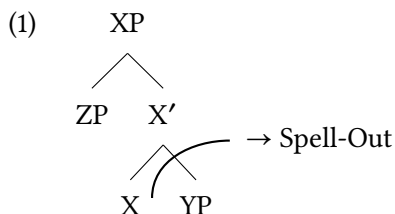
It has been widely assumed since Chomsky (2000) that the notion of phase plays a prominent role in the syntactic computation. One of its functions is to trigger the operation Spell-Out, which sends syntactic structures created by Merge in a bottom-up fashion to the sensorimotor interface. The application of Spell-Out makes its target inaccessible to syntactic operations at later stages (phase-impenetrability condition, Chomsky 2000) and, therefore, cyclicity effects are



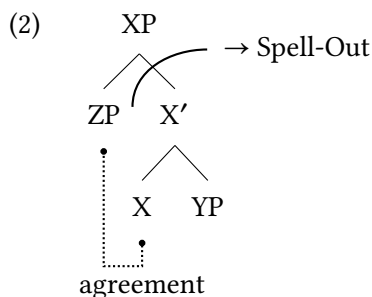
Akihiko Arano. 2021. On the size of Spell-Out domains: Arguments for Spell-Out of intermediate projections. In Sabine Laszakovits & Zheng Shen (eds.), *The size of things I: Structure building*, 227–245. Berlin: Language Science Press. DOI: ?? 

derived as a consequence of the multiple Spell-Out model adopted in the current Minimalist theorizing (Uriagereka 1999). Moreover, the phase-impenetrability condition succeeds in reducing computational burden because search space can be limited by Spell-Out.

This paper makes a proposal on the size of Spell-Out, which is standardly assumed to be the complement of a phase head, as schematized in (1):



In (1) X is a phase head and its complement, i.e. YP, constitutes a Spell-Out domain with the phase head and its specifier escaping being spelled out. The standard analysis assumes the size of Spell-Out domains not to change whether a phase head has a specifier or not. Instead, the paper proposes that a traditional intermediate projection undergoes Spell-Out if a phase head is in a spec-head agreement relationship, as shown in (2):



I empirically motivate this proposal by showing that it accounts for cross-constructural and cross-linguistic patterns related to Spell-Out at CP-phase levels.

First, this paper discusses Richards's (2010) Distinctness condition. Roughly put, it prevents two nodes that are of the same functional type from being in a single Spell-Out domain. Therefore, the size of Spell-Out domains is crucial. Case resistance effects observed by Stowell (1981) are examined and the distributional properties of different types of clauses are shown to fall out from the present analysis.

Second, I examine ellipsis under the view that it is a null form of Spell-Out, that is, ellipsis arises when Spell-Out domains receive no phonological realizations (Gengel 2006, 2009, van Craenenbroeck 2010, Bošković 2014, Wurmbrand 2017). It is shown that my proposal accounts for Merchant's (2001) sluicing-COMP generalization and, potentially, its exception.

This paper is organized as follows. Section 2 presents my proposal and how it is feasible in the current theory of syntax. Section 3 shows consequences my proposal brings to the Distinctness condition. Section 4 aims to account for the sluicing-COMP generalization. Section 5 is a conclusion.

2 Background and proposal

In the early Minimalist program (Chomsky 1995), the operation Merge is responsible for identifying labels and therefore labels are parts of the syntax. Thus, applied to two objects α and β , Merge forms a new object K, of the form $\{\gamma, \{\alpha, \beta\}\}$, where γ is its label. This form of Merge is no longer available in Chomsky (2013, 2015), where Merge is defined in the simplest form: $\text{Merge}(\alpha, \beta) = \{\alpha, \beta\}$ (see also Collins 2002). Since we do not have labels in syntax, we cannot have syntactic notions that are defined in terms of labels, such as complement, specifier, or intermediate/maximal projection. In this context, it is impossible to state, for example, that maximal projections, but not intermediate projections, can be a target of syntactic operations. Since we do not have the distinction between maximal and intermediate projections due to the lack of labels, we cannot refer to only one of them. Thus, there are no principled reasons to prohibit the application of syntactic operations *only* to traditional intermediate projections¹ and I propose that Spell-Out applies to an “intermediate projection” of a phase head if it undergoes “spec-head agreement,” arguing that selectional considerations make the proposed possibility of Spell-Out available.

(3) shows the proposed derivation of embedded interrogative clauses which involve “spec-head agreement” (shading shows a Spell-Out domain):

- (3) [_{VP} wonder [what_i C_Q [TP you T_φ cook t_i]]]

In the interrogative clause, the C-head agrees with the *wh*-phrase and it is moved to the edge of the CP, being in the “spec-head” configuration. Following Framp-ton & Gutmann (2000), I assume Agree to be feature sharing and would like to

¹I will keep using terms and labels of “intermediate or bar-level projections” and “spec-head relations” for expository purposes. Using these terms does not imply that they are syntactically definable.

suggest that “the specifier” shares features with a phase head as a consequence of “spec-head agreement.” I propose this shared feature on the specifier will do for selection from a higher head.^{2,3} In (3) the verb *wonder* selects an interrogative clause and I assume that, to satisfy this selectional requirement, the property of interrogative has to be syntactically present when the verb and the interrogative clause are merged. The property/feature of interrogative originally comes from the C-head but it also exists in the specifier of CP as a consequence of Agree. Since the feature on the specifier suffices for the selection, the phase C-head need not be accessible in the next cycle and, I propose, it is spelled out with its complement, as shown in (3). Note that the possibility of Spell-Out of “intermediate projections” relies on the feature sharing. When there is no agreement relationship between a phase head and its “specifier,” the complement of the phase head constitutes a Spell-Out domain. Consider (4a), which shows the intermediate stage of the derivation of (4b):

- (4) a. $[_{VP} \text{ think } [_{\text{what}_i} \text{ C } [_{TP} \text{ you } T_\phi \text{ cook } t_i]]]$
 b. What does John think you cooked?

In (4a) no spec-head agreement takes place. If the phase head were spelled out with its complement, the verb *think* would not see any feature of declarative when the verb and the clause are merged. Hence, the phasal complement, not ‘the intermediate projection,’ has to undergo Spell-Out here. The same goes for (5a), which shows the embedded clause with no specifier:

- (5) a. $[_{VP} \text{ think } [_{\text{C}} [_{TP} \text{ you } T_\phi \text{ cook}]]]$
 b. Does John think you cook?

²The idea that a shared feature plays a crucial role in selection is similar to Chomsky’s (2013) idea that the {XP, YP} structure can be labeled via Agree of their prominent features.

³The proposed analysis shares the same spirit as Ott’s (2011) analysis of free relatives. He argues for Spell-Out of “intermediate projections” based on free relatives. (i) shows his analysis of a free relative which occurs as a complement of verbs:

- (i) $[_{VP} \text{ eat } [_{\text{what}_i} \text{ C}_{FR} [_{TP} \text{ you } T_\phi \text{ cook } t_i]]]$

Ott argues that the free relative is formed via the movement of a *wh*-phrase triggered by the edge-feature of C_{FR} and the Spell-Out of C' . Ott motivates the Spell-Out of C' from the lack of interpretable features on C_{FR} . He argues, since C-heads in free relatives lack interpretable features, they are spelled out with TP in (i), and the element in [Spec, CP] serves for selection and label determination. He does not allow for Spell-Out of “intermediate projections” for interrogative CP since interrogative C has an interpretable feature that serves for selection from a higher head.

Summarizing, I have proposed that a traditional “intermediate projection” constitutes a Spell-Out domain if a phase head undergoes feature-sharing with its “specifier.” My proposal predicts that the size of Spell-Out domains changes depending on whether a phase head undergoes “spec-head agreement” or not. In the following sections, I present two kinds of cross-linguistic and cross-constructional evidence for my claim.

3 Distinctness effects

Richards (2010) proposes Distinctness as a condition imposed on linearization of syntactic objects:

(6) Distinctness

If a linearization statement $\langle \alpha, \alpha \rangle$ is generated, the derivation crashes.

It prohibits a linearization statement which instructs a certain node has to precede itself because it is contradictory. Richards argues that under the certain assumptions regarding the organization of grammar, Distinctness leads to the consequences that there cannot be two functional elements of the same syntactic category in a single Spell-Out domain.

Following Chomsky (1995, 2000, 2001), Richards assumes that trees created by syntax do not have information on linear order, and they are linearized via a version of Linear Correspondence Axiom (Kayne 1994) at the point of Spell-Out. Moreover, he adopts the framework of Distributed Morphology (Halle & Marantz 1993, Marantz 1997, Embick & Noyer 2007), where functional heads are associated with their phonological features via post-syntactic late insertion. Under this model of grammar, linearization of syntactic objects occurs prior to the assignment of phonological information to functional elements. It is then expected that different functional heads of the same type cannot be distinguished and may be regarded as the same syntactic object due to their scarcity of features that may be useful to differentiate them from each other. For concreteness consider the situation in which Spell-Out applies to the whole structure in Figure 1, in which two instances of functional category α are present.

Since the higher α asymmetrically c-commands the lower one, $\langle \alpha, \alpha \rangle$ is generated. Crucially these α 's are not distinguished because of the lack of vocabulary insertion at the stage of Spell-Out and the derivation crashes. The Distinctness condition thus forbids the same kind of functional categories to be in the same Spell-Out domain.

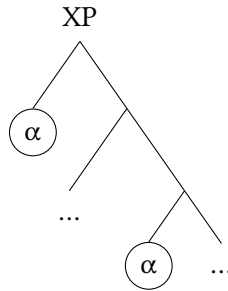


Figure 1: Structure with a Distinctness violation

The Distinctness condition has implications for a wide range of linguistic phenomena. One of them is case resistance (Stowell 1981), which is illustrated by facts like (7):

- (7) * They're talking about [that they need to leave].
(Richards 2010: 137)

To account for the ungrammaticality of (7) in terms of Distinctness, Richards assumes the structure in Figure 2 and adopts two assumptions. First, P is not a phase head when taking CP-complements. Second, following Emonds (1985), prepositions and complementizers are effectively of the same category, hence we cannot have P and C in a single Spell-Out domain.

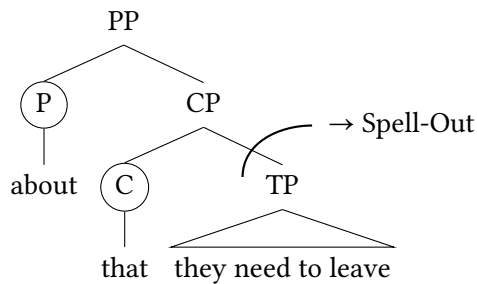


Figure 2: The PP of (7)

Given these assumptions, (7) is ruled out because P and C are in the same Spell-Out domain. When the phase above CP triggers Spell-Out, P and C are linearized in the same Spell-Out domain. Since P and C belong to the same type, they cannot be linearized, causing a violation of Distinctness.

The case resistance principle does not apply to interrogative clauses, as Richards (2010: 139) notes:

- (8) They're talking about [what they should buy].
(Richards 2010: 139)

This fact, however, cannot be accounted for in terms of Distinctness, if we assume the standard version of Spell-Out. It is incorrectly predicted that P and C induce a contravention of Distinctness in Figure 3, as in Figure 2.⁴

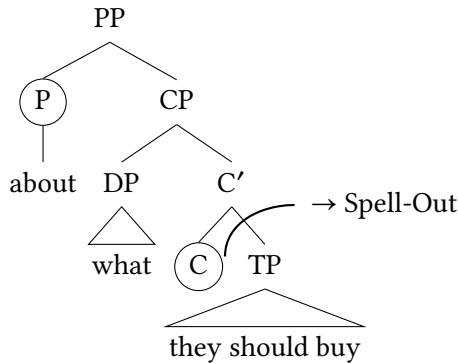


Figure 3: The PP of (8) in the standard analysis

One might argue that case resistance effects are absent here because there is a DP-layer above CP and it triggers Spell-Out. This analysis predicts the absence of Distinctness effects between elements inside interrogative clauses and those outside them.⁵ There is a piece of evidence for the relevance of Distinctness here, however. Consider (9):

⁴Recall that linearization takes place before late insertion. Therefore, as far as linearization is concerned, phonologically overt and null functional items have the same status and both of them can cause a violation of Distinctness.

⁵This is the analysis of the grammaticality of (8) by Richards (2010: 139, 215 fn. 67). He motivates the presence of DP-layers by noting that interrogative clauses, like nominals, have to come with *of* when they are complements of nominals:

- (i) the question *(of) [what they should buy]
(Richards 2010: 139)

The postulation of DP-layers above interrogative clauses, however, leads to a problem when we look at (9a). Richards (2010) accounts for its ungrammaticality as a Distinctness effect with the structure in Figure 4. Note that if there were a DP-layer above CP here, no Distinctness effects would arise because the D-head would trigger Spell-Out of CP. Thus, Richards (2010) needs to assume that interrogative clauses involve DP-layers when their specifier is DP, but not when their specifier is PP. In the following I develop an alternative analysis which avoids this complication.

I also would like to mention that there are cases in which interrogative clauses do not need

- (9) a. * They're talking about [with whom they should discuss this].
 b. They don't know [with whom they should discuss this].
 (Richards 2010: 139)

(9) shows interrogative clauses with a PP specifier. They can be complements of verbs, but not prepositions. This contrast suggests that the two prepositions in (9a) induce a violation of Distinctness, as shown in Figure 4.

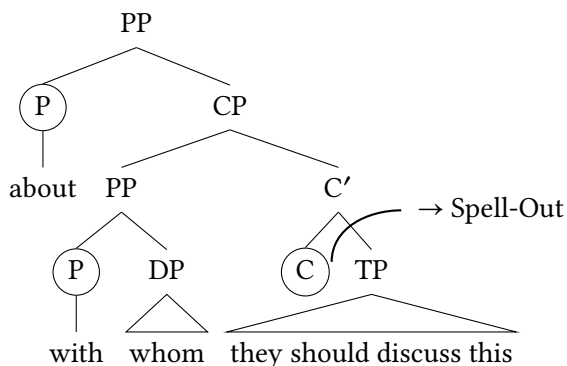


Figure 4: The PP of (9a) in the standard analysis

Given the Distinctness-based account of (9a), the question arises why Figure 3 does not induce such a violation. The grammaticality of (8), on the one hand, suggests that the edge of the free relative is separated from the preposition by a Spell-Out boundary. The ungrammaticality of (9a), on the other hand, suggests that they belong to the same Spell-Out domain. This state of affairs is hard to reconcile under the standard analysis of Spell-Out since it defines the edge of phases as a phase head and its specifier uniformly. The proposed analysis, by contrast, gives us a correct characterization of Spell-Out domains to account for these cases. Consider the structure of these cases in terms of the present proposal given the structure of declarative and interrogative clauses.

First, declarative clauses take no specifier. Therefore, TP-complements of C are Spell-Out domains. Case resistance effects for declarative clauses then are

the insertion of *of*, which may suggest that interrogative clauses need not be nominals at least in some cases:

- (ii) In many cases there is a question whether there is a code violation.
 (<https://bellevuewa.gov/city-government/departments/community-development/conflict-assistance/types-of-conflicts>)

expected given the structure in Figure 2. Second, interrogative clauses involve “spec-head agreement” with *wh*-phrases. Thus, “intermediate projections” of C undergo Spell-Out. Figure 5 is the structure for (8).

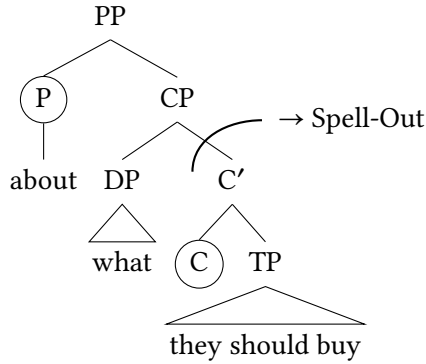


Figure 5: The PP of (8) in the proposed analysis

Crucially, the present analysis puts the phase head C into the Spell-Out domain with its complement. This separates the preposition and the complementizer into different Spell-Out domains, avoiding a violation of Distinctness. The absence of case resistance effects for interrogative clauses is thus also correctly predicted. Finally, consider (9a). The present analysis gives it the structure in Figure 6.

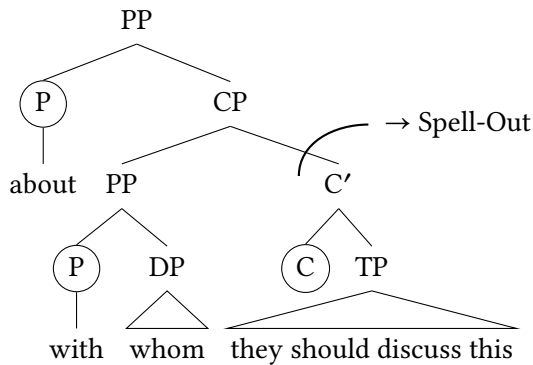


Figure 6: The PP of (9a) in the proposed analysis

Due to the “spec-head agreement” the phase head is spelled out with its complement. Still, the specifier of the phase head escapes Spell-Out. Therefore, the Distinctness effect is correctly predicted to be caused by the two prepositions.

The proposed analysis thus gives an account of the case resistance patterns of declarative and interrogative clauses.

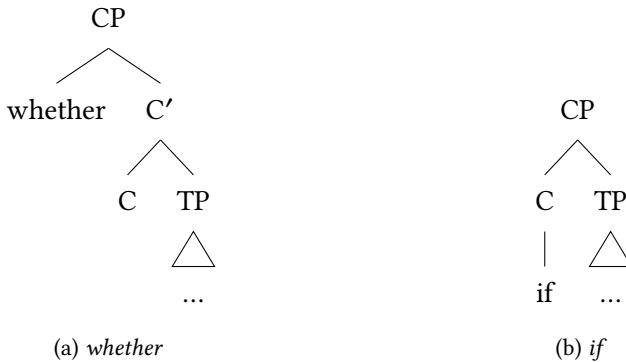
It should be noted that my analysis allows an interrogative clause to occur as a complement of prepositions not because it is an interrogative clause but because “spec-head agreement” occurs within it. Similarly, it prevents declarative clauses from occurring as a complement of prepositions not because it is a declarative clause but because there is no Spell-Out of an “intermediate projection.” My proposal predicts that prepositions can take clauses as long as there is an application of Spell-Out of “intermediate projection,” irrespective of their semantic types. I show that this prediction is correct using *whether*-clauses, *if*-clauses, and *how*-clauses.

Kayne (1991) discusses the status of interrogative *whether* and *if*. Though both of these can introduce embedded yes-no interrogative, they show certain syntactic differences. For example, consider (10):

- (10) a. I wonder whether I should go.
b. I wonder whether to go.
c. I wonder whom I should invite.
d. I wonder whom to invite.
e. I wonder where I should go.
f. I wonder where to go.
g. I wonder if I should go.
h. *I wonder if to go.
(Haegeman & Guéron 1999: 175–176)

(10a–10f) shows that *whether*, like *wh*-phrases, can introduce finite and non-finite clauses. This leads me to the treatment of *whether* as a kind of *wh*-phrase. (10c–10h) indicates that *if* behaves differently from *wh*-phrases with respect to the selection of clauses: it has to take finite clauses. To express the difference in question, I assume, following Kayne (1991), that *whether* is a *wh*-phrase that occupies a specifier of C, while *if* is a complementizer. More specifically, I assume the structures in Figure 7 for interrogative clauses introduced by these elements.

Whether occupies a specifier of C which requires its specifier to be a *wh*-phrase. This kind of C does not impose selectional restrictions on the finiteness of TP. *If* is a complementizer and needs to take a finite clause as its complement as its selectional restrictions. What is the most important difference on these structures in the present discussion is that the *whether*-clause involves “spec-head agreement,” whereas *if*-clause does not. This difference leads to the prediction

Figure 7: Structures of *whether*- and *if*-clauses

that *whether*-clauses, but not *if*-clauses, can occur as complements of prepositions. Since there is “spec-head agreement” within *whether*-clauses, C-heads are spelled out with their complements. Therefore, they are spelled out before prepositions which take them as, with no violations of Distinctness. *If*-clauses, on the other hand, send TP to the interface given its structure. When P selects CP, then, C and P belong to the same Spell-Out domain and cause a violation of Distinctness. (11) shows that the prediction is borne out:

- (11) It depends on {*whether*|**if*} we have enough time left.
(Huddleston & Pullum 2002: 974)

The proposed analysis thus correctly predicts that clauses cannot be selected by prepositions with no spec-head agreement, even if they are interrogative.⁶

⁶The present analysis predicts the contrast in (11) assuming the structural differences between *whether*- and *if*-clauses in Figure 7. As a reviewer points out, some analyses of *if*-clauses posit a null operator in its specifier (see Larson 1985, Han & Romero 2004, Wu to appear). Under this analysis, the null operator would agree with *if* and the present analysis does not predict the contrast between *whether*- and *if*-clauses in question. The reviewer points out that the variation in the structural analysis of *if*-clauses may be related to speaker variation of judgment of data like (11). S/he notes that “[*it depends on if*] does not sound too bad in [his/her] dialect of English (maybe slightly worse than *whether*)” and provides the following naturally occurring example of *depends on if*:

- (i) Carmelo Anthony’s impact depends on if he finishes games.
(<https://www.youtube.com/watch?v=oa7aolbngU>)

Given the structural variation in the structure of *if*-clauses, the present analysis predicts this variation among speakers. For speakers who reject *depends on if*, they assume the structure

The present analysis also predicts that declarative clauses can occur as complements of prepositions if they involve Spell-Out of ‘intermediate projections.’ Legate (2010) discusses declarative clause introduced by *how*:

- (12) They told me how the tooth fairy doesn’t really exist.
‘They told me that the tooth fairy doesn’t really exist.’
(Legate 2010: 121)

She argues that *how*-clauses are derived by base-generating *how* in CP-specifiers. Interestingly, this type of declarative clauses can be complements of prepositions.

- (13) They told me about how the tooth fairy doesn’t really exist.
(Legate 2010: 122)

Though Legate assumes null DP-layers above CP to account for their behaviors like definite DPs, this type of clause provides a potential case of declarative clauses with “spec-head agreement” and they can be complements of P.⁷

To summarize, this section has discussed the distribution of various types of clauses. It has shown that the syntactic structure, but not the semantics, of clauses, is important. Given Distinctness, the proposed analysis has offered an account for it, correctly predicting that the presence or absence of ‘spec-head’ agreement and the category of ‘specifier’ play an important role.

4 Sluicing

This section aims to derive Merchant’s (2001) sluicing-COMP generalization and give an account of its exceptions from the proposed mechanism of Spell-Out. In

in Figure 7b, in which no spec-head agreement occurs, hence a violation of Distinctness is caused when *if*-clauses occur as a complement of P. For speakers who accept it, *if*-clauses have a null operator in its specifier and ‘spec-head agreement’ triggers Spell-Out of ‘intermediate projections,’ as in *whether*-clauses, and therefore they do not find the contrast between *whether*- and *if*-clauses in question. I would like to thank the reviewer for raising this point.

Another reviewer points out that *if*-clauses can be used with prepositions in the combination of *about if* and *as if*. He or she also notes that in these usages the *if*-clauses are not interrogative types, which I discussed in the main text. This may suggest that, contrary to interrogative *if*-clauses, these *if*-clauses involve structures with ‘spec-head agreement.’ I would like to thank the reviewer for noting these constructions and to leave the investigation of these cases for future research.

⁷It is worth mentioning that Legate notes close resemblances between *how*-clauses and free relatives involving *how*, and Ott (2011) argues for Spell-Out of “intermediate projections” for the derivation of free relatives. See Footnote 3 for his analysis of free relatives.

so doing, I assume that ellipsis has a direct connection with Spell-Out domains. Specifically, I assume that ellipsis arises as a consequence of not realizing a Spell-Out domain at PF (Gengel 2006, 2009, van Craenenbroeck 2010, Bošković 2014, Wurmbrand 2017).

Based on a number of languages, Merchant (2001: 62) argues for the generalization (14):

- (14) In sluicing, no non-operator material may appear in COMP.

Let us first see the validity of this generalization. English, Dutch, German, and Danish all exhibit verb-second in matrix interrogatives:

- (15) a. Who has Max invited? [English]
b. Wen hat Max eingeladen? [German]
c. Wie heeft Max uitgenodigd? [Dutch]
d. Hvem har Max inviteret? [Danish]
(Merchant 2001: 63)

When sluicing applies in these sentences, the remnant cannot include the auxiliary:

- (16) a. A: Max has invited someone.
B: Really? Who (*has)? [English]
b. A: Max hat jemand eingeladen.
B: Echt? Wen (*hat)? [German]
c. A: Max heeft iemand uitgenodigd.
B: Ja? Wie (*heeft)? [Dutch]
d. A: Max har inviteret en eller anden.
B: Ja? Hvem (*har)? [Danish]
(Merchant 2001: 63)

Given the structure shown in Figure 8 and the TP-Spell-Out/-ellipsis analysis of sluicing, the question arises as to why the auxiliaries must be elided in (16).⁸

⁸One may account for the obligatory absence of auxiliaries in matrix sluicing by arguing that ellipsis of TP blocks T-to-C head-movement. Lasnik (1999) and Boeckx & Stjepanović (2001) develop such analyses. However, Merchant (2001) shows that the sluicing-COMP generalization holds even for material usually base-generated in C. For example, certain varieties of Dutch allow an overt complementizer to co-occur with a *wh*-phrase in [Spec, CP]:

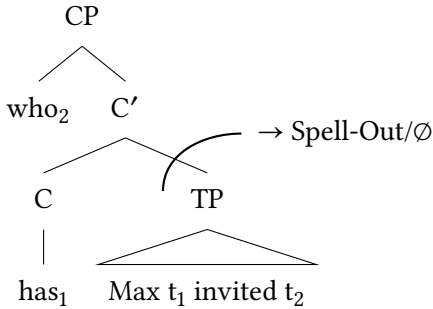


Figure 8: Sluicing in the standard analysis

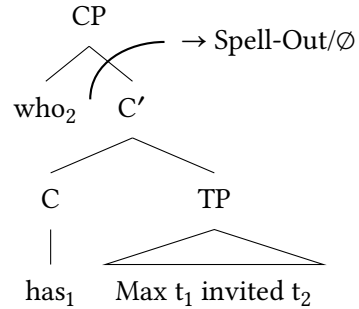


Figure 9: Sluicing in the proposed analysis

My proposal on Spell-Out domains accounts for the sluicing-COMP generalization straightforwardly. Consider Figure 9, which shows the present analysis of sluicing. Since interrogative clauses involve “spec-head agreement,” Spell-Out/ellipsis targets C’. Since the C-head is a part of the Spell-Out domain, only the “specifier,” i.e. *wh*-operator, can survive sluicing.

It is tempting to try to account for counter-examples of the sluicing-COMP generalization in terms of the present analysis. Takita (2012) provides such a counter-example from Japanese. He argues that a certain type of apparent sluicing in Japanese are “genuine” sluicing constructions in the sense that it is derived by movement of *wh*-phrases followed by clausal ellipsis, as in sluicing, for example, in English.⁹ He presents (17a) as a real sluicing example in Japanese. It

-
- (i) Ik weet niet, wie (of) (dat) hij gezien heeft. [(esp. Southern) Dutch]
 I know not who if that he seen has
 ‘I don’t know who he has seen.’
 (Merchant 2001: 74)

Importantly, a grammatical sluiced counterpart of (i) involves only *wh*-phrase:

- (ii) Hij heeft iemand gezien, maar ik weet niet {wie |*wie of |*wie dat |*wie of dat}.
- he has someone seen but I know not who who if who that who if that
- ‘He saw someone, but I don’t know who.’
- (Merchant 2001: 75)

[Dutch]

This shows that the absence of T-to-C movement in sluicing cannot be the whole story of the sluicing-COMP generalization.

⁹Japanese has the construction that is apparently sluicing but has a different structure from real

involves control predicates which take interrogative non-finite clauses and the second sentence involves sluicing, whose structure is shown in (17b):

- (17) a. Taroo-wa [PRO dono zyaanaru-ni zibun-no ronbun-o das-oo
Taroo-TOP which journal-to self-GEN paper-ACC submit-INF
ka] kimeta-ga, Hanako-wa [dono zyaanaru-ni ka] kimekaneteiru.
Q decided-but Hanako-TOP which journal-to Q cannot.decide
'(intended) Though Taroo decided [to which journal [to submit his
paper]], Hanako cannot decide [to which journal [to submit her
paper]].'
- b. Hanako [_{VP} [_{CP} to which journal₁ [_{TP} PRO ...t₁] C_Q] cannot.decide]
-

Note that sluicing in Japanese leaves the C-head as well as *wh*-phrase intact, thus posing a counter-example to the sluicing-COMP generalization. Under the

sluicing. A notable characteristic of this construction is that it allows the copula *da* to occur in the construction.

- (i) Taroo-wa [Zi-roo-ga nanika-o katta to] itteita-ga, boku-wa [nani-o (da)
Taroo-TOP Zi-roo-NOM something-ACC bought that said-but I-TOP what-ACC COP
ka] sir-anai.
Q know-not
'Taroo said that Zi-roo bought something, but I don't know what.'

Importantly, this copula cannot occur in embedded questions:

- (ii) Taroo-wa [Zi-roo-ga nanika-o katta to] itteita-ga, boku-wa [kare-ga nani-o
Taroo-TOP Zi-roo-NOM something-ACC bought that said-but I-TOP he-NOM what-ACC
katta (*da) ka] sir-anai.
bought COP Q know-not
'Taroo said that Zi-roo bought something, but I don't know what he bought.'

This contrast suggests that it is unlikely that (i) is derived from (ii).

This kind of complication will not arise for "genuine" sluicing since it does not allow the copula to occur. Compare (iii) and (17a):

- (iii) * Taroo-wa [PRO dono zyaanaru-ni zibun-no ronbun-o das-oo ka] kimeta-ga,
Taroo-TOP which journal-to self-GEN paper-ACC submit-INF Q decided-but
Hanako-wa [dono zyaanaru-ni da ka] kimekaneteiru.
Hanako-TOP which journal-to COP Q cannot.decide
'(intended) Though Taroo decided [to which journal [to submit his paper]], Hanako
cannot decide [to which journal [to submit her paper]].'

See Takita (2012) for arguments for the real sluicing status of the construction in question.

present analysis, that the C-head survives sluicing means that C-head does not undergo “spec-head agreement” and only the TP-complement is spelled out or elided. The absence of “spec-head agreement” in Japanese sluicing does not seem unreasonable given that Japanese is often characterized as an agreement-less language and lacks obligatory *wh*-movement. Though the detail of the analysis needs to be worked out I believe that the present analysis tells us some insight as to why Japanese does not conform to the sluicing-COMP generalization.¹⁰

To summarize this section has offered an account of Merchant’s (2001) generalization in terms of ellipsis as a null form of Spell-Out. That non-operator materials do not survive sluicing has been argued to be a consequence of ‘spec-head agreement’ in sluicing, which makes traditional C-bar projections a Spell-Out/Ellipsis site.

5 Conclusion

This paper has proposed that “intermediate projections” undergo Spell-Out when phase heads enter a “spec-head” relationship. I have shown that the proposed analysis accounts for case resistance effects in terms of Distinctness and for the sluicing-COMP generalization under the view of ellipsis as null Spell-Out.

Acknowledgements

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¹⁰ As reviewers point out, there are other cases which are argued to be an instance of sluicing with an non-operator remnant, i.e., counter-examples to Merchant’s (2001) generalization (see van Craenenbroeck (2010), van Craenenbroeck & Lipták (2013), Marušič et al. (2015, 2018) a.o.). Generally speaking, these cases are analyzed within the cartographic approach, which posits the rich structure within CP-areas (Rizzi (1997) et seq.), and non-operator remnants are argued to be in the fine-grained CP-structures. The present paper assumes a parsimonious structure for CP. I hope to address in future research the question of how the present analysis deals with these cases and it can be implemented within the cartographic approach.

Abbreviations

ACC accusative
COP copula
GEN genitive
INF infinitive

NOM nominative
Q question particle/marker
TOP topic

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Chapter 12

Stripping in Hindi: Does clause size matter?

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Wurmbrand (2017) shows that *that*-less complements can embed the ellipsis construction known as stripping in English. In Hindi, it is possible to embed stripping even in the presence of the complementizer like element *ki*. We argue that the crucial difference between English and Hindi is the position in the structure the complementizer resides. The analysis of Hindi stripping also sheds light on negative stripping and alternative questions.

1 Introduction

Wurmbrand (2017) explores the elliptical operation known as stripping. In the original formulation of the stripping transformation, the structural condition for the transformation was specified as conjunction (see e.g., Hankamer 1979). This was done to ensure that ellipsis could not occur in embedded environments. As the sentences in (1) suggest, stripping is possible in conjoined structures, but not embedded under speech and attitude verbs (elided material appears in ~~strikeout~~).

- (1) a. Jane loves to study rocks and geography ~~she likes to study~~ _t too.
b. * Jane loves to study rocks and John says that geography ~~she loves to study~~ _t too.

Following in this tradition, Merchant (2003) also specifies that stripping can only occur in coordinations by having the ellipsis licensing E-feature come with a *u*Conj feature that must be checked in an agree relation with a conjunction head. Wurmbrand notes that such theories cannot account for cases where stripping is



possible in embedded environments when there is no overt complementizer as shown in (2).

- (2) Jane loves to study rocks and John says geography ~~she loves to study~~ ~~t~~ too.

Based on the distinction between sentences like (1b) and (2), Wurmbrand proposes the generalization in (3).

- (3) *Embedded stripping generalization*
Embedded stripping is only possible when the embedded clause lacks a CP.

She goes on to propose a novel analysis of stripping that accounts for this generalization. Near the end of her paper, she considers languages where it is not clear that (3) holds. Consider the example in (4) from Hungarian (van Craenenbroeck & Lipták 2006, 2008, 2013). In (4), it appears that embedded stripping is possible even though the complementizer head *hogy* is present.

- (4) János meghívott valakit és azt jiszem hogy Bélát.
János invited someone.ACC and that.ACC think that Béla.ACC
'János invited someone and I think that it was Bela.'

One language not discussed by Wurmbrand is Hindi. In this paper we demonstrate that Hindi *ki* can also be present in embedded stripping, but does not conform to the generalization that languages that allow for a structure like (4) have *wh*-movement to the specifier of FocP. We instead put forth an analysis based on the respective height of the complementizer like elements. This analysis can provide a satisfactory answer to this puzzle and also has implications for the nature of Hindi complementation, the structure of negative stripping and also the derivation of alternative questions.

The paper is outlined as follows, in Section 2, we explore the Hindi data and the distribution and nature of *ki* in Hindi. In Section 3, we present our analysis and some extensions to different elliptical constructions. In Section 4, we conclude.

2 Initial Hindi data

Like English, Hindi allows for stripping in coordinations with *lekin* 'but' and *aur* 'and'. This is demonstrated in (5) with *lekin*. In (5), the second conjunct has undergone stripping only leaving negation and *Mohan-ko* behind as the remnant.

- (5) Sita-ne Ram-ko tohafaa diyaa, lekin Mohan-ko nahi.
 Sita-ERG Ram-DAT gift give.PRF but Mohan-DAT NEG
 ‘Sita gave Ram a gift, but not Mohan.’

Note that *Mohan-ko* must bear the dative case, if it appears in the unmarked absolutive as in (6), the example becomes ungrammatical. This follows from the ellipsis analysis of (5), as case connectivity is a hallmark characteristic of clausal ellipsis (Merchant 2001).

- (6) *...lekin Mohan nahi.
 ...but Mohan.ABS NEG
 ‘...but not Mohan.’

In addition to case-connectivity, Hindi stripping also conforms to the P-stranding generalization. Example (7) shows that Hindi postpositions cannot be stranded under movement and also obligatorily appear in the Hindi sluicing like construction.

- (7) a. *Kis aap ke saath kaam kar-te haiN.
 who 2PL GEN with work do-HAB AUX
 Intended: ‘Who do you work with?’
 b. Sita khaana pakaa rahii hai, par Ali-ko nahiiN pa-taa
 Sita food cook PROG AUX.PRS, but Ali-DAT NEG know-HAB.M
 kis-ke liye/*kis/kuan.
 who-GEN for/*who.OBL/*who.NOM
 ‘Sita is cooking, but Ali doesn’t know for whom.’
 (Gribanova & Manetta 2016: 643)

Just as in the sluicing like construction, stripping also obligatorily requires the postposition, as shown in (8).

- (8) Ham-ne Ravi ke liye khaanaa banaayaa, aur Mohan ke *(liye) bhii.
 1PL-ERG Ravi GEN for food make.PRF.3 and Mohan GEN *(for) also
 ‘We made food for Ravi and, for Mohan too.’

Now let us turn to the stripping in embedded clauses. These judgments are less clear cut than others presented here. Gribanova & Manetta (2016) assign similar examples “?/*”. It is unclear whether this indicates that there is inter speaker variation. The Hindi speakers consulted for this paper (including the second author)

allow for embedded striping, and as shown in (9), it is possible with or without the complementizer like element *ki*.¹

- (9) Sita-ne daawaa kiyaa ki Ram use bahar ghumaane le jaa saktaa
 Sita-ERG claim do.PRF KI Ram her out visit.INF take go can.IMPRF
 hai, lekin vah nahii sochtii (ki) Mohan bhii.
 be.PRES, but she NEG think.IMPRF (KI) Mohan also
 ‘Sita claimed that Ram would ask her out, but she didn’t think Mohan too.’

Kush (2016) also reports similar variation in such structures, which he refers to as single remnant gapping. For a subset of his consultants, the examples in (10) and (11) are acceptable.

- (10) Akhbaar-me likhaa thaa ki Manu-ne Sita-ko dehk-aa,
 newspaper-in written aux.PAST.M.3SG C Manu-ERG Sita-OBJ see-PFV.M.SG
 lekin magazin-me likhaa thaa ki Rina-ko dekh-aa.
 but magazine-in written aux.PAST.M.3SG C Rina-OBJ see-PFV.M.SG
 ‘It was written in a newspaper that Manu saw Sita, but it was written a magazine that (Manu saw) Rita.’
- (11) Akhbaar-me likhaa thaa ki Manu-ne Sita-ko dehk-aa,
 newspaper-in written aux.PAST.M.3SG C Manu-ERG Sita-OBJ see-PFV.M.SG
 lekin magazin-me likhaa thaa ki Rina-ne
 but magazine-in written aux.PAST.M.3SG C Rina-ERG
 Sita-ko dekh-aa.
 Sita-obj-see-PFV.M.SG
 ‘It was written in a newspaper that Manu saw Sita, but it was written in a magazine that Rina (saw Sita).’ (Kush 2016: 70 & 71)

This variation also appears to be tied to availability of embedded gapping. For all of Kush’s consultants that found (10) and (11) acceptable, they also allowed for embedded gapping, as shown in (12) (see also Farudi 2013 for similar observations and for further discussion).

¹Bhattacharya & Simpson (2012) note that *ki* occurs in Hindi sluicing like constructions as well, as shown below.

- (i) Raam-ne kuch ciiz cori-kii-thii, par mujhe nahe maluum *(ki) kyaa.
 Raam some thing stealing-DO-PST but I NEG know C what
 ‘Ram is stealing something but I don’t know what.’ (Bhattacharya & Simpson 2012: 199)

Our informants also allow for *ki* to occur in sluicing like constructions, but like the stripping examples its presence is not obligatorily, but is slightly preferred.

- (12) Manu-ne Sita-ko dekh-aa aur [Rina-ne soch-aa/
 Manu-ERG Sita-OBJ see-PFV.M.SG and [Rina-ERG think-PFV.M.SG/
 Rina-ko lag-aa] ki Tanu-ne Mira-ko dekh-aa.
 Rina-DAT strike-PFV.M] C Tanu-ERG Mira-OBJ see-PFV.M.SG
 ‘Manu saw Sita and Rina thought/ it seemed to Rina that Tanu saw Mira.’
 (Kush 2016: 53)

This correlation is suggestive of analyses that treats gapping as a subspecies of stripping, but with multiple remnants (see Johnson 2018 for extensive discussion of the relation between the two constructions).²

While the interspeaker variation found in Hindi is interesting and deserves further attention, for our purposes, we will focus on the subset of Hindi speakers that do allow for embedded stripping and gapping. For such speakers, both embedded stripping and gapping are allowed in the presence of the complementizer like element *ki*.

Note again that we find the case connectivity effects that we saw in the more classic cases of stripping (13a), and as shown in (13b) we once again see obligatory postposition pied piping.

- (13) a. Sita-ne Ram-ko tohafa diya aur mujhe lagta hai
 Sita-ERG Ram-DAT gift give.PRF and 1SG.DAT feel be.PRES
 Mohan-*(ko) bhii.
 Mohan-*(DAT) also
 ‘Sita gave Ram a gift and I think Mohan too.’
 b. Ham-ne Ravi ke liye khaana banaaya aur mujhe lagta hai
 1PL-ERG Ravi GEN for food make.PRF.3 and 1SG.DAT feel
 hai Mohan ke liye bhii.
 be.PRES Mohan GEN for also
 ‘We made food for Ravi and I think for Mohan too.’

This once again suggests that clausal ellipsis is also at work in such examples.

We find another type of clausal ellipsis reminiscent of stripping sometimes referred to as alternate negation clauses in Sinha & Thakur (2005). As far as we know,

²As Johnson notes, gapping examples, originally from Weir (2014), parallel to Wurmbrand’s stripping examples are also acceptable, as shown below.

- (i) a. John ate oysters and I suspect Mary swordfish.
 b. John ate oysters and I imagine Mary swordfish. (Weir 2014: 333)

Just as in Wurmbrand’s examples, the complementizer *that* must be absent in such examples.

this construction has received less attention in the generative literature. Interestingly for our purposes, the negative element that proceeds the remnant in such constructions is morphologically complex, consisting of a negative morpheme *naa* and *ki*, the complementizer like element.³ Just as in the previous examples, case-matching is enforced, as shown in (14).⁴

- (14) Ham-ne aap-ko bulaayaa thaa naaki un-*(ko).
 1PL-ERG 2SG-DOM called be.PST NEG.KI 3PL-DOM
 ‘We called you, not them.’

As with the other examples, postposition omission is not allowed, as shown in (15).

- (15) Ham-ne Ravi ke liye khaanaa banaayaa naaki Mohan ke *(liye).
 1PL-ERG Ravi GEN for food make.PRF.3 NEG.KI Mohan GEN *(for)
 ‘We made food for Ravi, not for Mohan.’

The above data also rule out the possibility that the ellipsis site contains a cleft or copula structure. In the examples below we see that continuations with a copula are ungrammatical.

- (16) a. *Ham-ne Ravi ke liye khanna banaayaa thaa aur mujhe lagtaa
 1PL-ERG Ravi GEN for food make.PRF.3 be.PST and 1SG.DAT feel
 hai ki Mohan ke liye bhii thaa.
 be.PRES KI Mohan GEN for also be.PST
 Intended: ‘We made food for Ravi and I think for Mohan too.’
 b. *Ham-ne aap-ko bulaayaa thaa naaki un-ko thaa.
 1PL-ERG 2SG-DOM call be.PST NEG.KI 3PL-DOM be.PAST
 Intended: ‘We called you, not them.’

So it appears that the complementizer like element *ki* can occur in stripping like constructions in Hindi. Both in embedded environments (for some speakers) and in the alternate negation clauses.

³*na(a)* is just one of the three negative morphemes found in Hindi (*mat* and *nahii* being the other two). It occurs with most non-indicative verb forms and also in *neither ... nor* constructions. See Bhatia 1995 for extensive discussion of negation in Hindi.

⁴It has also been claimed that *kyuNki* ‘because’ can be decomposed in to *kyuuN* ‘why’ + *ki* and *jabki* ‘whereas’ can be decomposed into *jab* ‘when’ + *ki*.

2.1 Does Hindi have *wh* focus movement?

As we have shown Hindi does have a stripping like operation even in the presence of the complementizer like element *ki*. In this section, we consider whether Hindi conforms to the generalization that languages that allow for stripping with complementizers have obligatory focus driven *wh*-movement (van Craenenbroeck & Lipták 2013).

Hindi *wh*-questions have been extensively studied (see Dayal 2017 for a recent discussion), and it has been suggested that Hindi does have focus driven movement, but to the specifier of *v*P, not a position in the clausal periphery. This explains the fact that *wh*-elements occur immediately before the verb, as shown in (17).

- (17) a. Anu-ne kyaa khariidaa?
 Anu-ERG what bought
 ‘What did Anu buy?’
 b. Yeh kavitaā kis-ne likhii?
 this poem who-ERG wrote
 ‘Who wrote this poem?’
 c. Tum-ne paisaa kis-ko diyaa?
 you-ERG money who-DAT gave
 ‘Who did you give money to?’

It is unclear whether such movement is obligatory, however. As we see in (18), the *wh*-elements can also remain in-situ without issue, and in some cases, sound more natural than their counterparts in (17).

- (18) a. Kis-ne yeh kavitaā likhii?
 who-ERG this poem write
 ‘Who wrote this poem?’
 b. Tum-ne kis-ko paisaa diyaa?
 you-ERG who-DAT money gave
 ‘Who did you give money to?’

So it is quite tenuous to claim that Hindi has obligatory focus movement. Even if we were to accept this claim, Hindi may still pose an issue for van Craenenbroeck & Lipták (2013) as the claim in that work is that the head that attracts the *wh*-element is the head that hosts the E-feature (i.e., the head whose complement undergoes ellipsis). Under this theory, we are led to predict that Hindi

sluicing/stipping targets VP. Gribanova & Manetta (2016) show that this cannot be case, as the auxiliary verb *ho*, typically thought to be a realization of a T head, is elided in sluicing.

- (19) Ali koi kitaab caah-taa hai. Ham-eN nahiiN pa-taa kaunsii
 Ali some book want-HAB.M AUX. We-DAT NEG know-HAB.M which.F
 Ali-caah-taa-hai.
 Ali want-HAB.M AUX
 ‘Ali wants some book, but we don’t know which.’ (Gribanova & Manetta 2016: 643)

A similar test can be used to show the stripping also targets something larger than VP. Below the auxiliary *hai* is part of the elided material suggesting that ellipsis must be larger than VP.

- (20) Ali kitaab caah-taa hai aur mujhe lagtaa hai ki kalam bhii.
 Ali book want-HAB.M AUX and 1SG.DAT feel AUX KI pen also
 ‘Ali wants a book. I think (he wants) a pen too.’

2.2 What is *ki*?

The element *ki* is subject of debate in the literature. Some researchers have claimed that it is similar to a coordination marker, others have claimed that it is a complementizer similar to English *that*, we show that neither view fully captures the behavior of *ki*.

Dwivedi (1994) suggests that *ki* is in fact a conjunction marker that has a selection restriction such that it may only conjoin two CPs. Since this proposal, there have been several arguments against it. Take negative sensitive items licensing as an example. As shown in (21), negation in the first conjunct of a true coordination cannot license a negative sensitive item in the second conjunct. Example (21a) involves negation in the first clause and the negative sensitive element in the second clause and the result is ungrammatical. If both the negation and negative sensitive element are within the same clause, then the sentence is grammatical, as seen in (21b).

- (21) a. *MaiN-ne bahut logoN-ko nahi bulaaya thaa lekin koi
 I-ERG very people-DOM NEG invite-PRF be-PST but someone
 bhi aayaa.
 even come-PRF
 Intended: ‘I did not invite many people, but nobody came.’

- b. MaiN-ne bahut logoN-ko bulaaya thaa lekin koi bhii
 I-ERG very people-DOM invite-PRF be-PST but someone even
 nahi aayaa.
 NEG come-PRF
 ‘I invited many people, but nobody came.’

If *ki*, conjoined two clauses, we would predict that negation in the first clause could not license a negative sensitive item in the second clause. This prediction is not correct as shown in (22). The negation in the first clause can license the use of the negative sensitive item in the second clause.

- (22) Sarita-ne nahii kahaa ki koi bhii aayaa.
 Sarita-ERG NEG say KI someone even came
 ‘Sarita did not say that anyone came.’

The fact that negation can license the negative sensitive item in the second clause suggests that the second clause is subordinate to the first clause. This allows for the matrix negation to c-command/scope over the negative sensitive item and properly license it.

This suggests that the second clause introduced by *ki* is in fact embedded within the first clause suggesting it is complementizer like English *that*, but, as shown in (23), *ki* does not have the same selection restrictions as *that*. It can introduce both declarative (23a) and interrogative (23b) complement clauses.

- (23) a. Us-ne kahaa ki maiN sach boluNgaa.
 3SG.ERG said KI 1SG truth speak.FUT
 ‘He said that I speak the truth.’
 b. Sudha-ne puchaa ki maiN kab jaauNgii.
 Sudha-ERG asked KI 1SG when go-GO
 ‘Sudha asked whether I will leave.’

This suggests that Hindi *ki* does not correspond directly to English *that*. Following previous works, we suggest that *ki* is a general subordination marker and does not contribute information about clause type.

3 Towards an analysis: Height matters

In this section, we explore the idea that the variation in the height of heads in the left periphery affects their ability to coincide with ellipsis. We propose that *ki* resides higher in the clausal periphery than English *that* and this height difference explains the difference in behavior in stripping as well.

We have seen that *ki*, unlike English complementizers, appears agnostic to clause type. It shows up in both declarative and interrogative complements. This leads us to postulate that *ki* is in fact just a marker of subordination and does not encode clause type information (see Bhatt & Yoon 1991 for a similar proposal and also Davison 2003 who argues that *ki* resides high in a Force projection). This is supported by examples like (24). In (24) we see both *ki* and the polar question marker *kyaa* in the embedded clause. Note that the order of the two elements is fixed: *ki* must precede *kyaa*. The other order would result in the utterance becoming ungrammatical.

- (24) a. Ram-ne puchhaa ki kyaa Sita aayegii.
 Ram-ERG asked KI what Sita come.FUT
 ‘Ram asked whether Sita will come.’
 b. * Ram-ne puchhaa kyaa ki Sita aayegii.
 Ram-ERG asked what KI Sita come.FUT
 ‘Ram asked whether Sita will come.’

This data suggests that *ki* occupies a higher position than the head that contributes clause type information. We will assume an expanded CP in line with Rizzi (1997). We suggest that *ki* simply marks subordination between two clauses and resides in a subordination phrase (SubP) and that the height of the complementizer that allows it to survive stripping. We assume the representation in Figure 1 for the embedded stripping cases. *Ki* heads the subordination phrase that is the topmost projection in the clause and takes a Focus projection as its complement. The remnant of stripping moves to the specifier of the Focus projection followed by ellipsis of the complement of FinP.⁵

This analysis correctly predicts that other material such as markers of Force can occur in stripping in Hindi. In (25), *kyaa* marks the clause as interrogative and can survive stripping.⁶

⁵An anonymous reviewer asks what drives the movement of the remnant to the Focus position. We assume, following Hartman & Ai (2009), that focused phrases dominated by e-given phrases are given an interpreted focus feature, it is this feature that ensures that the remnant moves to the focus projection and avoids ellipsis.

⁶Hindi also has a construction similar to *why*-stripping where a focused constituent and *kyuN* (‘why’) survive ellipsis as shown below.

- (i) Ram-ne roTii khaai, lekin mujhe nahii maalum roTii hii kyuN.
 Ram-ERG bread eat.PST but 1SG.DAT not know bread EMP why
 ‘Ram ate bread, but I don’t know why only bread.’

We leave further investigation of this construction as a matter of future research.

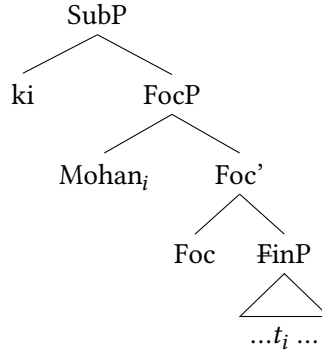


Figure 1: Clause structure for Hindi stripping

- (25) Sita-ne Ravi ke liye khaanaa banaayaa lekin mai jaanaa chaahataa
 Sita-ERG Ravi GEN for food make.PRF.3 but I to.know want
 huN ki kyaa Mohan ke liye bhii.
 be.PRES KI what Mohan GEN for also
 ‘Sita made food for Ravi but I want to know whether (she made food) for
 Mohan also.’

So our analysis of Hindi stripping allows for heads higher in the left periphery to survive ellipsis. Interestingly, the idea that height of the complementizer like element plays a role in its ability to survive stripping has recently been proposed by Yoshida & Myers (2018). They are analyzing stripping like constructions under *if* in English, as shown in (26).

- (26) John likes to drink whiskey. If scotch, I will pour him an Islay. (Yoshida & Myers 2018: 1)

Note that like stripping in coordinations the remnant can occur with negation as shown in (27).

- (27) John likes to drink scotch, if not scotch, then bourbon.

Yoshida & Myers (2018) argue that *if* is a type of complementizer, then such examples may also constitute a counterexample to the embedded stripping generalization. They argue that *if* is a Force head that sits atop the focus projection that hosts the remnant of stripping in its specifier. Since it resides high in the clause, it is able to appear in stripping parallel to our treatment of *ki* in Hindi. English *that* on the other hand is low in the structure in Fin (e.g., Baltin 2010) and cannot survive ellipsis.

3.1 Stripping with negation

Let us now turn to stripping like constructions that involve negation. These included stripping in a coordination (28) but also the alternate negation clause (29).

- (28) Sita-ne Ram-ko tohafa diyaa, lekin Mohan-ko nahi.
 Sita-ERG Ram-DAT gift give.PRF but Mohan-DAT NEG
 ‘Sita gave Ram a gift, but not Mohan.’

- (29) Ham-ne aap-ko bulaayaa thaa naaki un-*(ko).
 1PL-ERG 2SG-DOM called be.PST NEG.KI 3PL-DOM
 ‘We called you, not them.’

In the literature on negative stripping, there has been two proposals about the structure of negation (Merchant 2003, Wurmbrand 2017, den Dikken & Griffiths 2018). Under one view, it is argued that negation in negative stripping is the result of a high sentential negation Figure 2. The other view argues instead that such structures involve constituent negation Figure 3.

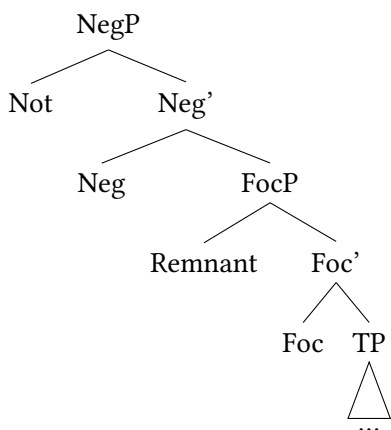


Figure 2: High sentential negation analysis of negative stripping

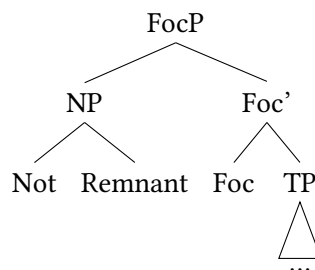


Figure 3: Constituent negation analysis of negative stripping

The Hindi data, especially the alternate-negation, seem to favor the sentential approach, as it appears that negation does not form a constituent with the remnant, but rather forms a morphological word with the subordination marker *ki*. To account for this structure we assume that high sentential negation takes the subordination phrase as its complement, the remnant moves to the focus projection followed by FinP ellipsis. *ki* undergoes head movement to the negation head.

At PF, negation in the specifier of NegP and *ki* form a word via m-merger. The syntax we assume is shown in Figure 4.⁷

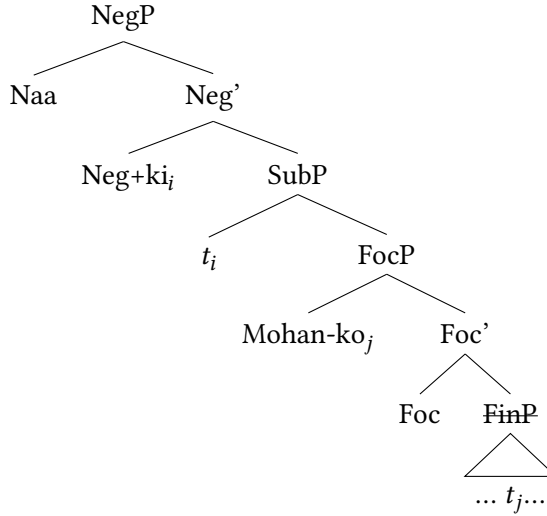


Figure 4: Structure of alternate-negation stripping in Hindi

By treating *ki* as a high subordination marker, we can account for its appearance in stripping like constructions in Hindi. We argued that height of the complementizer mattered for its ability to appear in stripping, both with and without negation. This approach mirrors a similar proposal of *if*-stripping in English made by Yoshida & Myers (2018).

3.2 Extension to alternative questions

We have argued that *ki* is a subordinator. A potential issue for this analysis is that *ki* can behave as a disjunction marker as shown in (30).

- (30) (Kyaa) tum-ne Ravi ke liye khaanaa banaayaa yaa/ki Mohan ke
 (what) 2PL-ERG Ravi GEN for food make.PRF.3 or/KI Mohan GEN
 liye?
 for
 ‘Did you make food for Ravi or for Mohan?’

⁷It is important to note that headedness is not harmonic in Hindi with some heads following their complements and some heads preceding them. We present the left periphery as uniformly head initial, but this is an idealization as we can be seen from comparison of (28) and (29), what appears to be the negation head can either proceed or follow the remnant. We leave an analysis of the word order variation for future research.

For many Hindi speakers, it is also possible that *yaa* and *ki* co-occur, again making a morphologically complex word *yaaki* in such examples. This may appear on the surface to be an issue for our analysis as it appears that *ki* in (30) can take a PP as a complement instead of a clause level projection. There is reason to believe that such examples actually also involve a clausal complement, but with another ellipsis operation. First note that such questions in English are ambiguous between a polar reading which requires a Yes/No answer and alternative reading which is answered with one of the two PPs.

- (31) Did you make food for Ravi or for Mohan?
 a. Yes/No (*Polar*)
 b. For Ravi/For Mohan (*Alternate*)

The examples with *ki* in Hindi, however, only allow for the alternative reading. This is important, as it has been argued that the alternative reading involves clausal ellipsis (Han & Romero 2004, Gračanin-Yuksek 2016, Podobryaev 2017). Additional evidence for an ellipsis analysis comes from P-omission. Podobryaev (2017) shows that in alternative questions in Russian, the second disjunct can only omit a preposition if that preposition can be stranded under movement, i.e., it conforms to the p-stranding generalization (Merchant 2001). In light of this, compare the examples in (32). In the English example (32a), it is possible to omit the preposition in the second disjunct, as it is possible to strand prepositions in English. In the Hindi example in (32b) omission of the postposition in second disjunct leads to ungrammaticality. This follows from the ellipsis analysis as we have already seen that Hindi does not tolerate postposition stranding under movement or P-omission under sluicing.

- (32) a. Did you make food for Ravi or Mohan?
 b. * Kyaa tum-ne Ravi ke liye khaanaa banaayaa ki Mohan ke?
 what 2PL-ERG Ravi GEN for food make.PR.F.3 KI Mohan GEN
 ‘Did you make food for Ravi or for Mohan?’

We assume the structure below in Figure 5 for the second disjunct in alternative questions. Once again, *ki* will act as a subordination marker, there is movement of the remnant to a focus projection followed by clausal ellipsis. This analysis hence allows us to keep a uniform syntax for *ki* (i.e., it always takes a clause complement) and also accounts for the lack of P-omission in Hindi.

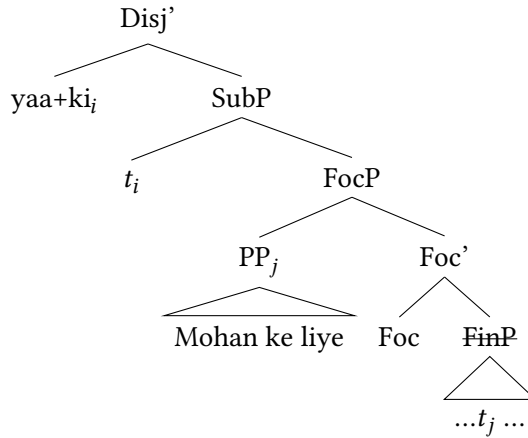


Figure 5: Ellipsis analysis of alternative questions with *ki*

4 Conclusion

By discovering that stripping can occur in embedded environments in English as long as there was no complementizer, Wurmbrand (2017) argued that clause size mattered for the availability of stripping. In this paper we attempted to show that height in the clause also mattered for the availability of certain complementizer-like heads to survive ellipsis.

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Chapter 13

Three applicative GEIs in Mandarin Chinese

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This paper focuses on three types of applicative GEI distributed across three different syntactic layers in Mandarin Chinese. I propose that, in addition to Tsai's (2017) high applicative GEI, which is located in the complementizer layer (above TP), there is also a differently behaved lower applicative GEI with two subtypes, one in the inflectional layer (between *v*P and TP), and the other in the lexical layer (within *v*P). This lower applicative GEI is shown to be different from other seemingly similar GEI PPs. Finally, a third kind of applicative GEI, also located in *v*P, is presented and compared. The current study not only rounds out the distributional picture of applicative GEIs, but also provides us with more understanding of the lexical and syntactic diversity of GEI in Mandarin Chinese.

1 Introduction

The lexical item *gei* ('give/GEI') in Mandarin Chinese is well-known for its multiple functions. For example, it can function as a verb meaning 'to give' in the double object construction in (1), and it can function as a preposition meaning 'for' as in (2).

- (1) Zhangsan *gei-le* Lisi *yi-ben shu*.
Zhangsan give-ASP Lisi one-CL book
'Zhangsan gave Lisi a book.'
- (2) Zhangsan *gei* Lisi *xi yifu*.
Zhangsan for Lisi wash cloth
'Zhangsan washed clothes for Lisi.'



Recently, Tsai (2017) (see also Tsai 2012, 2015a) has proposed that *gei* ('GEI') can also function as an applicative head with an affective reading in Mandarin Chinese, as shown in (3).

- (3) Zhangsan juran *gei* wo pao-le!
Zhangsan unexpectedly GEI me run-ASP
'Zhangsan ran away on me unexpectedly!'

Tsai observes that this applicative GEI is strictly speaker-oriented. Thus, an Affectee other than the first-person singular pronoun results in ungrammaticality, as shown in (4). In addition, he notes that the affective GEI-*wo* phrase in a declarative sentence like (5) is awkward or unacceptable. Hence, an exclamatory force and evaluative mood are required for the applicative GEI in (3). In light of these requirements, Tsai proposes that GEI is an applicative head in an applicative projection located in the CP domain, which is associated with speaker attitudes.

- (4) * Zhangsan juran *gei* women/ni/nimen/ta/tamen pao-le!
Zhangsan unexpectedly GEI us/you/you(PL.)/him/them run-ASP
'Zhangsan ran away on us/you/you(pl.)/him/them unexpectedly!'
- (5) ?? Zuotian Zhangsan *gei* wo pao-le.
yesterday Zhangsan GEI me run-ASP
'Yesterday Zhangsan ran away on me.'

In the following discussion, I will examine different types of applicative GEI located around the *vP* periphery and will discuss their implications. In §2, I argue that there is a GEI-*wo* phrase lower than the affective GEI-*wo* phrase in example (3), and that, despite appearing similar, it in fact behaves differently and has a distinct interpretation. In §3, I further divide this lower GEI-*wo* phrase into two subtypes. In §4, I take a small detour to compare this lower GEI-*wo* phrase with other confusing GEI-pronoun phrases/GEI PPs. In §5, I present and compare an additional applicative GEI in *vP* and discuss the distribution of applicative GEIs across syntactic layers in Chinese. I conclude this paper in the last section.

2 A lower applicative GEI

In this section, I provide evidence that a lower GEI-*wo* phrase is located around the *vP* periphery and that it has a different denotation than the higher GEI-*wo* phrase discussed by Tsai (2017). As mentioned in §1, Tsai (2017) has proposed a

very high applicative GEI in the CP domain. Because of the exclamatory force and evaluative mood associated with this GEI, he argues that it is located in an applicative projection above TP, and that an evaluative projection is also required to host the evaluative adverb *juran* ('unexpectedly'). The derivational structure is shown in (6).

- (6) [TopP Zhangsan_i [EvaP *juran* *gei*_j [ApplP *wo* *t*_j [TP *t*_i]]]]

In structure (6), the applicative head GEI undergoes head movement to the head position of EvaP, the projection which also hosts the adverb *juran* ('unexpectedly'). The Affectee *wo* ('me') stays in the Spec, ApplP position, resulting in the correct word order of "GEI-*wo*", and the subject in the Spec, TP position moves to the Spec, TopP position.

I would like to propose that, in addition to Tsai's (2017) higher applicative GEI-*wo* phrase in (3), a lower GEI-*wo* phrase can also be found in Mandarin Chinese, as illustrated in example (7).

- (7) *Ni gei wo guolai!*
 You GEI me come
 'You, come here!'

At first glance, the lower applicative GEI appears similar to the one found in the higher domain. Note that, like the Affectee in the higher applicative GEI, the Affectee of this lower GEI can only be a first-person singular pronoun as shown in (8).

- (8) **Ni gei women/ni/nimen/ta/tamen guolai!*
 You GEI us/you/you(PL.)/him/them come
 '*You, come here for us/you/him/them!'

However, despite this similarity, there are at least four differences between the lower GEI-*wo* phrase in (7) and the higher GEI-*wo* phrase in (3). First, while the higher GEI-*wo* phrase needs an evaluative adverb in the sentence, the lower GEI-*wo* phrase is incompatible with one, as shown in (9).

- (9) **Ni juran gei wo guolai!*
 you unexpectedly GEI me come
 '*You, come here unexpectedly!'

Secondly, while the higher GEI-*wo* phrase can have a second-person or third-person pronoun as the subject of the sentence, the lower GEI-*wo* phrase can only have a second-person pronoun as the subject. This contrast is shown in (10) and (11), respectively.

- (10) Ni/Ta juran gei wo pao-le!
You/he unexpectedly GEI me run-ASP
'You/He ran away on me unexpectedly!'
- (11) Ni/(**Ta*) gei wo guolai!
You/he GEI me come
'You/**He*, come here!'

Thirdly, recall that in example (3), the sentence containing the higher GEI-*wo* phrase, the speaker is affected by (and is exclaiming at) the unexpected behavior of the subject. Hence, this higher GEI functions as an "affective-GEI". On the other hand, in example (7), the sentence with the lower GEI-*wo* phrase, the speaker is making a forceful request/demand. In this case, the lower GEI could more aptly referred to as a "demanding" GEI.

Finally, when one utters sentence (3) containing the higher GEI-*wo* phrase, the event denoted by this sentence has already been realized. The telic situation in example (3) thus contrasts with the atelic situation in the sentence containing a lower GEI-*wo* phrase, where the event has not yet happened.

Based on the four contrasts above, it would appear that the "demanding" GEI-*wo* phrase in (7) is distinct from the "affective" GEI-*wo* phrase discussed in Tsai (2017). Note that the four characteristics of the demanding GEI-*wo* phrase are bound tightly to its demanding denotation.¹ Because of the demanding meaning, the evaluative adverb *juran* is incompatible with the demanding GEI-*wo* phrase. In addition, the demanding meaning is naturally co-related with an imperative sentence. And imperatives only allow second-person subjects. Furthermore, the forceful request interpretation is reminiscent of the demanding mood. Finally, when one makes a request/demand, it is also expected that the event denoted by the sentence has not be realized yet.

As for their respective syntactic positions, since the demanding GEI-*wo* phrase is lower than the subject in (7), if the subject is in the standard subject position (Spec, TP), then we can infer that the GEI-*wo* phrase is located in or below the TP domain, in contrast to the affective GEI-*wo* phrase, which is located in the CP domain. The following two pieces of evidence indicate that the subject in (7) is

¹The generalization is also being pointed out by one of the reviewers.

in fact in the standard subject position (Spec, TP). First of all, Lin & Tang (1995) propose that a true subject in Chinese can move to the matrix subject position with the raising modal *yinggai* ('should'). And indeed the subject *ni* ('you') in (7) can precede *yinggai*, as shown in example (12).²

- (12) Ni yinggai gei wo guolai!
 You should GEI me come
 'You should come here!'

Secondly, Li (1990) has argued that the Chinese ECM verb *yao* ('want') takes a TP as its complement. As shown in (13), example (7) can be the complement taken by the ECM verb *yao* ('want'), which then indicates that the subject *ni* ('you') is in the Spec, TP position.

- (13) Wo yao ni gei wo guolai!
 I want you GEI me come
 'I want you to come here!'

Based on the above observations, this new applicative GEI is indeed lower than the GEI in the CP domain in Tsai (2017). It has to be located in the TP domain, or lower, since the GEI-*wo* phrase in (7) is lower than the subject in the Spec, TP position.

3 Two positions

In the previous section, I proposed that the demanding GEI-*wo* phrase is located in the TP domain, or lower. Here, I refer to relevant examples of the BA construction to argue more specifically that the demanding GEI is located around the *vP* periphery, and that it has a higher and a lower subtype. The key example is shown in (14).

- (14) Ni (gei wo) ba fangjian (gei wo) cao ganjing!
 you GEI me BA room GEI me sweep clean
 'You, sweep and clean the room!'

²The example without raising is shown in (i), as requested by one of the reviewers. A contrastive part is added in order to make this sentence more acceptable.

- (i) Yinggai ni gei wo guolai, er bushi ta!
 should you GEI me come rather not he
 'You should come here, not him!'

Example (14) is a BA construction, in which the object is preposed from a postverbal position to a preverbal BA NP position. In this example, the GEI-*wo* phrase can be higher than BA or lower than the BA NP. Li (2006) (see also Huang et al. 2009) has proposed that BA is located in the head position of an independent *BaP* right above *vP*, and that the BA NP is located in Spec, *vP*. A typical BA construction and its structure is shown in (15).³

- (15) a. Zhangsan ba shu kan-wan-le.
 Zhangsan BA book read-finish-ASP
 ‘Zhangsan has finished reading the book.’
 b. [_{TP} Zhangsan [_{BaP} ba [_{vP} shu_i [_{VP} kan-wan-le t_i]]]].

Since the BA and the BA NP are located at the *vP* periphery, they can be used as natural anchors to differentiate the syntactic positions of the two GEI-*wo* phrases in (14). Let us focus on the GEI-*wo* phrase higher than BA first. Because it is higher than BA but lower than the subject, Kim’s (2011, 2012) proposal that there is a peripheral applicative projection right above *vP* comes to mind. Adopting this projection, the proposed structure for the GEI-*wo* phrase between TP and *vP* is shown in (16).

- (16) [_{TP} Ni_i [_{MP_{Deo}} gei_j [_{peripheral ApplP} wo t_j [_{vP} t_i]]]]

In structure (16), the applied NP *wo* is base-generated at the specifier position of the peripheral applicative projection, and the applicative GEI undergoes head movement to the head position of a deontic modal projection. Tsai (2015b) suggests the modal projection is right above *vP*, as shown in (17).

- (17) [_{TP} Subject_i..... [_{MP_{Deo}} Deontic modal [_{vP} t_i]]]

However, if it is instead above the peripheral applicative projection, its head position offers a natural landing site for the applicative GEI and could explain the “demanding” mood of the GEI-*wo* phrase, since the deontic modal is associated with a command or request mood.

For the GEI-*wo* phrase that is lower than the BA NP, on the other hand, I draw on the high applicative of Pykkänen (2002, 2008).⁴ This applicative is right above

³The BA NP can be derived by movement or base-generation, see Li & Thompson (1981) for discussion. Here, I focus on the movement derivation.

⁴In addition to the high applicative, there is a contrastive low applicative. According to Pykkänen (2002), transitivity and verb semantics diagnostics are the two primary ways to distinguish languages which contain a high applicative projection from languages which contain a low applicative projection. See Pykkänen (2002, 2008) for details and §5 of the current paper for discussion of Pykkänen’s low applicative.

VP and denotes an applied relationship between an individual and an event. An example of Pykkänen's high applicative projection and the simplified structure are shown in (18):

- (18) a. Luganda (Bantu; Pykkänen 2002: 25)
 Mukasa ya-tambu-le-dde Katonga.
 Mukasa PAST-walk-APPL-PAST Katonga
 'Muksasa walked for Katonga.'
- b. [ApplHP DP_{Benefactive} [ApplH' Appl [vP V DP]]]

Adopting the structure in (18b) for the GEI-*wo* phrase lower than the BA NP, the applied NP *wo* ('me') would be base-generated in the high applicative projection right above VP and would later move to the *v* head position, as illustrated in (19).

- (19) [TP [vP gei_i [ApplHP wo t_i [VP]]]]

Finally, since there is also a "demanding" mood exhibited in the sentence with this lower GEI-*wo* phrase, I follow the proposal of Lin (2001) that the *v* head is a kind of light verb in Mandarin Chinese. Assuming that this light verb is a FOR-like light verb, the "demanding" meaning can be derived when the applicative GEI undergoes head movement to this light verb.⁵

⁵In Lin (2001), light verbs are proposed to be eventuality predicates with concrete thematic functions, and they are syntactic entities which can introduce arguments into the structure. In addition to the common ones such as DO, CAUSE, and BECOME, other members include EXIST, PROGRESS, AT, USE, and FOR in Mandarin Chinese. An example of the USE light verb is shown in (i). The USE light verb is located in the *v* head position as in (i.a), and it can be realized with a lexical light verb *yong* ('with') as in (i.b), or the main verb can raise to the *v* head position as in (i.c).

- (i) a. Ni USE na-ba dao qie, wo USE zhe-ba qie. (light verb USE)
 you that-CL knife cut I this-CL cut
 'You use this knife to cut, and I will use this one to cut.'
- b. Ni yong na-ba dao qie, wo yong zhe-ba qie. (lexical light verb)
 you with that-CL knife cut I with this-CL cut
- c. Ni qie_j+USE na-ba dao t_j, wo qie_k+USE zhe-ba t_k. (raising-to-*v*)
 you cut that-CL knife I cut this-CL

Since the inventory of Chinese light verbs is still debatable (i.e. Tsai 2012), here I simply assume that this For-like light verb can impose a forceful demand when GEI raises and incorporates with it. The exact nature of the For-like light verb is left for further research.

To summarize, in this section I have shown that the demanding GEI-*wo* phrase located around the *vP* periphery has two subtypes – one higher and one lower than *vP*. In addition, like the derivation of the very high affective GEI-*wo* phrase discussed by Tsai (2017), both subtypes of the demanding GEI-*wo* phrase derive from the applicative GEI undergoing head movement to a higher functional projection.

4 Comparisons with other GEI-pronoun phrases

Before we proceed to further discussion of the demanding GEI-*wo* phrase, in this section, I would like to compare the demanding GEI-*wo* phrase with other confusing GEI-pronoun phrases.⁶ As mentioned previously, GEI has multiple functions. Even if GEI is used as a preposition, it also has several interpretations. For example, the preposition GEI can introduce a receiver pronoun as in (20), a benefactive pronoun as in (21), and a goal pronoun as in (22) (i.e. Liu et al. 1996).

- (20) Ni quai gei baba qian!
you quickly GEI father money
'You, give Father money quickly!'
- (21) Ni quai gei ta jiejie xinshang de geda!
you quickly GEI he solve heart DE knot
'You, solve the knot in his heart for him quickly!'
- (22) Ni quai gei tamen jiang ji-ge gushi ba!
you quickly GEI them tell several-CL story EXCL
'You, tell them several stories quickly!'

In the above three examples, GEI also takes a pronoun to form a GEI-pronoun phrase, and they can be used in imperative forms. One may wonder how the demanding GEI-*wo* phrase such as the one in (23) can be distinguished from the above GEI-pronoun phrases when they both exhibit demanding interpretations.

- (23) Bu (gei wo) ba zhe-quan di (gei wo) chu-wan, jiu bei xiang
not GEI me BA this-CL land GEI me hoe-finish JIU don't think
chifan!
eat
'Don't even think about eating if you do not finish hoeing the land!'

⁶The author would like to thank one of the reviewers who points out this potential issue.

According to what I have observed so far, I believe that there are at least three ways to tease these different GEIs apart. First of all, as discussed in (8) previously, the demanding GEI-*wo* phrase only allows a first-person singular pronoun, as shown in (24).

- (24) Ni gei wo/*women/*ta/*tamem guolai!
 You GEI me/us/him/them come
 'You, come here (*for us/him/them)!'

However, for other GEI-pronoun phrases, in addition to the first-person singular pronoun, they also allow first-person plural pronoun and third-person singular and plural pronouns, as shown from (25) to (27).⁷

- (25) Ni quai gei wo/women/ta/tamen qian!
 you quickly GEI me/us/him/them money
 'You, give me/us/him/them money quickly!'
- (26) Ni quai gei wo/women/ta/tamen jiejie xinshang de geda!
 you quickly GEI me/us/him/them solve heart DE knot
 'You, solve the knot in the heart for me/us/him/them quickly!'
- (27) Ni quai gei wo/women/ta/tamen jiang ji-ge gushi ba!
 you quickly GEI me/us/him/them tell several-CL story EXCL
 'You, tell me/us/him/them several stories quickly!'

The above difference is because for the demanding GEI-*wo* phrase, it is strictly speaker-oriented. But there is no such restriction for other GEI-pronoun phrases since the first-person/third-person pronouns, regardless singular or plural, can function as potential receivers, benefactives or goals.

Secondly, if one compares the interpretations of the four sentences from (20) to (23), one can see that a crucial difference is that the demanding GEI-*wo* phrase is entirely integrated into the sentence and the demanding mood is not translated at all. One can imagine the following scenario: When the speaker says something like (23), the speaker can be part of the workers and he is simply the leader, who has to supervise the work. Hence these workers are not working for the speaker, and the speaker is not the receiver or goal of this action, either. The speaker's intention to say such a sentence (23) is to tell the workers to work quicker. This is also the major reason why the GEI-*wo* phrase cannot be translated at all in

⁷The second-person singular or plural pronoun has to be excluded here due to their pragmatic incompatibility with imperatives.

(23), since for a sentence containing the GEI-*wo* phrase, the GEI-*wo* phrase simply functions as an emphatic marker to enforce the speaker's demanding order. However, for sentences from (20) to (22), the pronouns following GEI are interpreted as a receiver, a benefactive, or a goal. Therefore it is not possible to omit their existences and these GEI-pronoun phrases have to be translated fully as shown in the English translations.

Moreover, the different interpretations between the GEI-*wo* phrase and the GEI-pronoun phrase can also be illustrated by synonymy substitution. Take the benefactive GEI-pronoun phrase for example. According to Liu et al. (1996), when GEI introduces a benefactive, GEI can be replaced by *wei* ('for') or *ti* ('for'). Hence for example (21), the GEI phrase can also be paraphrased with the WEI phrase or the TI phrase as in (28). After the substitution, the interpretation remains the same.

- (28) Ni quai gei/wei/ti ta jiejie xinshang de geda!
 you quickly GEI/WEI/TI he solve heart DE knot
 'You, solve the knot in his heart for him quickly!'

However, if the demanding GEI-*wo* phrase is replaced with the WEI phrase or the TI phrase as in (29), the interpretation is different from the one in (23). In example (29), the pronoun *wo* becomes a benefactive since it is introduced by WEI/TI. And this different interpretation can be clearly seen from the English translation.

- (29) Bu (wei/ti wo) ba zhe-quan di (wei/ti wo) chu-wan, jiu bei xiang
 not for/for me BA this-CL land for/for me hoe-finish JIU don't think
 chifan!
 eat
 'Don't even think about eating if you do not finish hoeing the land for
 me!'

Therefore we can conclude again that there indeed exist different interpretations between the demanding GEI-*wo* phrase and other GEI-pronoun phrases.

Finally, we may expect different distributions between the demanding GEI-*wo* phrase and other GEI-pronoun phrases according to their syntactic positions. In this paper, I have proposed that the demand GEI-*wo* phrase do not form a constituent as in §3. On the other hand, for other GEI-pronoun phrases, they are usually proposed to be PPs and adjoined to VP or *v*P. Hence we can predict that it is not possible to have two demanding GEI-*wo* phrases in the same syntactic

position as in (30), but it is possible to have two GEI-pronoun phrases in the same sentence since there can be several adjoined-PPs, as shown from (31) to (33).

- (30) Bu (gei wo) (*gei wo) ba zhe-quan di chu-wan, jiu bei xiang
not GEI me GEI me BA this-CL land hoe-finish JIU don't think
chifan!
eat
'Don't even think about eating if you do not finish hoeing the land!'
- (31) Ni quai gei baba gei mama qian!
you quickly GEI father GEI mother money
'You, give Father and Mother money quickly!'
- (32) Ni quai gei ta gei wo jiejie xinshang de geda!
you quickly GEI he GEI me solve heart DE knot
'You, solve the knot in the heart for him and me quickly!'
- (33) Ni quai gei tamen gei women jiang ji-ge gushi ba!
you quickly GEI them GEI us tell several-CL story EXCL
'You, tell them and us several stories quickly!'

In addition, we can also predict that the demanding GEI-*wo* phrase and other GEI-pronoun phrases should be able to co-occur in the same sentence once the context allows it. This predictions are borne out from (34) to (36).

- (34) Ni (gei wo) quai (gei wo) gei baba qian!
you GEI me quickly GEI me GEI father money
'You, give Father money quickly!'
- (35) Ni (gei wo) quai (gei wo) gei ta jiejie xinshang de geda!
you GEI me quickly GEI me GEI he solve heart DE knot
'You, solve the knot in his heart for him quickly!'
- (36) Ni (gei wo) quai (gei wo) gei tamen jiang ji-ge gushi ba!
you GEI me quickly GEI me GEI them tell several-CL story EXCL
'You, tell them several stories quickly!'

In the above examples, there is a manner adverb *quai* ('quickly'). Following Tsai (2012), manner adverbs in Mandarin Chinese adjoin to *vP*. This then indicates that the two demanding GEI-*wo* phrases can be higher or lower than *vP*, as proposed above. Importantly, the co-occurrence of the demanding GEI-*wo* phrase and other GEI-pronoun phrases points out that they are different types of GEI phrases syntactically.

To summarize, although there are other GEI-pronoun phrases and they seem to be quite similar to the demanding GEI-*wo* phrase when these GEI phrases appear in imperative sentences, they do differ in their interpretations and syntactic distributions. Therefore, I believe the current proposal for the demanding GEI-*wo* phrase can be maintained and can be distinguished from these GEI-pronoun phrases.

5 Applicative GEIs in different layers

So far, we have seen that there are different applicative GEIs in Mandarin Chinese, and they are located in different syntactic domains. That is, the affective GEI-*wo* phrase in Tsai (2017) is in the CP domain, and the demanding GEI-*wo* phrase under the current investigation which can be located in the TP or *v*P domain. In this section, I would like to show that another type of applicative GEI can also be observed inside the *v*P domain. Moreover, I suggest that the three types of applicative GEIs are distributed across the different syntactic layers proposed in Tsai (2015b) for Chinese modals.

Employing the cartographic approach (i.e. Rizzi 1997 and Cinque 1999 and many others), Tsai (2015b) proposes that the syntactic domains across which Chinese modals are distributed correspond to three syntactic layers, as is illustrated in Figure 1.

In Figure 1, we can see that the epistemic modal is above TP in the complementizer layer; the deontic modal is between TP and *v*P in the inflectional layer; and the dynamic modal is inside *v*P in the lexical layer. The syntactic layer distribution can be simplified, as in (37), with TP and *v*P viewed as layer boundaries.

(37) [complementizer layer [TP inflectional layer [*v*P lexical layer]]]

The distribution of three different kinds of modals in three syntactic layers is reminiscent of the distribution of applicative GEIs discussed thus far. Recall that the very high applicative GEI of Tsai (2017) is located in the CP domain and hence is in the complementizer layer. I have discussed a lower applicative GEI around the *v*P periphery. Its subtypes above *v*P and below *v*P are located in the inflectional and lexical layer, respectively. In addition to occupying different layers, these applicative GEIs also have different denotations. The very high applicative GEI in Tsai (2017) is an affective GEI, while the applicative GEI around the *v*P periphery is a demanding GEI. In the following discussion, I present a distinct third kind of applicative GEI in Chinese. It is associated with a “transfer of possession” interpretation and can be observed in the lexical layer.

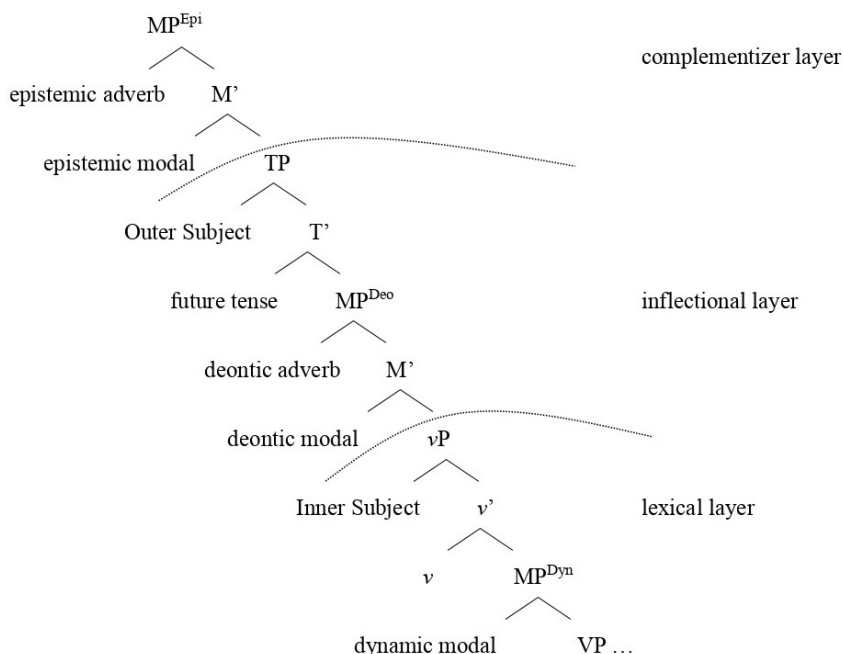


Figure 1: Chinese modals and their corresponding syntactic layers

This “transferring” applicative GEI is found in double object constructions in Mandarin Chinese, a typical example of which is shown in (38).

- (38) Zhangsan xie-gei-le Lisi yi-feng xin.
 Zhangsan write-GEI-ASP Lisi one-CL letter
 ‘Zhangsan wrote Lisi a letter.’

In example (38), there is a transfer of possession of the letter from Zhangsan to Lisi. Note that the applicative GEI in example (38) is obligatory. Without it, the sentence is ungrammatical, as shown in example (39).⁸

- (39) * Zhangsan xie-le Lisi yi-feng xin.
 Zhangsan write-ASP Lisi one-CL letter
 intended: ‘Zhangsan wrote Lisi a letter.’

⁸Note that it is not the case that all the double object constructions in Mandarin Chinese require an obligatory GEI. In Li & Thompson (1981), they categorize double object constructions into three subtypes: the DOC without GEI, the DOC with an optional GEI, and the DOC with an obligatory GEI. See Li & Thompson (1981) for further discussion.

If GEI is an applicative GEI in example (38), the first applicative projection that comes to mind to host it is the lower applicative projection under Pytkänen (2002, 2008). While Pytkänen’s high applicative projection is right above VP, her low applicative is in the complement position of the verb and denotes a transfer of possession between the applied NP and the direct object. An example of this low applicative projection and the simplified structure is shown in (40).

- (40) a. Japanese (Altaic; Pytkänen 2002: 24)
 Taroo-ga Hanako-ni tegami-o kaita.
 Taro-NOM Hanako-DAT letter-ACC wrote
 ‘Taro wrote Hanako a letter.’
 b. $[_{VP} V [_{APPLP} DP_{Goal} [_{APPL'} APPL DP_{Theme}]]]$

However, as pointed out by Paul & Whitman (2010), if the low applicative projection is adopted for example (38), the correct word order of the verb cluster cannot be derived, as shown in (41).

- (41) * $[_{TP} Zhangsan [_{AspP} gei-xie-le [_{VP} t_{gei-xie} [_{APPLP} Lisi t_{gei} yi-feng xin.]]]]$

Therefore, Paul & Whitman (2010) propose a single applicative projection, which subsumes the functions of the high applicative and the low applicative of Pytkänen (2002, 2008). As illustrated in example (42), when the applied NP is base-generated in Spec, APPLP, it functions like the applied Benefactive NP in Pytkänen’s (2002, 2008) high applicative structure. Paul and Whitman refer to the applicative in this context as the “thematic applicative.” On the other hand, when the applied Goal NP raises from Spec, VP to Spec, APPLP, it functions like the applied Goal NP in Pytkänen’s (2002, 2008) low applicative structure. Paul and Whitman refer to the applicative in this context as the “raising applicative.”

- (42) a. Thematic applicative
 $[_{APPLP} DP_{Benefactive} [_{APPL'} APPL [_{VP} V DP]]]$
 b. Raising applicative
 $[_{APPLP} DP_{Goal} [_{APPL'} APPL [_{VP} t_{Goal} [_{V'} V DP_{Theme}]]]]$

In their *raising applicative hypothesis*, Paul & Whitman (2010) argue that the applicative projection should be above VP. Hence, the proposed structure for example (38) would be like that in (43).⁹ In this structure, the applied Goal NP

⁹For arguments that support this structure, readers are referred to Paul & Whitman (2010) for details.

is base-generated at Spec, VP and raises to Spec, ApplP. Importantly, the correct word order of the verb cluster can be derived under this proposal.

- (43) [_{TP} Zhangsan [_{AspP} xie-gei-le [_{ApplP} Lisi [_{Appl'} t_{xie-gei} [_{VP} t_{Lisi} [_{V'} t_{xie} yi-feng xin.]]]]]]]

However, Kuo (2016) has argued that, although the raised applied Goal NP is expected, the position of the ApplP in (43) may not be correct. For example, it is possible to have a high applicative projection and a low applicative projection appearing simultaneously in the same sentence. It would be hard to explain this phenomenon under the *raising applicative hypothesis*. Thus, it seems that we do need two independent projections for the high applicative and the low applicative. Kuo adopts the light applicative projection of Citko (2011), which is right above VP and serves to host the raised Goal NP in languages such as Spanish and Polish. Note that this light applicative projection only functions as a landing site for the applied Goal NP, so Pytkänen's (2002, 2008) low applicative projection is maintained under this system. The proposed structure is shown in Figure 2.

In Figure 2, the main verb *xie* ('write') undergoes head movement and incorporates with GEI on its way to the *v* head, and the correct word order of the verb cluster can be derived. Moreover, since the Goal NP moves from Spec, ApplLP to Spec, light applP, the correct position of the Goal NP can also be derived via raising to this higher position.¹⁰

To summarize, in this section I have discussed another kind of applicative GEI in the *vP* domain. This applicative GEI is associated with a "transfer of possession" interpretation and involves low and light applicative projections. All the applicative GEIs we have examined so far are summarized in Table 1.

¹⁰Both reviewers wonder why the transferring GEI cannot be the realization of the *v* head directly. The fact that the transferring GEI has to be base-generated lower than the *v* head can be seen from the following BA construction with an optional emphatic *gei* ('GEI').

- (i) Zhangsan ba zhe-feng xin (gei) xie-gei-le Lisi.
 Zhangsan BA this-CL letter GEI write-GEI-ASP Lisi
 'Zhangsan wrote this letter to Lisi.'

Available in the BEI construction (Chinese passive construction) as well, Tang (2001) has proposed that this optional emphatic GEI can function as a marker of affectedness, which is a head located in a functional projection XP right above VP. (This XP proposal is reminiscent of the high applicative projection by Pytkänen (2002, 2008)). Since the verb cluster containing the transferring GEI in (i) has to be lower than this optional emphatic GEI, it is therefore not possible for the transferring GEI to be a direct realization of the *v* head.

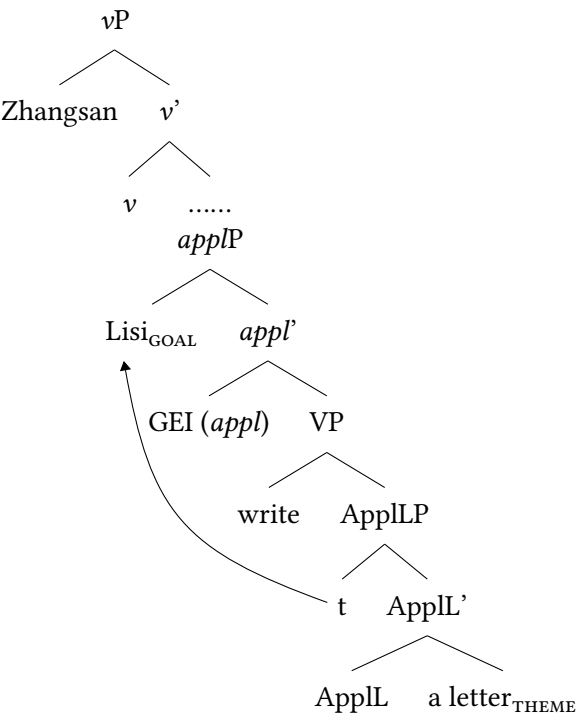


Figure 2: Chinese DOC structure proposed by Kuo (2016)

Table 1: Summary of applicative GEIs

	GEI1	GEI2	GEI 2	GEI3
denotation	affective	demanding	demanding	transferring
syntactic position	CP	TP	vP	vP

In Table 1, there are three different kinds of GEI, referred to as GEI1, GEI2, and GEI3, respectively. The first GEI is an affective applicative GEI, as argued in Tsai (2017), and it is located in the CP domain. The second GEI is a demanding applicative GEI, which can be found in the TP or ν P domains. The last GEI is a transferring applicative GEI, which has been discussed in Paul & Whitman (2010) and Kuo (2016). This transferring GEI is also located in the ν P domain. By utilizing Tsai's (2015b) syntactic layer proposal for Chinese modals, I have shown that different applicative GEIs can also be found in three different syntactic layers.

6 Conclusion

In this paper, I have discussed various applicative GEIs in Mandarin Chinese and their different syntactic distributions. What we have observed thus far has interesting implications for the theory of syntactic layers. Recall that Tsai (2017) has proposed three different syntactic layers in Mandarin Chinese to account for the distribution of Chinese modals. In addition, he argues that the verb GEI in example (1), the preposition GEI in example (2), and the applicative GEI in example (3) also occupy these same syntactic layers, as summarized in Table 2.

Table 2: Tsai (2017)

	affective GEI	benefactive GEI	giving GEI
form	applicative	preposition	verb
domain	CP	TP	ν P
syntactic layer	complementizer	inflectional	lexical

He further proposes that these different forms of GEI follow a grammaticalization track from the bottom to the top syntactic layers, with the verb GEI in the lexical layer developing into a preposition in the inflectional layer, and then later into a high applicative head in the complementizer layer.

While Tsai (2017) focuses on different syntactic categories and their distribution across the three layers, I show that different types of applicative GEI are similarly distributed, each correlating with a specific function/interpretation, as shown in Table 3.

I draw on Tsai's (2017) analysis of the high affective GEI in the complementizer layer, a layer which has many discourse-related projections, and add to the discussion by proposing a "demanding" GEI in the inflectional layer, the location of

Table 3: Applicative GEIs

	Applicative GEI1	Applicative GEI2	Applicative GEI3
function	affective	demanding	transferring
domain	CP	TP	vP
syntactic layer	complementizer	inflectional	lexical

the deontic modal with its associated command/request mood. Further, I suggest there is a lower “transferring” GEI, which, like the verb GEI, is associated with a giving action and occupies the lexical layer. In conclusion, these two studies of GEI not only enable us to understand more about the multi-functions of GEI in Mandarin Chinese, but also help to expand the investigation of applicative systems and syntactic layers more generally.

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Abbreviations

ACC	Accusative	Dyn	Dynamic
APPL	Applicative	Epi	Epistemic
AppIHP	High applicative projection	EvaP	Evaluative projection
AppLP	Low applicative projection	MP	Modal projection
ASP	Aspect marker	NOM	Nominative
CL	Classifier	PAST	Past tense
DAT	Dative	TopP	Topic projection
Deo	Deontic		

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Chapter 14

The middle field of Brazilian Portuguese and the size of the verbal domain

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This paper investigates word-order permutations in the (sentence-internal) post-verbal area (i.e., “middle field”) of Brazilian Portuguese, in order to determine the precise make-up and size of the verbal domain in the language. Two operations that independently place elements in postverbal vP-external positions are analyzed, namely object shift and topicalization, and lead to the proposal of an independent vP-external functional projection XP, whose A-specifier hosts shifted objects and to which middle-field topics adjoin. The relationship between middle-field topics and shifted objects is shown to provide evidence for the phasehood of XP, which thus delimits the extended verbal domain of Brazilian Portuguese as a phasal domain. Additionally, a brief comparison between Brazilian Portuguese middle-field topics and German *Mittelfeld* topics is entertained, which shows the position of sentence-internal topics relative to sentential adverbs to be a safe diagnostic for the availability of aboutness topic interpretation.

1 Introduction

In Brazilian Portuguese, word-order permutations in the (sentence-internal) post-verbal area are fairly common.¹ This is illustrated in the paradigm in (1), which manipulates the relative order of the direct object, the indirect object, and a subject-related floating quantifier. With the subject and the verb traditionally assumed to move to TP, as represented in (2), the question arises of what the structural make-up of the area between the traditional TP and vP is in the language.

¹A lengthier discussion of the issues presented in this paper appears in my Ph.D. dissertation (Lacerda 2020b).



- (1) a. Os professores deram dois livros cada um pros alunos.
 the teachers gave two books each one to-the students
 b. Os professores deram cada um dois livros pros alunos.
 the teachers gave each one two books to-the students
 c. Os professores deram, pros alunos, dois livros cada um.
 the teachers gave to-the students two books each one
 d. Os professores deram, pros alunos, cada um dois livros.
 the teachers gave to-the students each one two books
 ‘The teachers gave the students two books each.’

- (2) [TP *subject verb* [??? [vP [VP]]]]

In this paper, I will analyze how two distinct syntactic operations can be re-sorted to in order to derive different orders of postverbal elements, such as the ones illustrated in (1) above. Both of these operations will be shown to place elements in postverbal vP-external positions, in an area of the clause that I will descriptively refer to as the “middle field”. The analysis of these operations will allow us to determine the “size” of the verbal domain in Brazilian Portuguese, that is, to propose a characterization of the structural make-up of the extended verbal domain of the language (which will be argued to be a phase).

First, I will discuss an operation that I will refer to as “object shift”, which will be shown to place the (single) highest internal argument of the verb in the A-specifier of an independent functional projection immediately above vP. Next, I will discuss an operation that I will refer to as “middle-field topicalization”, which places elements interpreted as topics in a position immediately above shifted objects. Finally, based on a comparison with the German *Mittelfeld*, I will argue that the (low) structural height of the Brazilian Portuguese middle field is responsible for ruling out aboutness interpretation for topics realized in that area of the clause.

2 Object shift

To start the discussion of the structural make-up of the middle field of Brazilian Portuguese, I will address an operation that I will refer to as “object shift”, which places the (single) highest internal argument of the verb in a postverbal vP-external position.² I will argue that this operation is an instance of A-movement

²I use the term “object shift” here for mere ease of exposition, since the operation in question usually (but not always) targets direct objects. This operation is in fact similar to what Lasnik & Saito (1991) and Bošković (1997), among others, argue is object shift in English, which is different from the operation discussed by e.g. Holmberg (1986) and Diesing (1996) for other Germanic languages.

that is not semantically or informationally motivated and can be likened to subject movement. Assuming as a point of departure that the basic structure of the verbal domain in Brazilian Portuguese includes at least two projections (VP and vP) and that manner adverbs are adjoined to the structure at the vP layer, as in (3), we can see in the paradigm in (4) that in a neutral, broad-focus sentence such as (4B1) the direct object can either precede or follow the vP-adverb *direito* ‘properly’. When the indirect object undergoes such a movement in an informationally-neutral context, on the other hand, the sentence is ruled out, as in (4B2). This contrast thus suggests that only the highest internal argument of the verb can occupy the object shift position (the base order being DO–IO). In other words, object shift in Brazilian Portuguese may rearrange the order between arguments and adjuncts, but not between arguments.

(3) [_{VP} *manner adverb* [_{VP} *agent* [_V V⁰ [_{VP} *theme* [_V V⁰ *goal*]]]]]

(4) A: O que aconteceu?
‘What happened?’

B1: O João não explicou {uma história} direito {uma história} pra
the John not explained {a story} right {a story} to-the
Maria.
Mary

B2: # O João não explicou pra Maria direito uma história.
the John not explained to-the Mary right a story
‘John didn’t explain a story to Mary properly.’

Further evidence that the direct object may leave the vP in (di)transitive constructions comes from its relative positioning with respect to subject-related floating quantifier *cada um* ‘each one’. Lacerda (2012, 2016a) argues that *cada um*, when following the direct object in what resembles the so-called “binominal each” construction in English (see Safir & Stowell 1988, Stowell 2013), also marks the edge of vP. More precisely, given that *cada um* in sentences like those in (5) is related to the subject (and is thus base-generated in the external argument position), the lowest position where it can be stranded is Spec,vP. The fact that *dois presentes* precedes *cada um* in (5a) therefore shows that the direct object has moved to a vP-external position (with (5b) being equally well formed). We can then assume the structure of the extended verbal domain represented in (6), which includes an additional projection XP, whose specifier can host shifted objects.³

³The category of XP is immaterial for the purposes of this paper.

- (5) a. Os alunos deram dois presentes cada um pro professor.
 the students gave two gifts each one to-the teacher
 b. Os alunos deram cada um dois presentes pro professor.
 the students gave each one two gifts to-the teacher
 ‘The students gave two gifts each to the teacher.’
 (6) *subject verb* [_{XP} {*DO*} [_{VP} (*manner adverb*) [_{VP} (*each*) [_{VP} {*DO*} *IO*]]]]

It is important to note that object shift in Brazilian Portuguese is not semantically or informationally motivated. In the relevant examples above, the direct objects were illustrated by indefinite DPs (*uma história* ‘a story’ in (4), and *dois presentes* ‘two gifts’ in (5)), but as can be seen in (7), definiteness also does not play a role in triggering or preventing movement of the definite direct object *o livro* ‘the book’. Both (7a) and (7b) are acceptable answers to a “what happened?” question. In the same fashion, the quantificational status of the direct object is also immaterial to object shift, as in (8).

- (7) a. O professor não explicou o livro direito pros alunos.
 the teacher not explained the book right to-the students
 b. O professor não explicou direito o livro pros alunos.
 the teacher not explained right the book to-the students
 ‘The teacher didn’t explain the book to the students properly.’
 (8) a. O professor não explicou nenhum livro direito pros alunos.
 the teacher not explained no book right to-the students
 b. O professor não explicou direito nenhum livro pros alunos.
 the teacher not explained right no book to-the students
 ‘The teacher didn’t explain any book to the students properly.’

Like I argued above is the case with object shift, subject movement in Brazilian Portuguese is also standardly assumed not to be semantically motivated. Rather, it is assumed to be an instance of formal A-movement (see e.g. Nunes 2010 for arguments to that effect). To further argue that object shift should be likened to subject movement in the language, I will show that shifted objects and subjects pattern alike with respect to the possibility of reconstruction in two independent semantic domains, namely variable binding (as seen in pronoun binding) and quantifier scope (as seen in distributivity).

First note in (9a) that a subject quantifier can bind a pronoun in the direct object, but the converse in (9b) is ruled out, which shows that the subject in (9b) cannot reconstruct to its base position for pronoun binding purposes (recall from

(6) above that Spec,vP is lower than Spec,XP, which is a possible position for the direct object).⁴

- (9) a. Cada autor_i publicou seu_i melhor livro.
 each author published his best book
 'Each author_i published their_i best book.'
- b. * [Seu_i pior livro]_k envergonhou cada_i autor t_k.
 his worst book shamed each author
 'Their_i worst book shamed each author_i.'

Now let us look at (10). Similarly to the subject case, in (10a) the quantified direct object can bind the pronoun in the adjunct PP, whereas the reverse relation is not possible in (10b).⁵ This state of affairs shows that the vP-external direct object cannot reconstruct to its base position for pronoun binding purposes, for in that position the pronoun should be able to be bound by the quantifier in the adjunct PP. That this is the case is shown by the grammaticality of (11), where the direct object with the pronoun is realized lower than the adjunct PP.

- (10) a. Eu comprei cada livro_i no seu_i lançamento.
 I bought each book on-the its launch
 'I bought each book_i on its_i launch.'
- b. * Eu encontrei [seu_i índice]_k em cada livro_i t_k.
 I found its index in each book
 'I found its_i index in each book_i.'
- (11) Eu identifiquei em cada artigo_i seu_i melhor argumento.
 I identified in each article its best argument
 'I identified in each article_i its_i best argument.'

Now recall from the discussion of (5) above that the quantifier *cada um* 'each one' can float in a position as low as Spec,vP and that when the direct object precedes *cada um*, it has undergone object shift to a vP-external position. If this movement is akin to subject movement and thus cannot reconstruct for pronoun binding, the prediction is that a pronoun in the direct object can be bound by the floating quantifier in the FQ-DO order but not in the DO-FQ order. This prediction is borne out, as the contrast in (12) shows.

⁴Note also that in spoken Brazilian Portuguese, the pronoun *seu* usually can only refer to third person when bound; otherwise, it refers to second person.

⁵In fact, structures like (10a) were used by Lasnik & Saito (1991) to argue for object shift in English.

- (12) a. Os autores publicaram cada um_i seu_i melhor livro.
 the authors published each one his best book
 b. *Os autores publicaram [seu_i melhor livro]_k cada um_i t_k.
 the authors published his best book each one
 ‘The authors each_i published their_i best book.’

The ungrammaticality of (12b) may seem surprising given the acceptability of (5a) above, where the floating quantifier can distribute over the direct object even in the DO–FQ order. This contrast simply shows that pronoun binding and distributivity are computed in different ways (a matter I will put aside here); regardless of how it is to be accounted for, what is relevant here is that this contrast shows that object shift again patterns with subject movement in the relevant respect: As can be seen in (13), a cardinal in subject position can also be distributed over by a quantifier realized in a lower position (in a sharp contrast with (9b), where pronoun binding is at stake).

- (13) Dois alunos leram cada livro.
 two students read each book
 ‘Two students read each book.’

Unsurprisingly, A'-movement on the other hand produces opposite results from what we have just seen above. In (14), the direct object is topicalized in the left periphery of the sentence, and despite preceding the quantified subject, it allows for the binding of the pronoun. Interestingly, the quantifier cannot fulfill its strong distributivity requirement just by binding the pronoun (i.e., the topic in question does not reconstruct for distributivity), which in turn forces the presence of another expression over which *cada um* can distribute, such as *num ano diferente* ‘in a different year’.

- (14) [Seu_i pior livro]_k, cada autor_i publicou t_k *(num ano diferente).
 his worst book each author published *(in-a year different)
 ‘Their_i worst book, each author_i published in a different year.’

In sum, we saw above that in Brazilian Portuguese A-movement may reconstruct for distributivity, but not for pronoun binding, whereas A'-movement may reconstruct for pronoun binding, but not for distributivity. The contrasts between distributivity and pronoun binding therefore provide additional evidence that object shift is best analyzed as A-movement, in that it patterns with subject movement in relevant respects. I take the fact that object shift in Brazilian Portuguese targets an A-position as evidence that it involves a separate projection

(such as XP in 6), rather than vP-adjunction, given that one could reasonably expect that any purported vP position higher than both the base position of the agent and vP adverbs would be an A'-position. Moreover, recall that the object shift position is "picky", in that it can only host the (single) highest internal argument of the verb; the presence of superiority effects thus suggests that some kind of probing is involved, which more likely creates a Spec-head configuration than an adjunction configuration.

Finally, I will point out one more similarity between XP and TP: just like TP attracts the highest argument of the verb, XP attracts the highest *internal* argument of the verb. In the absence of an external argument (as in passive and unaccusative constructions), Spec,TP can host an internal argument of the verb; likewise, in the absence of a direct object, Spec,XP can host an oblique argument. As is shown in (15) and (16), the complement PP can either precede (vP-externally) or follow (vP-internally) the manner adverb and the floating quantifier *cada um* 'each one'.⁶ Interestingly, the object shift position may also host the (postverbal) subject of a passive construction, which in this case is the highest internal argument of the verb, as is shown in (17).

- (15) a. O RH se mudou pro quarto andar completamente (no ano
the HR self moved to-the fourth floor completely (in-the year
passado).
past)
b. O RH se mudou completamente pro quarto andar (no ano
the HR self moved completely to-the fourth floor (in-the year
passado).
past)
'Human Resources completely moved to the fourth floor (last year).'
- (16) a. Os participantes apostaram em dois cavalos (até agora) cada um.
the participants bet in two horses (until now) each one
b. Os participantes apostaram (até agora) cada um em dois cavalos.
the participants bet (until now) each one in two horses
'The participants bet on two horses each (so far).'

⁶Unlike Spec,TP, Spec,XP does not involve morphological agreement, whence the ability to host PPs. In fact, as was argued by Avelar (2009), Spec,TP can host PPs when the verb shows default (third-person singular) agreement, as in locative inversion constructions (see Lacerda 2016a, 2020b for additional evidence).

- (17) Foram devolvidos [_{XP} os livros_k [_{VP} (ontem) [_{VP} cada um_i t_k pro
 were returned the books (yesterday) each one to-the
 seu_i autor]]].
 its author
 ‘Each of the books_i was returned to its_i author (yesterday).’

In conclusion, I argued in this section that the middle field of Brazilian Portuguese includes a vP-external “object shift” position, which can host the (single) highest internal argument of the verb. Like subject movement, object shift was shown to be the result of A-movement and not to be triggered by interpretive requirements. I argued that object shift involves a separate functional projection above vP, which extends the verbal domain. In the next section, I will continue to probe into the structural make-up of the middle field from the perspective of topicalization.

3 Middle-field topicalization

In this section, I will show that another operation can displace elements to a vP-external position in the middle field of Brazilian Portuguese, namely, topicalization. I will show that middle-field topics target a position immediately above the object shift position and must be associated with a focus in the object shift position, as a consequence of a phase-based locality constraint. For concreteness, I will assume here that middle-field topics are adjoined to XP, as represented in (18) (see Lacerda 2019, 2020a,b for arguments against a cartographic analysis of topicalization in Brazilian Portuguese).

- (18) [_{TP} *subject verb* [_{XP} *topic* [_{XP} {DO} [_{vP} [_{VP} {DO} IO]]]]]

Unlike object shift, middle-field topicalization can be used to rearrange the order between arguments, as in (19B), where the topicalized indirect object *pros alunos* ‘to the students’ precedes the direct object *dois livros* ‘two books’ (the base order being DO–IO). Sentence (20B) shows that non-argumental constituents, such as an adnominal PP, may also be topicalized in the middle field.

- (19) A: O que os professores deram pros alunos?
 ‘What did the teachers give to the students?’
 B: Eles deram, *pros alunos*_{TOP}, dois livros_F cada um (até agora).
 they gave to-the students two books each one (until now)
 ‘They gave *the students*_{TOP} two books_F each (so far).’

- (20) A: *Quantos livros do Chomsky os alunos leram?*
 ‘How many books by Chomsky did the students read?’
 B: *Eles leram, do Chomsky_{TOP}, dois livros_F cada um (até agora).*
 they read of-the Chomsky two books each one (until now)
 ‘They read two books_F by Chomsky_{TOP} each (so far).’

While topics are allowed in the middle field and may even reiterate, as in (21B1–B2), focalized elements may not move to that area of the clause, as is shown by the unacceptability of (22B1) and (23B1). Foci are better off in situ, as in (22B2) and (23B2).

- (21) A: *Quantos livros do Chomsky a Maria doou pro departamento?*
 ‘How many books by Chomsky did Mary donate to the department?’
 B1: *Ela doou, do Chomsky_{TOP}, pro departamento_{TOP}, dez*
 she donated of-the Chomsky to-the department ten
livros_F (até agora).
 books (until now)
 B2: *Ela doou, pro departamento_{TOP}, do Chomsky_{TOP}, dez*
 she donated to-the department of-the Chomsky ten
livros_F (até agora).
 books (until now)
 ‘She donated ten books_F by Chomsky_{TOP} to the department_{TOP} (so far).’
- (22) A: *Pra quem os professores deram dois livros cada um?*
 ‘To whom did the teachers give two books each?’
 B1: *??Eles deram só pra Maria_F dois livros cada um (até agora).*
 they gave only to-the Mary two books each one (until now)
 B2: *Eles deram dois livros cada um só pra Maria_F (até agora).*
 they gave two books each one only to-the Mary (until now)
 ‘They gave two books each only to Mary_F (so far).’
- (23) A: *De que autor os alunos leram cada um dois livros?*
 ‘The students each read two books by which author?’
 B1: **Eles leram do Chomsky_F cada um dois livros (até agora).*
 they read of-the Chomsky each one two books (until now)
 B2: *Eles leram cada um dois livros do Chomsky_F (até agora).*
 they read each one two books of-the Chomsky (until now)
 ‘They each read two books by Chomsky_F (so far).’

That the topics in question are indeed in a sentence-medial position is corroborated by the licensing of negative concord and vP-ellipsis. First observe (24) (adapted from Lacerda 2016b: 258). The direct object is a negative concord item that is properly licensed by the preverbal negation, which shows that *não* ‘not’ c-commands *nenhuma pessoa* ‘no person’. As a consequence, the topic *dos Democratas* ‘of the Democrats’ must be somewhere in-between the TP area (where the negation is) and the (extended) verbal domain (where the direct object is). In (25B), the ellipsis of vP (containing the indirect object *pra ela* ‘to her’ and the vP-adjoined adverbial PP *no Natal* ‘on Christmas’) spares both the middle-field topic *do Chomsky* ‘by Chomsky’ and the direct object *cinco livros* ‘five books’, which provides further evidence for the vP-external position of these elements.

- (24) O FBI não investigou, dos Democratas_{TOP}, *nenhuma pessoa* na
the FBI not investigated of-the Democrats no person in-the
eleição passada.
election past
‘The FBI didn’t investigate any person of the Democrats in the previous
elections.’
- (25) A: A Maria adora ganhar livros de linguística.
O João deu dois livros do Pinker e três livros do Chomsky pra ela no
Natal.
‘Mary loves receiving linguistics books.
John gave two books by Pinker and three books by Chomsky to her
on Christmas.’
- B: E eu dei, do Chomsky_{TOP}, *cinco livros*_F <pra ela no
and I gave of-the Chomsky five books <to her in-the
Natal>.
Christmas>
‘And I gave *five books*_F by Chomsky_{TOP} <to her on Christmas>.’

Having shown the existence of middle-field topics in Brazilian Portuguese, I will now argue that their positioning at the top of the extended verbal domain, right above the object shift position, grants them a very close relationship with shifted objects. In particular, I will argue that only elements that can independently reach Spec,XP (that is, the highest internal argument of the verb) can be focalized in the presence of a middle-field topic (especially in cases of contrastive topicalization, where the topic is associated with a focus; see Büring 2003, Wagner 2012).

Let us observe the paradigm in (26). In the answers in (26B1–B4), the topic *do Chomsky* ‘by Chomsky’ is contrastively topicalized as an alternative to *do Pinker* ‘by Pinker’ in the question in (26A) (leaving the question about Pinker unresolved and proposing a new alternative question about Chomsky, which is in turn resolved). When the topic is realized in the left periphery and the focus (namely, the indirect object *pra Ana* ‘to Anna’) is realized in situ, the sentence is grammatical and felicitous, as (26B1) shows. Considering that the PP *do Chomsky* is otherwise an acceptable middle-field topic (see e.g. 25B above) and that indirect objects can independently be focalized in situ, the unacceptability of (26B2) is rather surprising.

- (26) A: Pra quem você recomendou livros do Pinker ontem?
 ‘Who did you recommend books by Pinker to yesterday?’
- B1: /*Do Chomsky*_{CT}/, \eu recomendei livros\ /*pra Ana*_F/
 of-the Chomsky I recommended books to-the Anna
 (ontem).
 (yesterday)
- B2: ?? Eu recomendei, /*do Chomsky*_{CT}/, \livros\ /*pra Ana*_F/ *to-the Anna*
 I recommended of-the Chomsky books to-the Anna
 (ontem).
 (yesterday)
- B3: * Eu recomendei, /*do Chomsky*_{CT}/, /*pra Ana*_F/ \livros\
 I recommended of-the Chomsky to-the Anna books
 (ontem).
 (yesterday)
- B4: ??/Do *Chomsky*_{CT}/, \eu recomendei\ /*pra Ana*_F/ \livros\
 of-the Chomsky I recommended to-the Anna books
 (ontem).
 (yesterday)
 ‘I recommended books *by Chomsky*_{CT} *to Anna*_F (yesterday).’

The well-formedness of (27B) below, where the direct object is focalized instead, suggests that the focus must be close enough to the middle-field contrastive topic (in a way to be defined below). However, attempting to bring the focalized indirect object closer to the topic in (26B3) leads to utter ungrammaticality. This result is in fact expected if we consider two observations made above: First, that the indirect object cannot undergo object shift past the direct object (cf. 4B2), and second, that there is no focus-driven movement to the middle field

(cf. 22B1, 23B1) – note that moving the focalized indirect object to the middle field is enough to ruin even the otherwise acceptable (26B1), as in (26B4).

- (27) A: Você recomendou quantos livros do Pinker pra Ana ontem?
 ‘How many books by Pinker did you recommend to Anna yesterday?’
 B: \Eu recomendei\, /do Chomsky_{CT}/, /dois livros_F/ \pra Ana\
 I recommended of-the Chomsky two books to-the Anna
 (ontem).
 (yesterday)
 ‘I recommended *two books_F* by *Chomsky_{CT}* to Anna (yesterday).’

The contrasts we just saw in (26) and (27) above therefore lead us to the conclusion that only an element that can independently reach Spec,XP is an accessible focus for a middle-field topic adjoined to XP. In order to account for that restriction, I will assume a contextual approach to phasehood, in particular Bošković (2014) system, where the highest projection in the extended domain of a lexical category is a phase. With the object shift projection XP extending and closing off the verbal domain, as I argue here, XP can be taken to be a phase under that approach to phasehood. Independent evidence for this claim comes from ellipsis.

As Bošković’s 2014 argues, only phases and complements of phases can undergo ellipsis. Assuming the structure in (18) above, repeated below in (28), the phasehood of XP thus predicts that both the phase XP and its phasal complement vP can be (independently) elided. We already saw in (25B) above that vP can be elided (while sparing the vP-external shifted object in Spec,XP). Ellipsis of the phase XP itself can be seen in cases of V-stranding VP-ellipsis, as in (29B). Note that the direct object *cada livro* must be outside the vP (i.e., in Spec,XP) in order to bind into the adjunct, which shows that the entire XP is elided in (29B) (not just the vP).

- (28) [TP *subject verb* [XP *topic* [XP {DO} [vP [VP {DO} IO]]]]] = (18)

- (29) A: O João comprou cada livro_i no seu_i lançamento.
 the John bought each book in-the its launch
 ‘John bought each book on its launch.’
 B: Eu também comprei <cada livro_i no seu_i lançamento>.
 I also bought <each book in-the its launch>
 ‘I did too.’

Having independently motivated the phasehood of the object shift projection XP, we can then return to the restriction observed in (26–27) above, namely that only the shifted object can be focalized in the presence of a middle-field topic. I propose that this restriction follows from the phase-based locality constraint in (30).

(30) *Middle-field topic-focus association*

A topic adjoined to XP must be associated with a focus in the same spell-out domain.

With XP being a phase, X^0 triggers the spell-out of vP, as in (31). Later in the derivation, when the higher spell-out domain including the topic is sent to the interfaces, only the shifted object in Spec,XP is still accessible as a focus, given the constraint in (30) above.

$$(31) \quad [_{XP} \text{topic} [_{XP} \text{focus-DO} [_{X'} X^0 [_{vP} [_{vP} \text{IO}]]]]]$$

I will leave the precise deduction of the constraint in (30) open for the time being (but see Lacerda 2020b for a proposal and relevant discussion). However, it is important to point out now that the ungrammaticality of the relevant example (26B2) above cannot be reduced to a mere adjacency constraint. This is corroborated by (32). First recall from (21) above that middle-field topics may reiterate in Brazilian Portuguese. Now note in (32B) that the discourse-given topic *pro departamento* ‘to the department’ may intervene between the contrastive topic *do Chomsky* ‘by Chomsky’ and its associated focus *dez livros* ‘ten books’. Crucially, as is shown in (33), the focalized direct object is still accessible to the contrastive topic. By being able to undergo object shift to Spec,XP, *só dez livros* can be realized in the same spell-out domain as *do Chomsky*, in the manner discussed above, and the sentence is therefore acceptable.

(32) A: Quantos livros do Pinker a Maria doou pro departamento?

‘How many books by Pinker did Mary donate to the department?’

B: \Ela doou\, /do Chomsky_{CT}\, \pro departamento_{GT}\, /só dez
she donated of-the Chomsky to-the department only ten
livros_F/ (até agora).
books (until now)

‘She donated only *ten books_F* by *Chomsky_{CT}* to the department_{GT} (so far).’

$$(33) \quad [_{XP} \text{do Chomsky}_{CT} [_{XP} \text{pro departamento}_{GT} [_{XP} \text{só dez livros}_F [_{X'} [_{vP}]]]]]]]$$

Finally, recall from examples (15) and (16) above that in the absence of a direct object, an oblique argument can reach the object shift position (that is, object shift exhibits superiority effects). Unsurprisingly under the current analysis, in the absence of a direct object an oblique argument can be the focus associated with a middle-field topic, as in (34B), which sharply contrasts with sentences (26B2–B3) above, where an indirect object cannot be focalized in the presence of a direct object.

- (34) A: Em quantos alvos os atletas atiraram no campeonato de tiro?
'How many targets did the athletes shoot at in the shooting championship?'
B: Bem, os atletas atiraram, *na prova final*_{CT}, *só em dois alvos*_F
well the athletes shot in-the round final only in two targets
cada um.
each one
'Well, the athletes each shot *at only two targets*_F *in the final round*_{CT}.'

In conclusion, the discussion above regarding the constraints on middle-field topicalization provides further evidence for the structural make-up of the extended verbal domain of Brazilian Portuguese proposed in this paper. Assuming that object shift targets an independent projection XP above vP and that XP is a phase, it follows that only shifted objects can escape the spell-out of vP, which in turn grants shifted objects the ability to become an accessible focus for middle-field topics adjoined to XP, considering the requirement that middle-field topics and their associated foci must be in the same spell-out domain (as stated in (30) above).

In the next section, I will discuss how the structural height of the middle field of Brazilian Portuguese constrains the availability of aboutness topics in that area of the clause.

4 The height of aboutness topics

To conclude this paper, I will argue that the structural height of the middle field of Brazilian Portuguese is responsible for preventing topics in that area of the clause from having an aboutness interpretation (in the sense of Reinhart 1981). The middle-field topics that appeared in the relevant examples in the previous section were restricted to contrastive and discourse-given interpretation. I will

now briefly compare Brazilian Portuguese middle-field topics and German *Mittelfeld* topics and I will point out what is responsible for allowing an aboutness interpretation for the latter but not for the former.

That aboutness topic interpretation is ruled out in the middle field of Brazilian Portuguese is shown in (35). While the traditional “tell me about X” test, which follows Reinhart (1981)’s notion of aboutness, is felicitous with the left-peripheral topic in (35B1), it leads to an infelicitous result with the middle-field topic in (35B2).

- (35) A: Me conta alguma coisa sobre a feira renascentista que você foi ontem!
 ‘Tell me something about the renaissance fair you went to yesterday!’
 B1: (N)a *feira renascentista*_{AT}, eu comi várias comidas típicas (lá).
 (in-)the fair renaissance I ate several foods typical (there)
 B2: # Eu comi, na *feira renascentista*_{AT}, várias comidas típicas
 I ate in-the fair renaissance several foods typical
 (lá).
 (there)
 ‘At the renaissance fair_{AT}, I ate several traditional dishes.’

Additionally, note that the use of an aboutness-shifting strategy (in the sense of Bianchi & Frascarelli 2010), as overtly indicated by the topic-shifting particle *já* in (36), is only allowed with a left-peripheral topic, as in (36B1), with the middle-field counterpart in (36B2) being ruled out as ungrammatical.

- (36) A: O Pedro leu dez livros do Chomsky pra esse curso.
 ‘Peter read ten books by Chomsky for this course.’
 B1: *Já do* *Pinker*_{AT}, ele não leu nenhum livro.
 JÁ of-the Pinker he not read no book
 B2: * Ele não leu, *já do* *Pinker*_{AT}, nenhum livro.
 he not read JÁ of-the Pinker no book
 ‘Now *by* *Pinker*_{AT}, he didn’t read any book.’

We cannot ascribe the unavailability of aboutness topic interpretation in (35B2) and (36B2) above to the mere fact that the relevant topics are sentence-internal (i.e., not left-peripheral), in light of the fact that elements in the so-called German *Mittelfeld* can be interpreted as aboutness topics. As Frey (2004) notes, elements that precede sentential adverbs, such as *wahrscheinlich* ‘probably’ in (37), are felicitous in the context of the “tell me about X” test mentioned above, as in (37B1), while elements that follow sentential adverbs are not, as in (37B2).

- (37) A: Ich erzähle dir etwas über Maria.
 I tell you something about Mary
- B1: Nächstes Jahr wird *Maria* wahrscheinlich nach London gehen.
 next year will Mary probably to London go
- B2: # Nächstes Jahr wird wahrscheinlich *Maria* nach London gehen.
 next year will probably Mary to London go
 ‘Next year Mary will probably go to London.’
 (Frey 2004: 158)

Frey (2004) describes sentence (37B1) above as representing a topic-comment structure about *Maria*, in that “[t]he given context demands that the information of the following sentence should be stored under the entry *Maria*” (Frey 2004: 158). Crucially, this informational import is possible when the topic in question precedes sentential adverbs, but not when it follows them. The possibility of *Mittelfeld* topics having an aboutness interpretation can therefore be argued to follow from their privileged position at the edge of TP, where they can take scope over a full proposition (which is necessary for a felicitous topic-comment configuration to obtain; see e.g. Reinhart 1981, Bianchi & Frascarelli 2010). As Frey (2003, 2004) notes, sentential adverbs delimit propositional content (i.e., like aboutness topics, sentential adverbs must also take scope over a full proposition). As such, German *Mittelfeld* topics allow for the presence of aboutness topic-related particles, such as *jedenfalls* ‘at any rate’ in (38), which is licensed when the topic precedes the sentential adverb *zum Glück* ‘luckily’ in (38a), but not when the topic follows the adverb in (38b).

- (38) a. weil [Peter jedenfalls] zum-Glück morgen mithelfen wird.
 since Peter at-any-rate luckily tomorrow help will
- b. * weil zum-Glück [Peter jedenfalls] morgen mithelfen wird.
 since luckily Peter at-any-rate tomorrow help will
 [‘Since Peter at any rate will luckily help tomorrow.’]
 (Frey 2004: 162)

Brazilian Portuguese middle-field topics, on the other hand, cannot precede sentential adverbs, as is shown in (39B1–B2). In fact, as the contrast between (40a) and (40b) shows, middle-field topics must be as low as following the lexical verb, which is assumed to move to a position in the (low) TP area (see e.g. Tescari Neto 2013) – attempting to place a topic in any position of the auxiliary system

leads to ungrammaticality, as is shown in (41).⁷

- (39) A: *Quantos livros do Chomsky o João leu pro curso de sintaxe?*
‘How many books by Chomsky did John read for the syntax course?’
- B1: ?* *Ele sem dúvida, do Chomsky_{TOP}, infelizmente não leu*
he w/o doubt of-the Chomsky unfortunately not read
nenhum livro_F.
no book
- B2: ?* *Ele, do Chomsky_{TOP}, sem dúvida infelizmente não leu*
he of-the Chomsky w/o doubt unfortunately not read
nenhum livro_F.
no book
‘He undoubtedly unfortunately did not read any *book_F* by *Chomsky_{TOP}*.’
- (40) a. *O João não [TP leu, [XP do Chomsky_{TOP}, [XP só dois*
the John not read of-the Chomsky only two
livros_F t_{TOP}]]].
books
- b. * *O João não, do Chomsky_{TOP}, [TP leu [XP só dois*
the John not of-the Chomsky read only two
livros_F t_{TOP}]]].
books
‘John didn’t read only two *books_F* by *Chomsky_{TOP}*.’
- (41) A: *Quantos livros o João vai estar lendo pro curso de linguística?*
‘How many books is John going to be reading for the linguistics course?’
- B1: *O João vai estar lendo, do Chomsky_{TOP}, só dois livros_F.*
the John will be reading of-the Chomsky only two books
- B2: * *O João vai estar, do Chomsky_{TOP}, lendo só dois livros_F.*
the John will be of-the Chomsky reading only two books
- B3: * *O João vai, do Chomsky_{TOP}, estar lendo só dois livros_F.*
the John will of-the Chomsky be reading only two books
‘John will be reading only two *books_F* by *Chomsky*.’

⁷With middle-field topics in Brazilian Portuguese being located in a vP-external position closing off the verbal domain, as I argued, the data in (39–41) provide further evidence that all verbs in the language, inflected or not, must move to the TP area of the clause.

In conclusion, Brazilian Portuguese middle-field topics are in too low a position to have an aboutness interpretation. Located at the edge of the verbal domain, as I argued, middle-field topics in this language do not c-command a full proposition and thus cannot create the topic-comment articulation of the clause that traditional aboutness topics must conform to, with contrastive and discourse-given interpretation, which can be argued not to depend on a topic-comment articulation (see Lacerda 2020b for relevant discussion), being in principle available.

Furthermore, the contrasts between German *Mittelfeld* topics and Brazilian Portuguese middle-field topics discussed in this section can be taken to provide evidence for the view that the availability of different topic types is a matter of structural height.

5 Final remarks

In this paper, I analyzed two distinct operations in Brazilian Portuguese, namely “object shift” and “middle-field topicalization”, which place elements in postverbal vP-external positions. The analysis of these two operations allowed us to probe into the “size” of the extended verbal domain in the language, which was argued to include an independent vP-external functional projection XP, whose A-specifier hosts shifted objects and to which middle-field topics adjoin. The close-knit relationship between middle-field topics and shifted objects (as far as information-structural relations are concerned) allowed us to additionally determine the phasehood of XP, thus delimiting the extended verbal domain of Brazilian Portuguese as a phasal domain.

Compared with the German *Mittelfeld*, I argued that the middle field of Brazilian Portuguese is structurally too low to allow for aboutness topics – with sentential adverbs delimiting propositional content, the position of topics with respect to sentential adverbs was thus shown to be a safe diagnostic for the availability of aboutness interpretation. Following all elements of the TP area, middle-field topics and shifted objects were shown to be part of the extended verbal domain of Brazilian Portuguese.

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Chapter 15

Particle-verbs in an Austrian-American code-switching idiolect

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We describe a productive construction in an Austrian-American code-switching idiolect, in which English particle verbs are integrated into a German frame with what appears to be a melange of grammatical properties from the two languages, including apparent doubling of inflectional morphology. We suggest that English particle verbs are too large to be simply borrowed as verbs, but are instead the right size to be pressed into the mold of a different complex verbal structure that occurs independently in German: verb clusters. This minimal reanalysis provides a structure that is similar enough to allow for congruent lexicalization in code mixing. Intuitions about the distribution of the construction suggest that it is systematic and not merely a case of doubling or copying of the suffixes, and our proposed analysis captures the main distinctions between possible and impossible contexts.

1 Introduction

In this paper, we describe a productive construction in an Austrian-American code switching (CSw) or code-mixing idiolect, illustrated in (1):

- (1) a. Ich geh es sett-en upp-en.
I go it set-INF up-INF
'I'll go set it up.' (2017.12.26)
- b. Wir werden hang-en out-en.
We will hang-INF out-INF
'We're going to hang out.' (2017.06.02)



The hallmark of this construction is the use of an English particle verb in a German sentence, with the English verb-particle order (otherwise impossible in German outside of verb-second contexts) but with German inflectional morphology on – it appears – both the verb and particle. The construction is freely available in contexts like (1), but is otherwise restricted, and for example is completely impossible in simple main clause configurations with no auxiliary or modal:

- (2) a. *Wir sett-en es heute Abend upp-en.
 we set-1PL it today evening up-1PL
 b. Wir sett-en es heute Abend up.
 we set-1PL it today evening up
 ‘We’ll set it up this evening.’

Our first goal in this paper is to provide a description of the construction, and its distribution. Secondly, we offer some thoughts about why the construction has the peculiar distribution it has, focusing in particular on the contrast in (1) versus (2), relative to typologies of code-mixing. For example, Muysken (2000) provides a typology of code-mixing with three major types, but this construction seems not to match up to any of them. Muysken’s proposed types (p. 3) are as follows:

- (3) a. *alternation* between structures from multiple languages
 b. *insertion* of lexical items or entire constituents from one language into a structure from the other
 c. *congruent lexicalization* of material from different lexical inventories into a shared grammatical structure

We assume that the matrix language frame for all examples considered here is German, and that these are not *alternations*. The code-mixed contexts we describe here are perceived by the participants as being in German. Instead, we will focus on *insertion* and *congruence* – the ways in which English material is integrated into a German syntactic frame (see also Myers-Scotton 1993). We suggest that examples like (2b) represent *congruent lexicalization*: both German and English have particle-verb combinations that can be discontinuous, where the (inflected, finite) verb precedes the particle. That is, the sentence meets all the conditions of German syntax (including separation of the finite verb and the particle to meet the verb second [V2] requirement), and also satisfies the English syntax of the particle-verb construction: the verb precedes the particle, though may be separated from it by (leftward) verb movement.

The intuition we wish to pursue is that the construction in (1) represents a type of repair, when congruence would otherwise fail. The phrasal nature of particle verb combinations makes them “too big” to integrate via insertion into a V position. At the same time, there is no congruent parse which satisfies both the (German) verb-final requirement, and the English requirement that the particle follows the verb. Despite this, we suggest that (1) is nevertheless made congruent by coopting another independently occurring piece of German syntax, which results in the apparent morphological doubling. In a manner reminiscent of the notion of “derivatively grammatical” in Chomsky (1965: 242): the construction is not, as such, derived by the grammar, but it comes “close-enough” to a structure that is congruent to be usable.

2 Setting up the puzzle

2.1 Background: The code-switcher

The linguistic behaviour that we describe here is that of a balanced bilingual (Austrian German and American English). The speaker lived in New England (USA) until age 11, and has for the five-and-a-half years since then lived in Vienna (Austria), though over both periods spent time in the other location. In the US, his schooling, and thus peer-group, was exclusively English, but the language of the home was German (the native language of one parent, an L2 of the other). In Austria, schooling is in German, though with some English instruction through a “dual language program”; the peer group is primarily, though not exclusively, German-dominant, but all speak English as well. Data here is drawn from passive observations by the speaker’s parents (sporadic language notes over many years), combined with the intuitions/acceptability judgments of the second author, who is a native speaker of the CSw idiolect. Use of English particle-verbs in German frames is attested in the parental notes since 2016, and the construction with doubled inflection occurs since 2017.¹

¹A reviewer asks about the extent of code-mixing in the data. The parental notes were not kept in a way that allows us to provide a quantitative answer. Our intuition is that some amount of mixing occurs daily, although most utterances are primarily in one language. We suspect that some conversational scenarios, such as discussion in German of events that took place in English (school, movies, computers, US news), favour more mixing. In response to the reviewer’s query, the second author examined a sample of 100 text messages (of two words or more) between him and his L1-English parent. 93 of these were entirely in German, and 7 involved switching (none were entirely in English). Both authors share the intuition that this medium under-represents the frequency of switching in conversation. Most mixed SMSs involved an English word inserted into German, with German morphosyntax (i), but some involved larger

As far as we have been able to determine, the construction is idiolectal. A small survey of seven members of the speaker's peer-group in Vienna, Austria, found no other users of the construction in (1), although none of the peer code switchers have the same linguistic background (other survey respondents have lived primarily in German-speaking social contexts for far longer, some exclusively). Nevertheless, the *setten uppen* construction has been observed as a stable part of the speaker's grammar for a period spanning multiple years, was used un-self-consciously in spontaneous, running discourse, and the speaker has consistent acceptability judgments about the distribution of the construction. We assume, therefore, that the construction is grammatical in this idiolect. By all available evidence, it constitutes systematic, rule-governed linguistic behaviour, and thus it should be amenable to an account within a theory of code-switching.

2.2 Distribution of the construction

The *setten uppen* construction is most natural, and most attested in our limited notes, in the configuration in (1), where it occurs in the clause-final position that corresponds to an infinitive verb in German:²

- (4) a. Ich geh es sett-en upp-en. (CSw)
 I go it set-INF up-INF
 'T'll go set it up.' (2017.12.26)
- b. Wir werden hang-en out-en. (CSw)
 We will hang-INF out-INF
 'We're going to hang out.' (2017.06.02)
- c. Ich muss es noch turn-en on-en. (CSw)
 I must it still turn-INF on-INF
 'I still have to turn it on.'

constituents (ii):

- (i) Es renewed am 15.
 It renew-3SG on 15th
 'It renews on the 15th.' (From context, it is clear that orthographic "-ed" here represents German 3SG.PRES -t. Autocorrect may have influenced the orthographic form.)
- (ii) Mama musste solemnly swear-en.
 Mama must-PAST solemnly swear-INF
 'Mama had to solemnly swear.'

²The most frequent spontaneously occurring examples are those with no obvious parallel particle verb in German, such as *hang-en out*, and *sett-en up*. Examples like *throw-en out*, and *turn-en on*, for which there are German particle verb with the same meaning (*weg-werfen* 'away-throw'; *ein-schalten* 'on-switch') are judged less natural, but still possible.

Doubling of any sort is categorically impossible in finite main clauses, that is, in the V2 construction where the verb is in second position, and the particle final (whether or not there is intervening material):

- (5) a. * Wir sett-en es heute am Abend upp-en. (CSw)
 we set-1PL it today at evening up-1PL
 b. * Wir sett-en up(p-en) es heute am Abend. (CSw)
 we set-1PL up(-1PL) it today at evening
 c. * Wir sett-en es up(p-en) heute am Abend. (CSw)
 we set-1PL it up(-1PL) today at evening
 ‘We’ll set it up this evening.’

Instead, in simple main clauses, English particle verbs are readily integrated into German syntax: the verb is inflected as a finite verb and the particle occurs clause-finally, uninflected.³

- (6) a. Wir sett-en es heute am Abend up. (CSw)
 we set-1PL it today at evening up
 ‘We’ll set it up this evening.’
 b. Und dann chopp-en sie die Oreos up. (CSw)
 and then chop-3PL they the Oreos up
 ‘And then they chop the Oreos up.’ (2017.08)
 c. Sie figure-t es out. (CSw)
 she figure-3SG it out
 ‘She’ll figure it out.’ (2017.06.02)

Between these two poles, the data are somewhat less clear. Apparent doubling of inflectional morphology is possible in embedded finite clauses, where the finite verb is final, in particular with first and third person plural subjects (7a). Thus we have minimal pairs between matrix and embedded clauses:⁴

³We assume that the particle in (6a–6b) is English *up* although phonetically, this is hard to distinguish from the German particle *ab* [ap] ‘down.’ We do feel that the vowel quality, in careful introspection, is reliably distinct: English [ʌp] rather than German [ap]. If it were reanalyzed as German *ab*, we would not expect the behaviour in (4) etc., but instead patterning with (14), below. Particle *out* does not raise this issue, as there is no homophonous German particle.

⁴Since first person plural inflection is identical to infinitival morphology, the glosses in this example are to be taken with a grain of salt. We will suggest below that (7a) does not actually involve doubling of the 1PL finite inflection.

- (7) a. ...bevor wir hang-en out-en.
 ...before we hang-1PL out-1PL
 ‘...before we hang out.’
 b. *Wir hang-en out-en.
 We hang-1PL out-1PL
 ‘We’re hanging out.’

First and third person plural subject inflection has the property that it is homophonous with infinitival morphology. With other subject person-number combinations, judgments about finite embedded clauses are less clear. Over a small sample of introspective judgments, we find doubling sometimes accepted (8b) but sometimes not (8a).

- (8) a. *...bevor du hangst outst.
 ...before you hang-2SG out-2SG
 ‘...before you hang out.’
 b. ...bevor du es settest upst.
 ...before you it set-2SG up-2SG
 ‘...before you set it up.’

Note that there is an alternative with *-en* on the verb and person inflection only on the particle:

- (9) a. ...bevor du hangen out(e)st.
 ...before you hang-INF? out-2SG
 ‘...before you hang out.’
 b. ...bevor du es setzen upst.
 ...before you it set-INF? out-2SG
 ‘...before you set it up.’

Examples like this suggest that the construction is not to be modeled simply as copying or doubling of an inflectional affix. This seems to distinguish the construction from the colloquial English *picker upper* nominalizations, to which we return below.

Finally, we note that participial constructions are also verb-final in German. For particle verbs, whatever pattern there is does not appear to be particularly stable. The following was attested, in spontaneous speech, as was *geline*d up ‘lined up’ (2017.02.05, noted without sentential context):

- (10) Ich hab-'s schon ge-sett-et up.
 I have-it already PTCP-set-PTCP up
 'I already set it up.' (2016.08.15)

Other combinations also sometimes appear to be possible:

- (11) a. Ich hab(e) es ge-set-up-t.
 I have it PTCP-set-up-PAST
 b. Ich hab(e) es ge-sett-en up-t.
 I have it PTCP-sett-PTCP up-PTCP
 c. Ich hab(e) es ge-sett-et up-t.
 I have it PTCP-set-PAST up-PTCP
 'I set it up.'

Yet in the second author's judgment, for many participle verbs one might try to integrate, including five other combinations that freely enter into the *setzen uppen* configuration considered here, there is simply no acceptable outcome as a participle:

- (12) a. *Ich hab(e) ge-hang-ed ge-out-ed.
 I have PTCP-hang-PAST PTCP-out-PAST
 b. *Ich hab(e) ge-hang-ed out.
 I have PTCP-hang-PAST out
 c. *Ich hab(e) ge-hang-out-ed.
 I have PTCP-hang-out-PAST
 'I hung out.'

3 Analysis

3.1 Preliminaries

We start by noting that the construction at issue differs from simple lexical borrowing since it involves an apparent blend of German and English grammar: German particle verbs (separable prefixes, see Wurmbrand (1998) for an analysis) categorically show the order particle-verb when the verb is not in second position – the order between verb and particle is decidedly English in (1) – while the remainder of the sentence shows distinctly German grammar, for example, verb-finality when abstracting away from verb second – note pre-verbal object in (13c) and (1):

- (13) a. I have to throw out something. (Eng., also: ...throw something out)
 b. Ich muss etwas weg-werf-en. (Ger.)
 I must s.th. away-throw-INF
 ‘I must throw something away.’
 c. Ich muss etwas throw-en out-en. (CSw)
 I must s.th. throw-INF out-INF
 ‘I must throw something away.’

English particle verb combinations can be borrowed into German, and used fully within German syntax. Constructions where only the English verb is borrowed, and combined with a German particle, are well established: *aus-flipp-en* ‘to flip out’, *aus-freak-en* ‘to freak out’, etc. Spontaneous examples of this pattern are also attested in our corpus:

- (14) a. (CSw/Ger)
 Ich glaub mein Lunch ist aus-ge-spill-ed.
 I believe my Lunch is out-PTCP-spill-PAST
 ‘I think my lunch spilled (out).’ (2016.04.21)
 b. (CSw/Ger)
 ...und dann [es] runter-scrape-n, und es wird ein-ge-roll-t.
 ...and then [it] down-scrape-INF, and it AUX in-PTCP-roll-PAST
 ‘and then [they] scrape [it] off, and it is rolled in.’ (2017.09.01)

In one corpus study (Willeke 2006) this is the only form in which English particle verbs are attested as borrowings into German: the particle is always German and only the verb is borrowed.⁵ These may of course also occur in separated form:

⁵Willeke phrases the observation differently, since he treats verbs like *download*, *upgrade*, *update* as particle verbs. For English, we reserve the term *particle verb* for those constructions in which the verb and particle do not form a single word (sometimes also called “phrasal verbs”), so our category includes *set up*, *flip out*, etc., but not *download*, *upgrade* since *load down* and *grade up* are not possible forms of these verbs. Willeke’s classification focuses on participial forms such as *down-ge-loaded* and *up-ge-graded*, in which the position of the participial prefix *ge* suggests separability. It is worth noting that with the exception of a single occurrence of *load ...down* (from *Die Presse*), these forms do not occur with the prefix separated in Willeke’s corpus. Such separation is felt to be wholly unnatural to the second author of the present study:

- (i) a. Ich upgrade bald meinen Computer. [ʌpgreɪd-ə]
 I upgrade soon my computer [ʌpgreɪd-1sg]
 b. *Ich grade bald meinen Computer up.
 I grade soon my computer up
 ‘I’ll upgrade my computer soon.’

(15) (Ger)

Steffi flipp-te nach ihrem sechsten Streich in Wimbledon nicht aus, ...
 Steffi flip-PAST after her sixth coup in Wimbledon not out
 'Steffi didn't flip out after her sixth coup at Wimbledon, ...' (*Mannheimer Morgen* cited in Willeke 2006: 67)

Some (though not all) members of the code-switching peer-group also permit borrowing of both English verb and particle, but with the particle showing fully German syntax, at least for some examples. Five of seven speakers reported (16a) as acceptable and 4 allowed (16b):

(16) a. % Ich muss etwas out-throw-en. (CSw-peers)

I must s.th. out-throw-INF

'I must throw something away.'

b. % Ich muss es noch out-hand-en. (CSw-peers)

I must it still out-hand-INF

'I still have to hand it out.'

Finally, we note that a sporadically attested pattern of borrowing treats the English verb-particle combination as an unanalyzed whole: Two speakers accepted (17a) and one of them also accepted (17b), suggesting that those particular particle verbs have been reanalyzed as stems, but these were not widely accepted in the group:

(17) a. % Wir hang-out-en am Abend. (CSw-peers)

we hang-out-1PL on evening

'We're hanging out this evening.'

b. % Wir turn-on-en das Gerät. (CSw-peers)

we turn-on-1PL the machine

'We turn on the machine.'

The *setten uppen* construction differs from all of these in that it combines elements of both German and English syntax, rather than embedding English morphemes in a completely German syntactic frame. At the same time, it differs from the three canonical code-switching constructions in the typology proposed by Muysken (2000), which recognizes (i) insertion of single constituents into the other language, (ii) a mid-sentence switch from one code (language) to the other, and (iii) congruent lexicalization where the gross syntax of the two languages coincides. This construction is instead a blend of the two, conforming directly to neither, and this is what we think makes it interesting.

Before proceeding further, we note also that in all of the code-switched examples in the idiolect described here, English phonology is clearly retained in the English morphemes even when they combine with German inflectional morphology. Thus e.g., [θɪoʊ-ŋ] is pronounced with phonemes that are impossible in German. This is not merely a question of possibly borrowed non-native phonemes, but also application of English phonology (e.g., flapping in (19)) or violations of German phonological constraints, such as the failure of final devoicing in examples such as the following:⁶

- (18) Die war die Einzige, die nicht ge-begg-ed ([ge-bɛg-d]) hat.
 she was the.FEM only.one who.FEM not PTCP-beg-PAST has
 ‘She was the only one who didn’t beg.’ (2014.06.01)⁷
- (19) Der Mann, der ge-visit-ed ([gə-vɪzɪt-əd]) hat, hat gesagt, dass
 The man who.MASC PTCP-visit-PAST has has said that
 jemand hat ge-sledd-ed ([gə-slɛd-əd]), und ist waist-deep ins Wasser
 someone has PTCP-sled-PAST and is waist-deep into water
 gekommen.
 come
 ‘The man who visited said that someone went sledding and went
 waist-deep into the water.’ (2016.02.15)
- (20) Es war von jemandem, der ein Server-owner ist, und er hat jemanden
 it was from someone who a Server-owner is and he has someone
 ge-bann-ed ([ge-bæn-d]).
 PTCP-ban-PAST
 ‘It [a video] was about someone who owns a server, and he had banned
 someone.’ (2016.05.01)

⁶The preservation of English final voiced consonants in *ge-* prefixed participles among German emigrant code-switching is also noted in Gross (2000), as cited in Myers-Scotton (2002: 159–160). Examples are also attested in our corpus with English phonology on roots combined with adjectival morphology (note English diphthong [eɪ], and interdental [θ]):

- (i) Ich glaub, er hat was alien-es. [ˈeɪliən-əs]
 I believe he has something alien-NEUT.SG
 ‘I think he has something alien.’ (2016.04.25)
- (ii) Für jeden Holiday machen sie etwas ge-theme-t-es. [ge-θim-t-əs]
 For every holiday make they something PTCP-theme-PAST-NEUT.SG
 ‘For every holiday, they do something themed.’ (2015.09)

⁷On some interesting properties of the *Einzige* construction, in particular as regards semantic versus grammatical gender, see Wurmbrand (2017a).

This is in apparent violation of the Free Morpheme Constraint (Poplack 1980) and the related claim in MacSwan (1999: 45) that phonological systems cannot be mixed. Our observations thus align with those of Myers-Scotton (2002: 159–160) and others cited there, where code-switching within the word, with morphemes retaining the phonology of their source language, is both possible and routine.

3.2 Integrating English particle verbs

We return now to some thoughts on the analysis of the *setten-uppen* construction. Above, we have noted that it is more of a blend than a switch between two codes: the construction preserves features of both languages. More specifically, the context of use of all of these utterances is perceived by the participants to be German, although it is clearly recognized that these are English elements. We suggest, then, that one way to think about all of these examples is that they involve integration of an English particle verb into an otherwise German sentential frame. We say “integration” (i.e., Muysken’s *congruent lexicalization*) rather than “borrowing” for the reasons noted in the previous subsection: the construction involves preservation of the English syntactic order: *verb ... particle*.

Seen this way, we can explain why in the verb second configuration, nothing special happens: In German main clauses in simple tenses (with no modal or auxiliary), the verb moves to second position, yielding a surface string that can be superficially similar to English (as in 21b). Even when a non-subject topic precedes the verb, the construction still shares with English the property that the finite, inflected verb precedes the uninflected particle (as in 21c):

- (21) a. I gave it up.
 b. Ich gebe es auf. (Ger)
 I give it up
 ‘I’ll give it up.’
 c. Seine Spitzenposition gibt er nicht so leicht auf. (Ger)
 His Lead.position give.3sg he not so easily up
 ‘He won’t give his lead up so easily.’

English particle-verbs can be fully integrated (other than phonology), and there is no motivation for inflection doubling or any other accommodation:

- (22) a. Wir sett-en es heute am Abend up. (CSw)
 we set-1PL it today at evening up
 ‘We’ll set it up this evening.’

- b. Und dann chopp-en sie die Oreos up. (CSw)
and then chop-3PL they the Oreos up
'And then they chop the Oreos up.' (2017.08)
- c. Sie figure-t es out. (CSw)
she figure-3SG it out
'She'll figure it out.' (2017.06.02)

Even examples where the particle is not strictly final can be seen as being fully integrated into German syntax, since German allows extraposition of PPs, as in (23b) (with German particle-verb *an-fangen* 'on-catch' = 'begin, start'):

- (23) a. Die 2. Staffel kick-t off mit einem Cliffhanger. (CSw)
the 2nd season kick-3SG off with a Cliffhanger
'The second season kicks off with an event.' (2020.05.26, adapted)
- b. Der 2. Staffel fängt t_{pp} an [mit einer wichtigen Szene]. (Ger)
the 2nd season catch-3SG on with an important scene
'The second season starts with an important scene.'

Outside of simple declaratives (more accurately: apart from verb-second contexts with no auxiliaries), the languages diverge. For example, in the presence of a modal or auxiliary, or in an embedded finite clause, English preserves the coarse syntax: *verb ... particle*, but in German, the order of particle and verb are inverted and the particle occurs as a (separable) prefix on the verb (see Wurmbrand 1998 for an analysis):

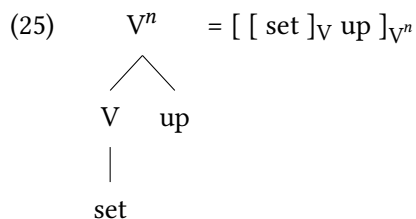
- (24) a. Ich werde es {auf-geben} / {*geben auf}. (Ger)
I will it up-give / give up
'I will give it up.'
- b. Ich habe es {auf-ge-geben} / {*ge-geben auf}. (Ger)
I have it up-PTCP-given / PTCP-given up
'I have given it up.'
- c. ...bevor wir es {auf-geben} / {*geben auf}. (Ger)
...before we it on-give / give up
'...before we give it up.'

Thus, the idea of integration as congruent lexicalization, meeting grammatical conditions of both languages, allows us not only to explain why the particle verbs integrate unchanged into matrix contexts, but why they fail to do so in clause-final position. In clause-final position, there is no way to simultaneously

preserve the demands of English and German syntax, since these impose conflicting linearization constraints on the particle and the verb.

So why, then, is doubling a solution?

We suggest that part of the answer, though not the whole answer, lies in the kind of ambivalent structure of English particle verbs that leads to doubling, at least colloquially, in agent-nominalizations like *picker upper*, *hanger outer*, *setter upper* and so on. As many authors have observed, (see, for example, Sproat 1985, Ackema & Neeleman 2004: 160), such forms seem to be the result of a tension between trying to add the suffix *-er* to the genuine verb, and on the other, to the right edge of the phrasal verb as a lexical unit. Doubling is then the (or an) optimal repair. This suggests a representation along the lines in (25), where the phrasal verb is larger than a single word, yet not a maximal phrase, leaving some ambiguity about the projection level of the topmost node:



But this can't be the whole answer for the code-switching construction, since forms such as *setten upst* in (9b) suggest there is more than just copying or doubling involved.

We suggest, tentatively, that the answer might lie in another construction made available by German syntax, namely, verb clusters (see Wurmbrand 2017b), in particular, constructions involving more than one verb in the clause-final position, either as infinitive forms or where the structurally highest (and often, but not always rightmost) form is inflected:

- (26) a. Sie wird das Buch kauf-en könn-en. (Ger)
 she will the book buy-INF can-INF
 'She will be able to buy the book.'
- b. ...bevor sie es kauf-en könn-en. (Ger)
 ...before they it buy-INF can-3PL
 '...before they can buy it.'
- c. ...bevor du es kauf-en kann-st. (Ger)
 ...before you it buy-INF can-2SG
 '...before you can buy it.'

Superficially, examples like (26a) have a sequence of *-en* morphemes on the two final elements of the clause, just like the *setten uppen* construction in (1).

- (27) a. Sie wird es kauf-en könn-en. (Ger)
 she will it buy-INF can-INF
 ‘She will be able to buy the book.’
 b. Sie wird es sett-en upp-en.(CSw)
 she will it set-INF up-INF
 ‘She will set it up.’

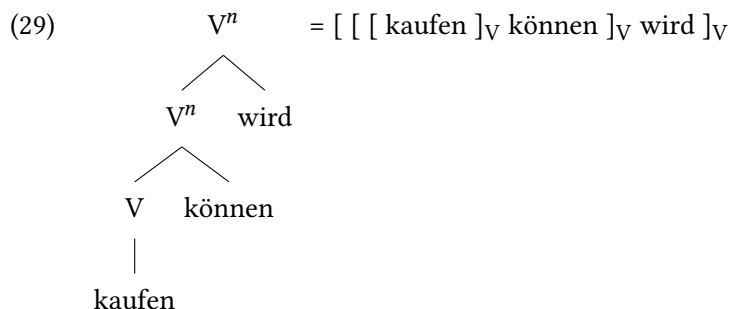
Of course, *up* is not a verb, and the “doubling” in (27a) is simply an effect of the future modal *wird* selecting for an infinitival complement *können* which in turn selects an infinitival complement. But there are two ways in which these constructions are more similar than they may appear.

First, in phrase-final position, German verb clusters have properties of compounds, such as compound stress (Wurmbrand 1998). In addition, they have special grammatical properties including re-ordering effects that show variation among speakers, languages, and dialects. In a head-final language like German, verbs selecting clausal (or verbal) complements are expected to line-up in the mirror-order of their English counterparts, as in (28a). While this is possible in German, numerous other possibilities exist. Austrian varieties also allow, for the combination of the future auxiliary, a modal, and a main verb, the orders shown in (28) (Wurmbrand 2017b):⁸

- (28) a. ...weil er es kaufen₃ können₂ wird₁. (Ger)
 ...since he it buy can will
 b. ...weil er es kaufen₃ wird₁ können₂. (Ger)
 ...since he it buy will can
 c. ...weil er es wird₁ kaufen₃ können₂. (Ger)
 ...since he it will buy can
 all: ‘since he will be able to buy it.’ (Wurmbrand 2017b)

The important observation for us here is that these cluster effects in many varieties (but not all) implicate a kind of compound-like structure consisting of all (and only) the verbs, perhaps derived via head-movement from phrasal complementation structures:

⁸We follow Wurmbrand (2017b) in using subscripts to note the hierarchical order of the verbs – in all of the orders in (28), the future modal *wird* ‘will’ is finite, and selects the modal complement headed by *können*, which in turn selects the phrase *es kaufen* ‘to buy it’.



Special (re-)ordering rules then apply within this derived complex verb (see Wurmbrand 2004 for a survey of the empirical landscape of West Germanic verb clusters).

Our suggestion is that it is this type of compound-like verbal structure in clause-final position that provides the linguistic scaffolding for the *setzen uppen* construction. The verb cluster structure in (29) on the one hand, and the peculiar English phrasal-verb structure in (25) that leads to suffix-doubling in nominalizations on the other, conspire together to provide a point for congruent lexicalization. In clause-final position, complex verbs are allowed, with inflection (including infinitival marking) on multiple elements. In German, this happens of course uniquely where all of the inflected elements are themselves verbal, but since particle verbs are a type of compound verb (25), they can, informally “sneak in” to the cluster structure, permitting inflection on the final element because the whole complex constituent is, in some sense, verbal.

Since clusters only arise in final position, the inflectional doubling will not be supported in simple verb-second clauses: those allow integration without needing to borrow the cluster structure, as in (22). And since the basic cluster structure involves infinitival complementation, we can draw an analogy to the more acceptable examples of finite inflection of borrowed particle-verbs in final position considered above. In examples like (9), repeated here: we see the actual verb inflected as an infinitive, with the finite morphology expressed at the end of (on the rightmost element of) the verbal complex, comparable to a cluster (31).

- (30) a. ...bevor du hangen out(e)st. (CSw)
 ...before you hang-INF? out-2sg
 ‘...before you hang out.’
 b. ...bevor du es setzen upst. (CSw)
 ...before you it set-INF? out-2sg
 ‘...before you set it up.’

- (31) ...bevor du es kauf-en kann-st. (Ger)
 ...before you it buy-INF can-2SG
 ‘...before you can buy it.’

Finally, we note that the cluster hypothesis does not provide a transparent model for the participial construction. Only modal-verb complements of *haben* ‘have’ enter into cluster formation, and then only in the *infinitivus pro participio* ‘infinitive for participle’ construction (IPP), in which the modal complement to the auxiliary surfaces in infinitival form (*könn-en*), where a participle (*gekonnt*) would have been syntactically expected:

- (32) Der Kommissar hat den Fall nicht lös-en könn-en. (Ger)
 The detective has the case not solve-INF can-INF
 ‘The detective couldn’t solve the case.’ (after Wurmbrand 2017b)

Since there is no modal in *set up* or *hang out*, the IPP provides a poor basis for analogy, and since the participle in German involves a combination of prefix and suffix, there is no easy way to be ambivalent about whether the morphology is inflecting the combination as a whole, or just the peripheral element, which was the key to our analysis of the particle as part of a verbal cluster in the examples where the *setten uppen* construction succeeds. We suggest that this may be why judgments about the participle construction are far less robust than with those configurations that do match up nicely to widely attested verb clusters.

4 Discussion and conclusion

To wrap up, we come back to one point that we started with – it seems clear that the *setten uppen* construction is an admixture of two grammars. In matrix clauses, code-shifting takes the form of a *verb ... particle* order, which is fully integrated into German syntax, and at the same time meets the demands of English syntax that the verb precede the particle. The *setten uppen* construction comes about only when simple integration, in the form of borrowing of the individual pieces, is not possible, and the demands of the two languages conflict. In clause-final position, particles precede their verbs in German but follow them in all clause types in English. We suggested that the outcome is nevertheless grammatical, with the restrictions discussed above, in the mental grammar of the specific code switching idiolect we are documenting. It is clear from the evidence that the construction is rule-governed, and involves integration of an English constraint into a German grammatical frame. But ultimately we must recognize that the

construction deviates from some aspect of German grammar somewhere along the line. Whatever causes German particles to surface as (separable) prefixes, for example, is not respected. Also, we have treated the construction as saying that it adheres to the linear order imposed by English verb-particle syntax, but have not said what that syntax is. It seems entirely reasonable to think that the *verb ... particle* order in English is not a special property of particle verbs, but rather a general property of the head-initial nature of English syntax. This general property does not carry over to the CSw idiolect: the object of the particle verb follows regular German syntax, freely preceding the English-sourced verb. Intuitively, we think that the singling out of the linear relation between the verb and the particle is because it is these elements together that are listed as a unit with special meaning, and thus the evaluation of congruence in the CSw grammar “cares” only about the syntactic properties relating these two elements. But we are a long way from being able to formalize that in any useful way. Perhaps for these reasons, we might reconsider the notion of “derivatively grammatical” from Chomsky (1965: 242): that the grammar itself does not in fact *directly* generate this construction at all, but instead, the on-the-fly demands of code switching provide for a type of “close-enough” acceptability. Code-switching may be seamless when congruence is achieved, and simply switching out lexical items (especially content words) yields strings that locally respect morphosyntactic demands on the lexical items. But, we suggest, it may also be nearly seamless when congruence as such is impossible to achieve, but at least some derivation exists that provides for a close analogy to support a given string within the matrix language. In the case at hand, German allows for verb clusters at the right periphery of the clause, and English allows for idiosyncratic interpretations of particle-verb combinations that have a tight structure as a kind of complex verb. These two properties are not normally coextensive, but provide just enough structure to allow for a successful integration of an English verb-particle combination into German as a complex, but separable, lexical unit, including its hallmark English syntactic order, but bearing inflection on each head.

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Chapter 16

Noun phrases, big and small

Asya M. Pereltsvaig

This chapter is concerned with the size of noun phrases in languages with and, more importantly, without articles. It is argued that noun phrases in such languages may – but need not – contain the functional projection of DP. Moreover, it is shown that DPs and small nominals (i.e., noun phrases lacking the DP) not only have different internal structure, but also differ in their external distribution, their semantic interpretation, their ability to move, their need for case, and more. It is shown that the same cluster of properties, characteristic of Small Nominals, is attested in diverse, even typologically diverse, languages.

1 Introduction

Susi Wurmbrand's research in syntax revolves around the issue of clause size: How much functional structure do different types of clauses have? How transparent different types of clauses are? What cross-clausal A- and A'-dependencies do clauses with more or less functional structure allow? This paper takes this research agenda further by examining similar questions in connection with noun phrases of different sizes and cataloguing properties of noun phrases, big and small, across languages.

Since the work of Szabolcsi (1983) and Abney (1987), a consensus has developed in syntactic literature that noun phrases in languages with articles, such as English, project an additional functional layer, that of the determiner phrase (aka DP). Longobardi (1994) further argued that not all noun phrases in languages with articles (such as Italian) are DPs. He related the presence/absence of the DP projection to argumenthood: arguments, he claimed, are obligatorily DPs and non-arguments lack the DP.



While the consensus emerged for languages with articles, there remains a question as to whether languages that lack articles have the DP projection as well. Although some of the earliest work on the DP hypothesis was concerned with article-less languages such as Turkish (Kornfilt 1984), some researchers later claimed in article-less languages (particularly, in Slavic ones, such as Serbo-Croatian, but also in non-Slavic languages) all noun phrases, including those in argument positions, lack the DP projection (cf. Bošković 2008, 2009, 2012, Bošković & Şener 2014, Despić 2011, *inter alia*). Yet, others have argued that even in languages that lack articles, at least some noun phrases project a DP (as originally proposed for Turkish by Kornfilt 1984; see also Lyutikova & Pereltsvaig 2015 and Kornfilt 2018a,b for Turkic languages in general; Progovac 1998 and Pereltsvaig 2001, 2006, 2007 for Russian; Van Hofwegen 2013 and Gillon & Armoskaite 2015 for Lithuanian; Norris 2018 for Estonian; Erschler 2019a,b for Digor and Iron Ossetic and Georgian; *inter alia*). Moreover, contrary to Longobardi's (1994) claim, it has been shown that even argumental noun phrases can be smaller than DP, aka Small Nominals (Pereltsvaig 2006, Kagan & Pereltsvaig 2011, *inter alia*).

In this paper, I adopt the latter view that argumental noun phrases in article-less languages come in two sizes: DPs and Small Nominals. (Following Pereltsvaig 2006, the latter is construed as an umbrella term for a range of noun phrases of different structural sizes, such as QPs, NPs etc., all of which are smaller than DP.) In what follows, I argue that this approach offers a unified account for several empirical phenomena that have previously been treated separately, and in a variety of languages. I rely heavily on earlier research on individual languages – both my own and that of other scholars – but my main goal is to catalogue the properties that discriminate between DPs and Small Nominals across languages, with the aim of reaching a better understanding of what it is that the DP projection does. The bulk of the data comes from my own work on Russian and Tatar, with additional examples from published sources on Ossetic, Georgian, and Estonian. In Section 2, I review five argumental positions for which a contrast between DPs and Small Nominals would offer an elegant account: subjects, objects, possessors, complements of attributivizers, and complements of adpositions. In Section 3, I catalogue the contrasts between DPs and Small Nominals, such as their ability to take various DP-level elements; being selected by various heads; semantic interpretation; ability to serve as antecedents of anaphors, to control PRO, or to trigger predicate agreement; need for case and ability to move to a higher position. Section 4 offers an analysis of why these particular properties cluster together.

2 DPs and Small Nominals in argument positions

It is my view that both DPs and Small Nominals may be found in several argument positions. One such position is that of subject: in Pereltsvaig (2006) it is argued that a “size”-based analysis is preferable to a positional analysis in terms of explaining the contrast between quantified subjects in Russian that trigger predicate agreement and those that do not trigger agreement (with the predicate appearing in the singular neuter form, which is the morphological default). The two sentences have a slight difference in meaning, which is lost in the English translation, but to which I return below.

(1) Russian

- a. V ètom fil'me igrali [pjat' izvestnyx aktërov].
 in this film played.PL five famous actors
 ‘Five famous actors played in this film.’
- b. V ètom fil'me igralo [pjat' izvestnyx aktërov].
 in this film played.NEUT five famous actors
 ‘Five famous actors played in this film.’

Another argument position in which both DPs and Small Nominals may appear is the (direct) object position. For example, in Russian objects of verbs with the cumulative aspectual prefix *na-* (and with or without the reflexive *-sja*) have been argued to be Small Nominals, in contrast to objects of other verbs.

(2) Russian

- a. Ja na-žarila [kotlet].
 I ASP-fried meat.patties
 ‘I fried up a lot of meat patties.’
- b. Ja po-žarila [kotlety].
 I ASP-fried meat.patties
 ‘I fried up meat patties.’

Another language in which a “size”-based analysis has been applied to noun phrases in the object position is Tatar: Lyutikova & Pereltsvaig (2015) argued that the so-called differential object marking is best accounted for in terms of the size of the noun phrase itself. They proposed that case-marked objects are DPs while unmarked objects are Small Nominals.

(3) Tatar

- | | |
|--|---|
| a. Marat bala-nı çakır-dı.
Marat child-ACC invite-PST
‘Marat invited the child.’ | b. Marat bala çakır-dı.
Marat child invite-PST
‘Marat invited a child.’ |
|--|---|

A similar analysis has been proposed for Lithuanian direct objects by Gillon & Armoskaite (2015): they argue that objects of imperfective verbs may be DPs or Small Nominals whereas objects of perfective verbs are necessarily DPs.

A third type of argument position in which both DPs and Small Nominals may be found is that of possessors inside the DP. In particular, Lyutikova & Pereltsvaig (2015) analyze the two so-called *ezafe* constructions in Tatar: the *ezafe*-2, in which the possessor is not marked for case, and the *ezafe*-3, in which the possessor is marked with the genitive case. Otherwise, the two *ezafe* constructions look exactly the same; the ‘3’ in the gloss stands for the 3rd person possessive agreement suffix. (There also exists the so-called *ezafe*-1, which is not relevant to the topic at hand.) Lyutikova & Pereltsvaig (2015) proposed that the possessors in the two *ezafe* constructions differ in size: the possessor in *ezafe*-3 is a DP, whereas the possessor in *ezafe*-2 is a Small Nominal.

(4) Tatar

- | | |
|--|--|
| a. xatın-nıñ kijem-e
woman-GEN clothing-3
‘a woman’s clothing’ (= clothing belonging to a woman) | |
| b. xatın kijem-e
woman clothing-3
‘woman’s clothing’ (= clothing meant for women) | |

In Tatar, yet another syntactic environment is said to host both DPs and Small Nominals: the complement of the so-called *attributivizers*, that is markers that turn a noun phrase into an attributive modifier. According to Lyutikova & Pereltsvaig (2015), the *attributivizer* *-lı* takes a Small Nominal complement while the *attributivizer* *-gı* takes a DP complement.

(5) Tatar

- | | |
|---|--|
| a. čäčäk-le čäška
flower-ATTR cup
‘a cup with a flower’ | b. šähär-e-ndä-ge uram-nar
city-3-LOC-ATTR street-PL
‘streets of a city’ |
|---|--|

Finally, adpositions may take Small Nominals as complements. Such an analysis has been proposed for the Russian preposition *v* ‘into’ (with the meaning of change in social status) in Mitrenina & Pereltsvaig (2019), in contrast to the preposition *v* that does not have the “change of status” meaning.

(6) Russian

- a. Obama izbiralsja *v* [prezidenty].
Obama ran into presidents
‘Obama ran for president.’
- b. Terrorist vystrelil *v* [prezidentov].
terrorist shot into presidents
‘The terrorist shot at the presidents.’

Similar analysis has been proposed for the preposition *ed* ‘with’ in Digor Ossetic by Erschler (2019a,b) and for the postposition *-ian* ‘with’ in Georgian by Erschler (2019a).

In what follows, I argue that these “size”-based analyses are indeed appropriate for the various abovementioned constructions because the nominals in them share certain properties that distinguish DPs from Small Nominals. Although due to independent factors only some of these contrasting properties obtain in each construction and each language, the overlaps are significant enough to suggest that a common explanation should be devised for all the constructions and all the languages under consideration. A “size”-based account, namely, that some noun phrases in each construction are DPs and others are Small Nominals, is exactly that kind of unifying explanation.

3 Properties of DPs vs. Small Nominals

3.1 Selection

As has been mentioned in the previous section, certain heads, such as certain adpositions or attributivizers, may select exclusively Small Nominals. In this respect, these selecting heads are parallel to those that select clausal complements of different sizes, for example, finite CPs vs. infinitive TPs, as noted in Susi Wurmbrand’s work. Moreover, just as some heads may select alternate complements of different types (e.g., *know* selecting either a DP or a CP, as in: *John knows the truth* vs. *John knows that Mary left*), some heads may select nominal complements of different sizes: either a DP or a Small Nominal would do. Presumably, this is the case with the head selecting the subject (i.e., external argument) in Russian; cf. examples in (1) above.

Yet, just as some heads may select specifically for this or that complement type (e.g., *John ate a steak* vs. **John ate that Mary left*), some heads may select a nominal complement of a specific size. In particular, some heads select specifically a Small Nominal complement. In addition to the abovementioned adpositions and attributivizers, such heads include the Russian aspectual prefix *na-*, which appears in Asp°. As we shall see below, all these Small Nominals exhibit a certain cluster of properties that concern their internal structure, their meaning, and their external distribution.

3.2 Internal structure

The one property shared by Small Nominals across languages and constructions that most clearly points to a “size”-based distinction is the impossibility of including various DP-level elements (i.e., elements that are argued to be in D° or Spec-DP in languages with articles), such as pronouns, proper names, demonstratives, strong quantifiers, and (some) possessors. The examples below illustrate the prohibition against demonstratives in the various syntactic environments which involve Small Nominals: non-agreeing subjects in Russian, unmarked direct objects in Tatar, objects of verbs with the cumulative *na-* in Russian, possessors in ezafe-2 in Tatar, complements of the attributivizer *-li* in Tatar, and complements of the adpositions in Russian, Digor and Iron Ossetic, and Georgian, which are mentioned above as selecting exclusively Small Nominal complements.¹ As can be seen from the examples below, all these noun phrases disallow demonstratives; in a similar way, they disallow pronouns, proper names, and universal quantifiers, all of which can be construed as hosted in the DP projection. In contrast, quantified subjects triggering agreement and objects of verbs with other aspectual prefixes in Russian, accusative-marked objects and complements of the attributivizer *-gt* in Tatar, as well as complements of other markers (suffixes or adpositions) in Digor and Iron Ossetic and Georgian, all select DPs and allow demonstratives, pronouns, proper names, and universal quantifiers.

- (7) * V ètom fil'me igralo èti pjat' izvestnyx aktërov. Russian
 in this film played.NEUT these five famous actors
 Intended: ‘These five famous actors played in this film.’

¹A reviewer suggests that examples parallel to (6) are grammatical in Serbo-Croatian. If so, the status of the demonstrative must be different in that language: if it is not a DP-level element, the demonstrative would be compatible with the lack of syntactic agreement (i.e. default morphological agreement) on the predicate. Contrasts between Serbo-Croatian and Russian with respect to the left-branching extraction further suggest that demonstratives in the two languages may have a different status.

- (8) * Marat bu bala čakır-dı. Tatar
 Marat this child invite-PST
 Intended: ‘Marat invited this child.’
- (9) * Ja na-žarila ètix kotlet. Russian
 I ASP-fried these.textscgen.pl meat.patties.textscgen.pl
 Intended: ‘I fried up this whole lot of meat patties.’
- (10) * bu čäčäk-le čaška Tatar
 this flower-ATTR cup
 intended: ‘a cup with this flower’
- (11) * Obama izbiralsja v èti prezidenty. Russian
 Obama ran into these presidents
 Intended: ‘Obama ran for this (role of) president.’
- (12) * ʷəd asə bel Iron Ossetic
 with this spade
 Intended: ‘with this spade’ (Erschler 2019a)
- (13) * am-ʃav-dʒaɣl-ian-i marxil-i Georgian
 that-black-dog-with-NOM sledge-NOM
 Intended: ‘a sledge with that black dog’ (Erschler 2019a)

In the following subsections, we shall see that internal structure of DPs vs. Small Nominals (that is, their ability to accommodate DP-level elements or the lack thereof) correlates with the meaning of these nominals, as well as with their “external” properties, such as their need for case and their ability to move. (Due to space limitations, I will not illustrate all properties for all constructions; the reader is referred to Pereltsvaig 2006 and Lyutikova & Pereltsvaig 2015 for additional illustrative examples.)

3.3 Semantic interpretation and referentiality-related properties

So far, we have seen that noun phrases can be divided into two clusters: structurally larger DPs, which allow for such elements as demonstratives, pronouns, strong quantifiers etc., and Small Nominals, which have no room for these elements. Moreover, noun phrases of different sizes (i.e., DPs and Small Nominals) may be specifically selected for as such. In this section, we shall see that both the semantic interpretation and several referentially-related “external” properties of a given noun phrase also depend on the presence/absence of the DP.

First, as was noted in Pereltsvaig (2006) and Lyutikova & Pereltsvaig (2015), Small Nominals have a different semantic interpretation from their DP counterparts. Though the exact descriptions of these differences vary from construction to construction and from language to language, the generalization is that DPs have a referential interpretation (i.e., denote individuals) whereas Small Nominals are associated with non-referential interpretations. For example, in the Russian examples in (1) above, the DP quantified subject in (1a) denotes a plural individual whereas the Small Nominal quantified subject in (1b) has a non-referential, group interpretation. Likewise, in the Tatar examples in (3), the DP object in (3a) has a definite interpretation (even in the absence of a demonstrative), whereas the Small Nominal object in (3b) has an indefinite interpretation. Similar interpretations are associated with Small Nominals in other constructions mentioned above: they have indefinite or non-referential interpretations.

Pereltsvaig (2001) proposed an analysis that would shed light on this contrast in the semantic interpretation of DPs and Small Nominals: in DPs, the D^0 introduces a referential index, which is construed as a set of phi-features responsible for the DP's referential interpretation. In Small Nominals, no referential index is included, thus the only interpretation is a non-referential one. This analysis also allows us to tie together several other contrasts between DPs and Small Nominals:

- DPs can serve as antecedents of anaphors while Small Nominals cannot;
- DPs can control PRO while Small Nominals cannot;
- DPs can trigger predicate agreement while Small Nominals cannot.

We have already seen the third of these contrasts in the previous subsection (in fact, the presence of predicate agreement was treated as a mark of Small Nominal subjects in Russian). As for the other two contrasts, they too are most evident subject noun phrases (e.g., in Russian), for independent reasons.

(14) Russian²

- a. Dva izvestnyx aktëra {igrali/*igralo} sebja.
two famous actors {played.PL/played.NEUT} self
'Two famous actors played themselves.'
- b. Pjat' banditov {pytalis' /*pytalos'}[PRO ubit' Bonda].
five thugs tried.PL /*tried.NEUT to.kill Bond
'Five thugs tried to kill Bond.'

²The neuter form in (14b) receives variable judgments from speakers but the majority of speakers reject it.

The reason for these contrasts can also be tied to the referential index: both anaphor binding and control involve co-indexation, that is matching of referential indices. If a given noun phrase has no referential index (which is the case for Small Nominals), it cannot be involved in anaphor binding or control.

3.4 Case

Another contrast between DPs and Small Nominals involves case marking. Due to the fusional morphology in Russian, where the same morpheme marks the case as well as declension/gender and number of the noun, noun phrases in Russian cannot appear without any morphological case at all. Therefore, to see this contrast between DPs and Small Nominals most clearly we must turn to a different language: Tatar. As mentioned above, direct objects in that language are marked for case if they are DPs while Small Nominal objects are not marked for case. The same is true of the DP/Small Nominal contrast in other positions as well. Thus, in Tatar possessors in the *ezafe-3* construction, which allow for demonstratives and other DP-level elements, are marked with the genitive suffix *-nıŋ*, while possessors in the *ezafe-2*, which do not allow demonstratives and other DP-level elements, are not marked with the genitive suffix.

(15) Tatar

- a. (bu) xatın-nıŋ kijem-e
 this woman-GEN clothing-3
 ‘this woman’s clothing’
- b. (*bu) xatın kijem-e
 this woman clothing-3
 intended: ‘this woman’s clothing’

A similar pattern obtains with respect to attributivizers in Tatar: the complement of the attributivizer *-gı*, which is, as mentioned above, a DP, is marked for case (specifically, it bears the locative case suffix *-dä*), whereas the complement of the attributivizer *-lı*, which is a Small Nominal, is not marked for case.

(16) Tatar

- | | |
|---|--|
| <ul style="list-style-type: none"> a. šähär-dä-ge uram-nar
 city-LOC-ATTR street-PL
 ‘the city’s streets’ | <ul style="list-style-type: none"> b. čäčäk-le čäška
 flower-ATTR cup
 ‘a cup with a flower’ |
|---|--|

The same pattern is also seen in Digor Ossetic, where the preposition *əd* ‘with’ takes a case-less Small Nominal, whereas the preposition *ənə* ‘without’ takes a case-marked DP (Erschler 2019b).

(17) Iron Ossetic

- a. *əd ʃtər bel-Ø*
with big spade
‘with a big spade’
- b. *ənə ʃtər bel-əj*
without big spade-ABL
‘without {a/the} big spade’

Thus, I follow Danon (2006) in that only DPs and not Small Nominals are subject to case filter.

3.5 Movement

The last contrast between DPs and Small Nominals to be considered here concerns the nominal’s ability to move. Again, for independent reasons, it is most evident in Tatar, where both direct objects and possessors may move only if they are DPs but not if they are Small Nominals. First, let’s consider direct objects: only those direct objects that are DPs (i.e., allow DP-level elements, are marked for case, etc.) may move to a position outside the VP (i.e., to the left of the VP-adverbs such as *tiz* ‘quickly’). Objects that are Small Nominals (i.e., do not allow DP-level elements, are not marked for case, etc.) cannot appear to the left of the adverb such as *tiz* ‘quickly’. Small Nominal objects must appear to the right of the adverb.

(18) Tatar

- a. *Marat (bu) botka-nı tiz aša-dı.*
Marat this porridge-ACC quickly eat-PST
‘Marat ate {this/the} porridge quickly.’
- b. **Marat (*bu) botka tiz aša-dı.*
Marat this porridge quickly eat-PST
intended: ‘Marat ate {this/some} porridge quickly.’
- c. *Marat tiz (*bu) botka aša-dı.*
Marat quickly this porridge eat-PST
‘Marat ate some porridge quickly.’
not: ‘Marat ate this porridge quickly.’

Similarly, possessors in the *ezafe-3* construction, which are DPs, appear to the left of a modifying adjective, whereas possessors in the *ezafe-2* construction, which are Small Nominals, appear to the right of the adjective.

(19) Tatar

- a. (*kük) (bu) bala-lar-nıj (kük) itek-lär-e
 blue this child-PL-GEN blue boot-PL-3
 ‘{these/the} children’s blue boots’
- b. (kük) bala-lar (*kük) itek-lär-e
 blue child-PL blue boot-PL-3
 ‘blue children’s boots’

The same contrast between possessors/genitives that appear above adjectives and those that appear below adjectives is evident also in Estonian, as noted in Norris (2018).

- (20) emis-te päevane proteiini tarbi-mine Estonian
 sow-PL.GEN diurnal.NOM protein.GEN consume-NMLZ.NOM
 ‘the sows’ diurnal consumption of protein’

In other words, DP objects and possessors may move (and in Tatar possessors must move) to the left of an adverb or an adjective, whereas Small Nominal objects and possessors must stay low.

Another consequence of the Small Nominals’ inability to move as freely as DPs do is that only DPs can scope over other quantified expressions, whereas scopal possibilities of Small Nominals are restricted. This is illustrated below with quantified subjects in Russian: non-agreeing subjects, which are Small Nominals, can take only the narrow scope whereas agreeing subjects, which are DPs, can take either wide or narrow scope:

(21) Russian

- a. Každyj raz [pjat’ xirurgov] operirovalo Bonda.
 every time five surgeons operated.NEUT Bond
 ‘Every time five surgeons operated on Bond.’ (unambiguous: $\forall > 5$)
- b. Každyj raz [pjat’ xirurgov] operirovali Bonda.
 every time five surgeons operated.PL Bond
 ‘Every time five surgeons operated on Bond.’ (ambiguous: $\forall > 5$ or $5 > \forall$)³

³Speakers exhibit preferences for one or the other reading (sometimes a very strong preference or even impossibility of $5 > \forall$ reading) but this depends heavily on the word order and the ability of a particular speaker to get a non-linear scope reading.

The same is true of DOM in Tatar: unmarked objects – unlike their accusative counterparts – cannot take wide scope with respect to another quantified expression.

(22) Tatar

- a. Här ukučı ike kitap ukı-dı.
every student two book read-PST
 $\forall > 2$: ‘For every student, there are two books that (s)he read.’
 $*2 > \forall$: ‘There are (certain) two books that every student read.’
- b. Här ukučı ike kitap-nı ukı-dı.
every student two book-ACC read-PST
 $\forall > 2$: ‘For every student, there are two books that (s)he read.’
 $2 > \forall$: ‘There are (certain) two books that every student read.’

A similar, though not exactly the same, pattern obtains in Lithuanian (Gillon & Armoskaite 2015), except that objects of perfective verbs, which are DPs, must (rather than may) take wide scope with respect to other quantified expressions, whereas objects of imperfective verbs, which may be DPs or Small Nominals, can take either wide or narrow scope.

(23) Lithuanian (Gillon & Armoskaite 2015: 83)

- a. Jonas ne-pa-suko vairo.
John.NOM.SG NEG-PREF-turn.PST.3SG wheel.GEN.SG
‘John did not turn the wheel.’
not: ‘John did not turn any wheel.’
- b. Jonas ne-suko vairo.
John.NOM.SG NEG-turn.PST.3SG wheel.GEN.SG
‘John did not turn the wheel.’
‘John did not turn any wheel.’

The differing scopal possibilities of DPs and Small Nominals are accounted for as follows: I assume that reverse scope obtains via movement at LF, hence only noun phrases that can move can have such non-surface scope.

4 Proposal

In this brief concluding section, I recap the proposed account of why these specific properties, discussed in the previous section, characterize Small Nominals

across constructions and across languages. As alluded to above, these properties derive from the absence of a referential index, which I take to be introduced into a derivation by D^0 (contrary to Déchaine & Wiltschko 2002, who argued for the ϕ iP that is situated lower than D). In semantics, the lack of a referential reading translates into a non-referential reading. Moreover, the lack of a referential reading is also responsible for the inability of the nominal to enter into relations that involve matching referential indices, such as control (which involves matching of referential indices between a controller and a PRO), anaphor binding (matching of referential indices between an antecedent and an anaphor) or agreement (matching of referential indices between the controller of agreement and the target of agreement). Here, I understand a referential index as a sum total of ϕ i-features.

A referential index is also what makes a nominal “visible” to a Probe, thus allowing it to move. Moreover, a referential index is what makes a nominal subject to case filter. In other words, it is the D rather than the N that is in need of case. Furthermore, heads can select for either a D or an N (or allow for either projection as a complement).

To recap, I side with the view that treats Ns as category- or kind-denoting, whereas Ds are taken to introduce reference to individuals/entities in the form of a referential index, which is a combination of ϕ i-features. I take this division of labor between N and D to be applicable not only in languages with articles but in article-less languages as well. At LF, there is no difference between languages with and without article in this respect; the difference is purely in the morphosyntactic expression of the D^0 .

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Chapter 17

Some notes on MaxShare

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MaxShare, a constraint on size of multi-dominated elements, was first proposed in Citko (2006) and later supported with independent evidence in Shen (2018). This paper discusses three aspects of MaxShare: 1. the specific formulations of MaxShare; 2. the restrictions on MaxShare; and 3. the alternatives to MaxShare.

1 MaxShare: A size constraint on sharing

Multi-dominance, or structural sharing, has been proposed to account for a variety of constructions including across-the-board movement (ATB), right node raising (RNR), gapping, and parasitic gaps among others. On the other hand, how to restrict such an operation is much less discussed in the literature (but see Gračanin-Yuksek 2007).

This paper discusses a constraint on the *size* of multi-dominated/shared elements, MaxShare, which was first proposed in Citko (2006) and later supported by independent evidence in Shen (2018). This section summarizes MaxShare and its motivating evidence.¹ Section 2 compares two different formulations of MaxShare. Section 3 discusses how to restrict MaxShare. Section 4 discusses potential alternative analyses to MaxShare. Section 5 summarizes the discussion and directions for future research.

¹It is well beyond the scope of this paper to discuss whether multi-dominance is the right analysis for all the phenomena that it has been claimed to account for. I will largely restrict the discussion to NP RNR and left branch extraction + ATB and leave the potential wider implication of MaxShare aside.



1.1 MaxShare in across-the-board left branch extraction

Citko (2006) observes that while Slavic languages like Polish allow left branch extraction (LBE) of the nominal modifiers in (1a) and across-the-board movement (ATB) in (1b) independently, the combination of the two movements in (1c) is banned. I will label this movement ATB LBE.

(1) Polish

- a. Którą_i Jan przeczytał [t_i książkę]?
which Jan read book
'Which book did Jan read?' (Citko 2006: ex. 5a)
- b. Która książkę_i [Maria poleciła t_i] a [Jan przeczytał t_i]?
which book Maria recommended and Jan read
'Which book did Maria recommend and Jan read?' (Citko 2006: ex. 6a)
- c. *Którą_i Maria poleciła [t_i książkę] a Jan przeczytał [t_i książkę]?
which Maria recommended book and Jan read book
'Which book did Mary recommend and John read?' (Citko 2006: ex. 7a)

Note that in (1c), the head nouns in both objects are identical (*book*). Curiously, when the head nouns in the objects are distinct, ATB LBE is allowed, as is shown in (2).

- (2) Ile_i Maria napisała t_i książek a Jan przeczytał t_i artykułów?
how-many Maria wrote books and Jan read articles
'How many books did Maria write and how many articles did Jan read?'
(Polish, Citko 2006: ex. 10a)

Citko (2006) assumes that ATB moved elements are necessarily base-generated using multi-dominance. As is shown in Figure 1 for (1c) and Figure 2 for (2), the DP modifiers, *how many* and *which*, are simultaneously merged with both object nouns, and then moved to the Spec,CP position.

The contrast between the two derivations above needs to be accounted for: (1c) is not accepted while (2) is OK. The relevant difference is whether the nouns in the object DPs are identical or distinct. When they are distinct in (2), the sentence is OK; when they are identical in (1c), the sentence is out. To rule out the

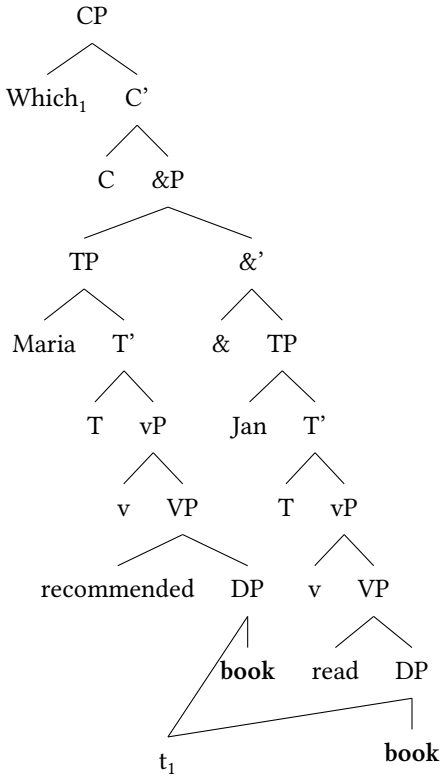


Figure 1: Structure of (1c): *

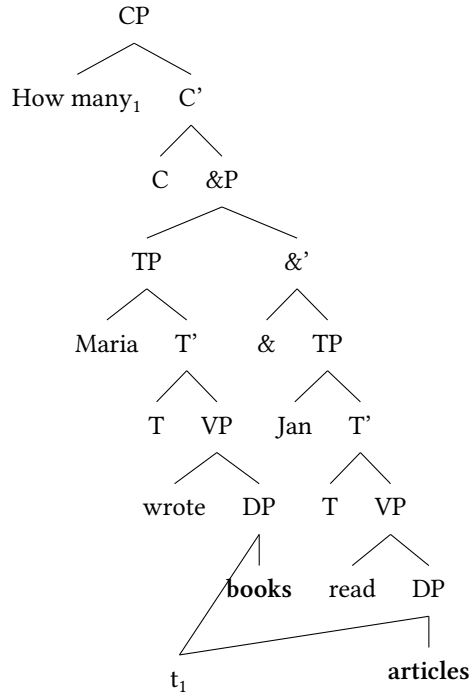


Figure 2: Structure of (2): OK

structure in Figure 1 and retain the structure in Figure 2, Citko (2006) proposes a constraint on multi-dominance structures where the shared material must be maximized. The structure with less shared material is ruled out if an alternative structure with more shared material is available. Regarding the pattern at hand, the structure in Figure 1 where only *which* is shared is compared with the alternative in (3) where the entire object *how many books* is shared with *how many* moving away. Given (3), the structure with less shared material in Figure 1 is ruled out. As predicted by this constraint, the sentence in (3) is indeed better than (1c).² Note that the structure in Figure 2 is not ruled out since the head nouns are distinct thus the whole DP cannot be shared.

²Citko (2006) assumes that the sentence in (3) involves the movement of *books* to a higher position. This is to keep in line with the linearization constraint of sharing which states that all shared elements must be moved to a non-shared position to be linearized (see also Gračanin-Yuksek 2007). I do not follow this assumption that the noun *books* moves in (3) as many other linearization algorithms (e.g. Wilder 2008, de Vries 2009, Gračanin-Yuksek 2013) can linearize shared materials in situ.

- (3) ? Ile_i Maria polecila a Jan przeczytal t_i książek?
 How-many Maria recommended and Jan read books?
 ‘How many books did Maria recommended and how many books did Jan read?’ (modified from Citko 2006: p. 238, 26b)

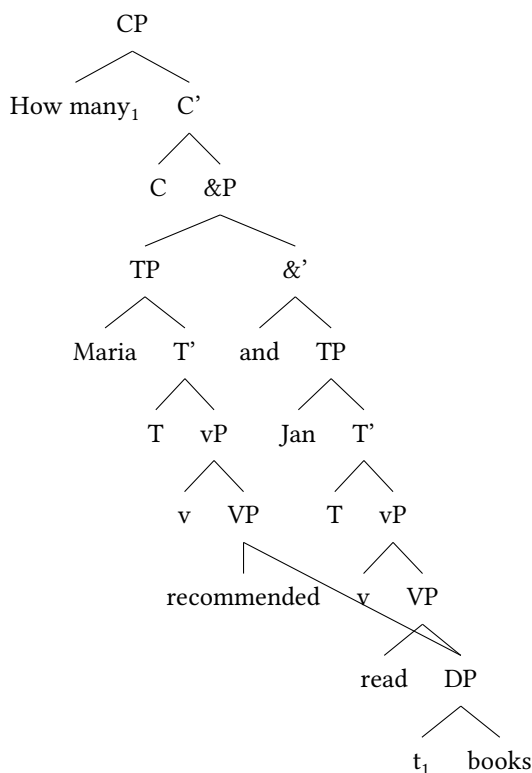


Figure 3: Share element maximized: How many books

I will label this constraint of maximizing shared materials MaxShare. Before moving on to the formulation of MaxShare, the next section discusses an independent piece of evidence for this constraint.

1.2 MaxShare in NP right node raising

In addition to ATB LBE, another case of MaxShare is independently observed in NP RNR. Shen (2018) discusses number marking on the head noun which is shared by two singular DPs as is shown in (4). For (4a–4c), the head noun must be

singular despite the subject refers to two individuals. For (4d), on the other hand, the singular head noun is not available. This contrast is the focus of Chapter 2 of Shen (2018).

- (4) a. This and that student are a couple.
- b. This tall and that short student are a couple.
- c. John's tall and Mary's short student are a couple.
- d. * John's and Mary's student are a couple.³

Shen proposes that the singular noun in (4a–4c) results from a multi-dominance structure in Figure 4. The number feature within a DP is assumed to originate on the NUM head and get copied onto other elements including nouns and determiners. When the noun is shared by two singular DPs, it gets two [sg] values, which, in languages like English, is spelled out as singular.⁴

On the other hand, the fact that *John's and Mary's* does not allow the shared noun to be singular in (4d) indicates that the multi-dominance structure is not available under possessive DPs. Figures 5 and 6 illustrate what the structure would look like under the intended dual student reading. In Figure 5, the noun is shared and the NUMP is shared in Figure 6.

Similar to Citko, Shen proposes a MaxShare constraint on the size of the shared element to rule out the structures in Figures 5 and 6. The constraint is as seen in (5) where *sharable* is defined as non-distinct.

- (5) MaxShare: XP can be shared only if there is no YP such that YP dominates XP and YP is shareable, if the XP sharing structure and the YP sharing structure have identical interpretations.

Shen claims that according to (5), the potential alternative structure in Figure 7 where the Poss' is shared rules out the structures in Figures 5 and 6. As one can see, the shared constituent in Figure 7, Poss', properly contains the ones shared in Figures 5 and 6.⁵

³Note that the only relevant reading here is the one with two students. This is accomplished by the use of the predicate *are a couple*. As a reviewer correctly noted, the singular head noun under possessive DPs is OK when referring to one single student: *John's and Mary's student is tall*.

⁴Other languages of this type include German, Dutch, Icelandic, Slovenian, Polish, Bosnia-Serbia-Croatian and so on. Bulgarian and Russian are different in this aspect. See Shen (2019) for discussion regarding this variation. I will focus on the English type of languages here.

⁵The readers will notice that (i) is OK where the head noun is plural under possessive DPs. Shen (2018) argues that (i) involves a structure with a single DP with the conjoined possessors in its specifier position with a plural NUM head. See Section 4.1 for discussion and Shen 2018 for more details.

- (i) John's and Mary's students are a couple.

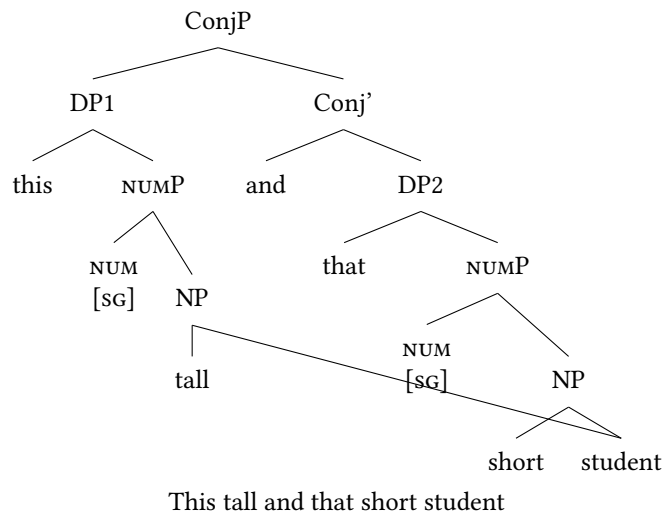


Figure 4: Multi-dominance structure for NP RNR

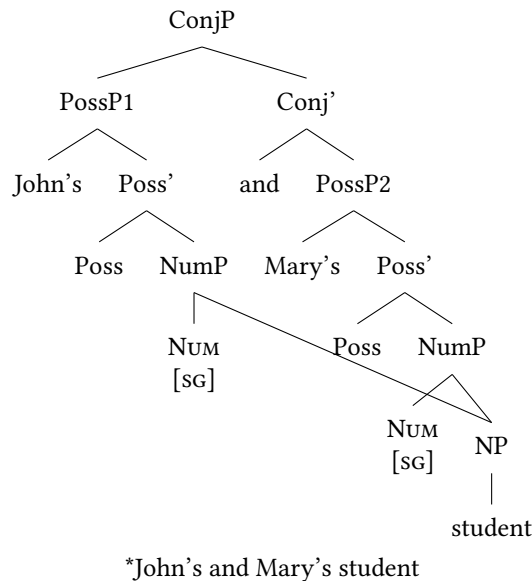


Figure 5: Candidate structure 1: MaxShare not satisfied

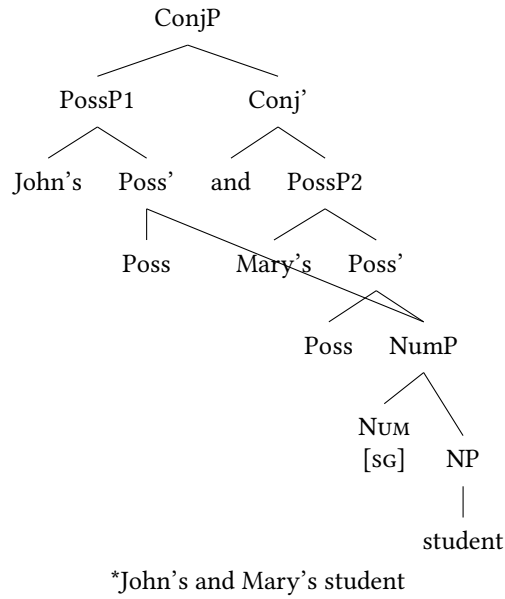


Figure 6: Candidate structure 2: MaxShare not satisfied

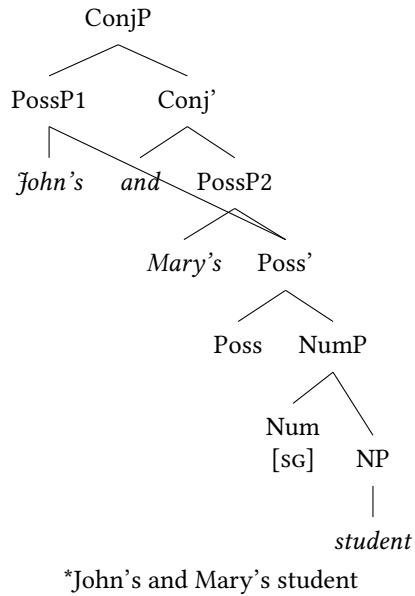


Figure 7: Candidate structure 3: Agree constraint violated

Note that although the structure in Figure 7 does not violate MaxShare, it must be ruled out as well since the string *John's and Mary's student* is not acceptable under the dual student reading. Shen (2018) proposes that the structure in Figure 7 is ruled out by an independent requirement on sharing: the Agree constraint, which requires the head of the shared element (Poss in Figure 7) agrees with the remnants (*John's* and *Mary's*). Since there is no agreement between the possessors and the Poss' or the Poss head, the structure in Figure 7 is ruled out. I will follow this analysis here (see brief discussion in Section 4.1). In sum, NP RNR in English and ATB LBE in Polish among other languages show supporting evidence of MaxShare, a constraint limiting sharing based on the size of the shared elements.

2 A note on the formulations

Having established the empirical motivations for a MaxShare constraint, this section discusses its different formulations.

The notion of *size* in the formulation proposed by Shen (2018) in (5) is defined in terms of domination. A derivation with a shared XP is compared with derivations where XP's mother or daughter nodes are shared. This formulation can account for both patterns discussed above: for ATB + LBE movement in Polish, derivations with a shared *how many* and its mother node *how many books* are compared; for NP RNR, derivations that share a NP, its mother node NMP, and the mother node of NMP, Poss', are compared. I will label this formulation as the *dominance* MaxShare.

Citko (2006), on the other hand, offers a more derivational conception of MaxShare. According to her, MaxShare follows from a general economy principle. The derivations being compared are restricted by their numerations: given two numerations with the same set of lexical items, the numeration where a given lexical item is selected fewer times is more economical. For example, (6) illustrates the numerations involved in Figure 1 and (3) with English translation. Each numeration include the set of items that are used in the derivation and the indexes indicate the number of times that each item is selected. The only difference between them is that *books* is selected twice in (6a) and only once in (6b). (6b) is more economical and (6a) is blocked as a result. The pattern in NP RNR can also be accounted for in this manner, see Shen (2018: 104). I will refer to this formulation as the *numeration* MaxShare.

(6) Competing numerations

- a. Numeration for Figure 1 = {how-many₁, Maria₁, Jan₁, recommended₁, read₁, **books**₂, and, T₂, v₂, C}

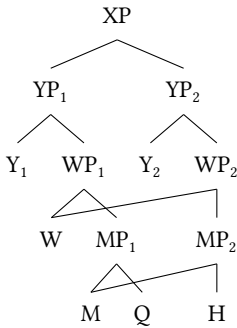
- b. Numeration for (3) = {how-many₁, Maria₁, Jan₁, recommended₁, read₁, **books**₁, and, T₂, v₂, C}

Both the dominance and the numeration formulation can account for the data presented so far. But the two formulations make different predictions regarding *bulk* and *non-bulk* sharing. Specifically, the dominance MaxShare is only applicable to bulk sharing while the numeration MaxShare is compatible with both bulk and non-bulk sharing.

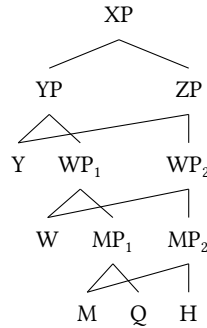
Gračanin-Yuksek (2007) introduces the distinction between bulk and non-bulk sharing.⁶ Bulk sharing refers to structures where one constituent (including its daughter nodes and so on) is shared. All examples of ATB LBE and NP RNR we have seen so far involve bulk sharing. In ATB LBE, it is the object DP or the modifier of the DP that is shared whereas in NP RNR, it is the NP, NUMP or the Poss' node that is shared. On the other hand, non-bulk sharing refers to structures where multiple constituents that are not in dominance relation are shared. Take (7) for example (modified from Gračanin-Yuksek 2007: (14)). In this structure, two constituents (W and M) are independently shared. Neither dominates the other.

The case relevant to MaxShare is the comparison between (7), and (8) which involves non-bulk sharing of Y, W, and M. As one can see, (8) shares one more node (namely, Y) than (7) does. According to the numeration MaxShare, (7) should be ruled out given (8). However, since the share nodes do not dominate each other, the dominance MaxShare does not make predictions regarding (8).

(7) Y₁ W M Q Y₂ H



(8) Y W M Q H



In other words, the numeration MaxShare predicts that once one constituent is shared, all other shareable constituents must be shared as well, even these shareable constituents do not dominate each other. Here I discuss examples with ATB

⁶Gračanin-Yuksek (2007) proposes constraints on non-bulk sharing as well as linearization of sharing structure which I will leave aside here.

LBE and gapping. As is discussed above, ATB LBE has been argued to involve sharing. Similarly, the sole verb in gapping has been argued to be structurally shared by Citko (2011), but see Citko (2018).

The crucial contrast is shown in (9). The sentence in (9a) involves ATB LBE of *which* as well as gapping: the two conjuncts share the single verb *ordered*. The sentence in (9b), on the other hand, only involves ATB LBE of *which*. The verb is seen in both conjuncts. As we can see, (9a) is acceptable and (9b) is not.

- (9) a. Jaka_i Maria zamówiła t_i kawę a Jan t_i herbatę?
 which Maria ordered coffee and Jan tea
 ‘What kind of coffee did Maria order and what kind of tea did Jan order?’
 b. *Jaka_i Maria zamówiła t_i kawę, a Jan zamówił t_i herbatę?
 which Maria ordered coffee, and Jan ordered tea
 ‘What kind of coffee did Maria order and what kind of tea did Jan order?’ (see Citko 2006: (28) for another example)

The structures are illustrated in Figure 8 with English translation.⁷ In the structure for (9a) in Figure 8a, both the pre-nominal modifier and the verb are shared, the sentence is accepted. In Figure 8b for (9b), only one of the two shareable elements is shared, i.e. the pre-nominal modifier *which*, whereas the verb *ordered* which could be shared, is not.

The numeration MaxShare correctly rules out the derivation in Figure 8b. The numerations of Figures 8a and 8b are shown in (10). They contain the same items but the verb *ordered* is selected once in (10a) but twice in (10b). Thus the numeration in (10b) is ruled out given the more economical numeration in (10a). On the other hand, the dominance MaxShare does not predict the contrast in (9), since Figure 8a does not involve sharing of a constituent that dominates the shared constituent in Figure 8b.

- (10) a. Numeration for Figure 8a = {which₁, Jan₁, Maria₁, **ordered**₁, coffee₁, tea₁, and₁, T₂, v₂, C₁}
 b. Numeration for Figure 8b = {which₁, Jan₁, Maria₁, **ordered**₂, coffee₁, tea₁, and₁, T₂, v₂, C₁}

Since sharing a phrase as a whole can be derived from sharing the terminal nodes within the phrase but not vice versa, bulk sharing can only generate a subset of

⁷The shared verb is assumed to move to a higher node in Citko (2011)’s proposal. Here I kept the verb at the shared position to better illustrate the fact that the verb is shared.

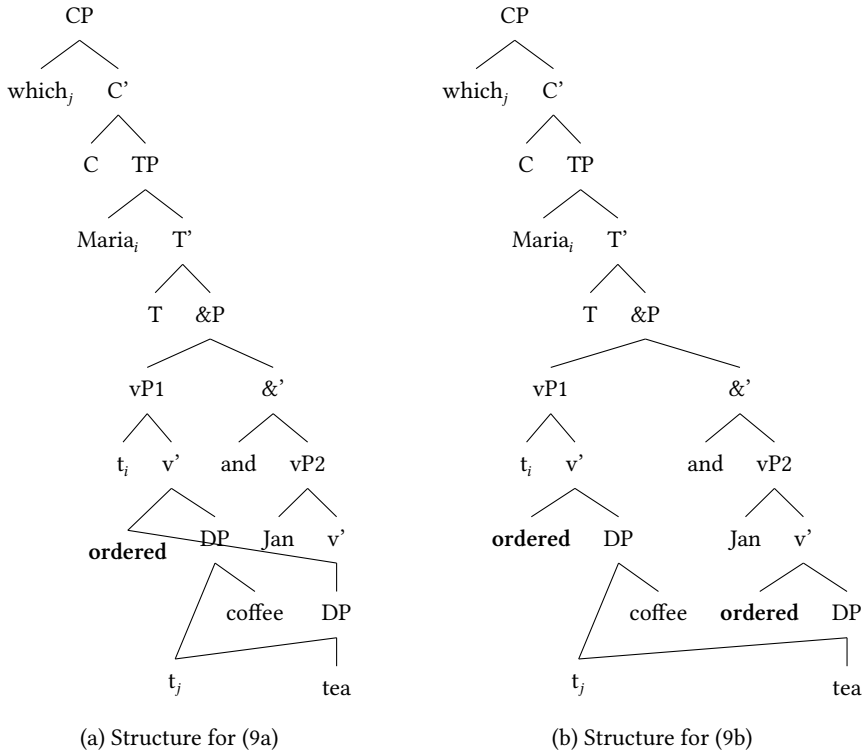


Figure 8: Structures for (9a) and (9b)

the structure generated by non-bulk sharing. In turn, the derivations that can be ruled out by the dominance MaxShare are a proper subset of those ruled out by the numeration MaxShare. The contrast in (9) indicates that the numeration MaxShare is more descriptively adequate than the dominance MaxShare.

So far I have been implicitly assuming that only one of the two formulations exists. There is preliminary evidence pointing to the possibility that both the numeration and the dominance MaxShare exist. This evidence comes from the distinct effects of violating the two types of MaxShare. Judgments seem to vary regarding the acceptability of the sentences in (9). One of Polish speaking informants commented that the sentence without gapping is not outright bad but “somewhat awkward because of the unnecessary repetition of the verb”. Similarly, both of the English sentences in (11) are accepted by my English speaking informants. (11a) only involves ATB (sharing of *to whom*) while both ATB and gapping are present (11b) (sharing of *to whom* and *serve*). According to the numeration MaxShare, (11a) should be ruled out by (11b).

- (11) a. ? To whom did some serve mussels and others serve swordfish? (ATB only)
b. To whom did some serve mussels and others swordfish? (ATB + gapping)

One possible explanation for the degraded but accepted status of (11a) and (9b), both of which violate the numeration MaxShare, is that the numeration MaxShare is a violable constraint and does not immediately cause a derivation to crash. On the other hand, the unacceptability in NP RNR in (4) (repeated here as (12)) is quite strong. Shen (2018) reports experimental results using judgments on a 7 point Likert scale from 45 participants and show that (12) which involves a MaxShare violation has a mean rating of 2.33 out of 7. Note that (12) violates the dominance MaxShare (and by entailment, also the numeration MaxShare).

- (12) * John's and Mary's student came from the U.S. (2.33/7)

The difference between (11) and (12) points to an option where both the dominance MaxShare and the numeration MaxShare exist as independent constraints. Since both constraints are violated in (12) while only the numeration MaxShare is violated in (11a), the stronger penalty observed in (12) is expected. Another possibility would be that violating the dominance MaxShare invokes a stronger penalty than violating the numeration MaxShare. However distinguishing their effects is tricky since the former entails the latter.

So far we have seen that the numeration MaxShare is more powerful in terms of coverage than the dominance MaxShare, however, the former might be a weaker constraint in terms of its effects on acceptability. A further step along this line is to look at more cases which can be ruled out by the numeration MaxShare but not by the dominance MaxShare, in addition to the ATB + gapping case, and check whether the penalty on acceptability is weaker than the violations of the dominance MaxShare. I will leave this for future research.

3 A note on restricting MaxShare

Regardless of the two formulations I have been discussing, one issue that needs to be addressed is how to not block sentences with no sharing at all. We have seen that MaxShare allows sentences in (13) where the shared elements are maximized, and we have seen that MaxShare blocks sentences where some shareable elements are not shared.

- (13) a. John's tall and Mary's short student are a couple.

- b. Ile_i Maria napisała t_i książek a Jan przeczytał t_i artykułów?
 how-many Maria wrote books and Jan read articles
 ‘How many books did Maria write and how many articles did Jan read?’

Following this pattern, one might expect sentences that share *no* potentially shareable element to be ruled out. For example, in (14a), nouns are present inside both conjoined DPs and in (14b), both *wh*-elements are present in the conjoined questions. This prediction is not borne out. Both of these sentences are perfectly acceptable, thus MaxShare must be restricted so that it does not block sentences of the form in (14).

- (14) a. John’s tall student and Mary’s short student are a couple.
 b. Ile_i Maria napisała t_i książek a ile_i Jan przeczytał t_i
 how-many Maria wrote books and how-many Jan read
 artykułów?
 articles
 ‘How many books did Maria write and how many articles did Jan read?’

This restriction is difficult to derive from the dominance MaxShare. One would have to stipulate that the structures being compared are restricted to ones that share at least one element. However, there is a way for the numeration MaxShare to account for this restriction.

In the implementation of the numeration MaxShare presented so far, the entire utterance including the conjunction phrase is assumed to share one numeration, as is illustrated above in (10). In order to account for (14), we need to further break down the derivation. In the multiple spell-out model proposed by Uriagereka (1999), Chomsky (2000), numeration, derivation, and spell-out occur in phases. Oda (2017) proposes that the &P and its conjuncts are phases to account for the cross-linguistic patterns of the coordinate structure constraint. As a result, each conjunct corresponds to a numeration (or a sub-array) and the comparison of numerations is restricted within phases. The combination of these assumptions correctly rules in sentences in (14) while maintaining the effect of MaxShare.

Take NP RNR for an example. In (15) where there is no sharing between the two conjuncts, each conjunct, being a phase, corresponds to a numeration. The &P also corresponds to a numeration which includes DP1, DP2, and the conjunction head *and*. In (16), on the other hand, since some elements are shared by the two conjuncts, the whole conjunction phrase has one numeration. Given that they

contain the same set of lexical items, Numeration1 and Numeration2 in (16) are compared and the second numeration is less economical since it involves the Poss head being extracted twice. Thus Numeration2 is ruled out. The crucial point here is that Numeration1 and Numeration2 are compared with each other and not with the numerations in (15), because none of the numerations in (15) contains the same set of lexical items as the ones in (16).

- (15) [_{&P} [_{DP1} John's student] and [_{DP2} Mary's student]] are a couple.
 Numeration_{DP1}: [John's₁, Poss₁, Num₁, student₁]
 Numeration_{DP2}: [Mary's₁, Poss₁, Num₁, student₁]
 Numeration_{&P}: [and₁, DP1, DP2]
- (16) [_{&P} John's and Mary's student] are a couple.
 a. Numeration1_{&P}: [John's₁, Poss₁, Num₁, student₁, Mary's₁, and₁]
 b. Numeration2_{&P}: [John's₁, Poss₂, Num₁, student₁, Mary's₁, and₁]

The claim here is that only the set of numerations that meet certain conditions are compared in terms of economy. One such condition is that these numerations must contain the same set of unique lexical items. They can, however, differ in the number of “copies” of the lexical items.⁸

4 A note on an alternative to MaxShare

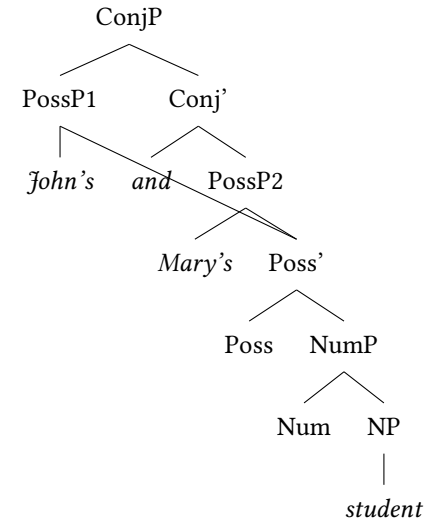
4.1 Ban on string vacuous multi-dominance in NP right node raising

This section explores an alternative to MaxShare to account for patterns of NP RNR. Evidence for MaxShare from NP RNR comes from the unacceptability of Figure 9. Shen (2018) argues that the singular marking on the shared noun requires multi-dominance and the unacceptability of Figure 9 indicates that a multidominance structure is ruled out. As mentioned above, the account proposed

⁸This restriction on MaxShare is by no means the only restriction. Shen (2018: Section 2.6.2) briefly discusses an interpretative restriction on MaxShare: the structures being compared must be of the same interpretation. The evidence is shown in (i). The sentence in (i) is ambiguous between (i.a) where *tall* is not shared, and (i.b) where *tall* is shared. If MaxShare does not care about interpretations, the interpretation in (i.a) should not be available since it involves a structure where less material is shared than in the structure that generates (i.b).

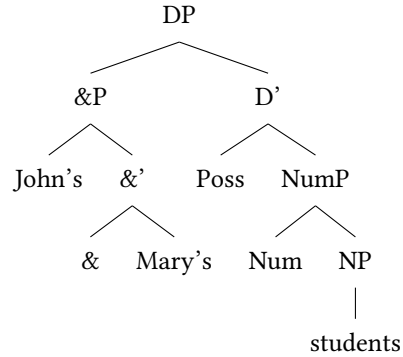
- (i) The old and the young tall student are a couple.
 a. ‘The old student and the young tall student are a couple.’
 b. ‘The old tall student and the young tall student are a couple.’

in Shen (2018) involves two constraints on multi-dominance: one is MaxShare, and the other is an Agree requirement where the shared element and the sharing elements must agree. We have seen how MaxShare rules out structures that would generate Figure 9 in the discussion above. The Agree requirement rules out the structure that does not violate MaxShare. In the structure in Figure 9, the largest shareable constituent *poss'* is shared in accordance with MaxShare, however, this structure is ruled out because there is no agreement relation between the possessors *John's* and *Mary's* and the shared *poss* head.



*John's and Mary's student are a couple.

Figure 9: Candidate structure:
Agree constraint violated, Max-
Share satisfied



John's and Mary's students are a couple.

Figure 10: Coordinated possessor
structure

Figure 9 contrasts with the sentence in Figure 10 where the head noun is plural. Shen (2018) argues that the plural noun indicates a different structure, illustrated below: *John's* and *Mary's* are conjoined in the Spec,DP position. No sharing/multidominance is involved.

The motivation behind the Agree requirement and MaxShare is to rule out Figure 9 independently from Figure 10. However, based on the contrast between the two sentences, one can imagine an alternative where it is the availability of the structure in Figure 10 that blocked the multidominance structure in Figure 9. I formulate the constraint in (17) and refer to it as the BAN.

- (17) Ban on string vacuous sharing: A string cannot be parsed as multidominance if an alternative non-sharing parse is available.

The idea behind (17) is that the option of sharing can only be entertained if the string cannot be generated otherwise. From this perspective, sharing is used as a last resort operation. Let's see how the BAN in (17) can rule out Figure 9. In the string *John's and Mary's X*, there are at least two possible parses shown in Figure 11. Figure 11a is a parse with a shared X while Figure 11b involves conjoined specifiers and no sharing. The BAN in (17) states that the Figure 11a is ruled out since Figure 11b is available. Thus this constraint alone can replace both Max-Share and the Agree requirement.

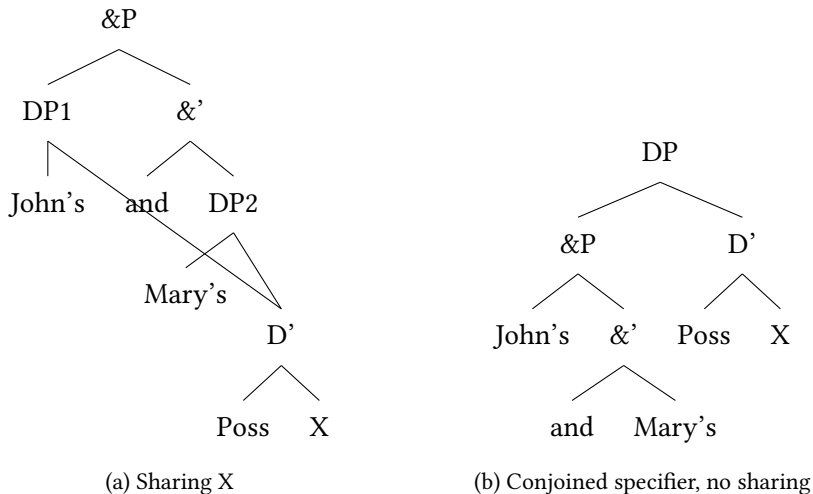


Figure 11: John's and Mary's X

The BAN predicts that sharing becomes available once the string cannot be generated otherwise. This prediction is supported by the phrase in Figure 12. The singular noun indicates that the head noun *student* is shared. This is expected since *John's tall* and *Mary's short* cannot be conjoined as is shown in Figure 12a because they do not form constituents (assuming that only constituents can be conjoined). In other words, the string cannot be generated without invoking sharing, thus sharing is available as is shown in Figure 12b.

A brief discussion of the alternative non-sharing structures is in order. The two structures being compared above include one sharing structure with coordinated DPs and the non-sharing structure with coordinated Spec,DPs. As it turns out, all the non-sharing structures to be considered in this section will involve

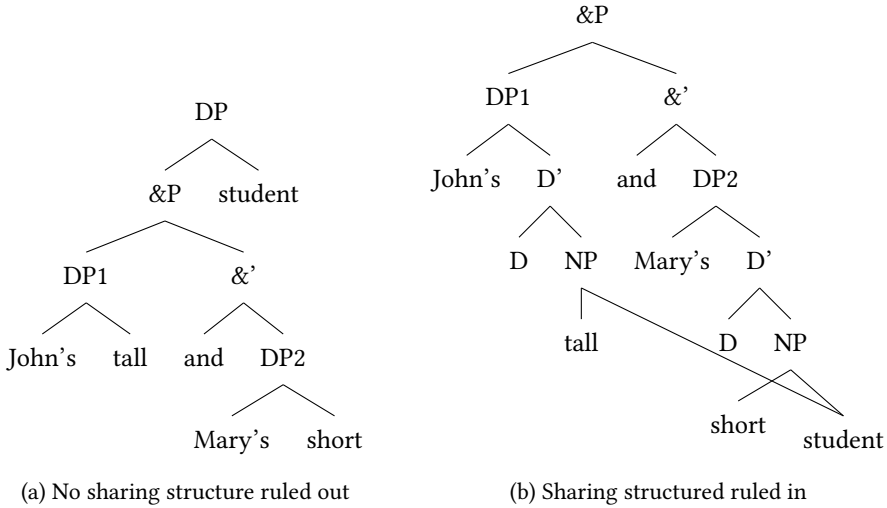


Figure 12: John's tall and Mary's short student are a couple.

conjunction of two smaller constituents than in the sharing structure. This is expected since in the sharing structure, the shared node is inside the conjuncts whereas in the non-sharing structure, it is outside the conjuncts. In the paper, I will restrict the broad term *alternative non-sharing parse* to this type of structure with conjunction of smaller constituents. Whether other non-sharing structures should/can be covered by the BAN in (17) is left for future research.

Based on its formulation, the effect of the BAN should be observed when two conditions are met: 1. a string that can be generated via sharing and a non-sharing structure; 2. a telltale indication of which structure is being used. In the case discussed above, the string of *John's and Mary's N* can be generated via sharing of the N or the conjoined possessor analysis. The telltale sign is the number marking on the noun: when the phrase refers to two individuals, sharing requires the noun to be singular and the conjoined possessor analysis requires the noun to be plural. As we saw in the case of NP RNR, the availability of the conjoined possessor structure (indicated by the plural noun) blocked sharing (as indicated by the unavailability of the singular noun).

Another case where these conditions are met is in Figure 13, which also has two potential structures. Figure 13a illustrates one where the T' is shared and Figure 13b illustrates one that does not involve sharing but the conjunction of the subjects. The telltale sign to differentiate the two structure is the number marking on the verb. According to Kluck (2009), Grosz (2015), and Shen (2019), the structure in Figure 13a is compatible with both the singular and the plural

auxiliary whereas the conjoined subject in Figure 13b requires the auxiliary to be plural. As is shown in Figure 13, only the plural auxiliary is available, which indicates that the sharing structure Figure 13a is ruled out while the non-sharing structure Figure 13b is ruled in. This is expected from the BAN.

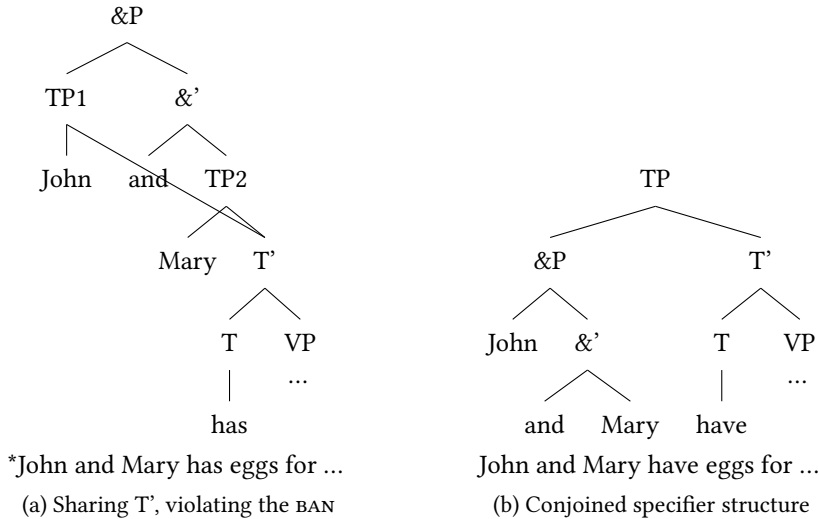


Figure 13: John and Mary HAVE eggs for breakfast.

Like in NP RNR, once we modify the string so it cannot be generated by the non-sharing structure, the sharing structure becomes available. In (18), neither *John always* nor *Mary sometimes* form a constituent, thus conjunction structure in Figure 13b is impossible. Since the string can only be generated by sharing, it is predicted that the singular auxiliary becomes available, as is confirmed in (18).⁹

(18) ? John always, and Mary never, has eggs for breakfast.

The next example of the BAN I will present here also involves NP RNR but with a different telltale sign: interpretation. The string in Figure 14 can potentially be generated via a structure where *dress* is shared by *blue* and *black* shown

⁹What is curious is that the plural auxiliary in (i) is not acceptable. Although surprising under the sharing analysis, this does not immediately rule out this analysis. It is possible that the plural auxiliary under sharing is further restricted. This type of restrictions are discussed in Yatabe 2003, Grosz 2015, Belk & Neeleman 2018.

(i) * John always, and Mary never, have eggs for breakfast.

in Figure 14a or via a structure where *blue* and *black* are conjoined as shown in Figure 14b. The non-sharing structure with the singular noun must refer to a single dress that's both blue and black, whereas the sharing structure, also with the singular noun, must refer to two different dresses, one being blue and the other black. The absence of the two-dress reading indicates that sharing is ruled out while the non-sharing structure is available (indicated by the one-dress reading).

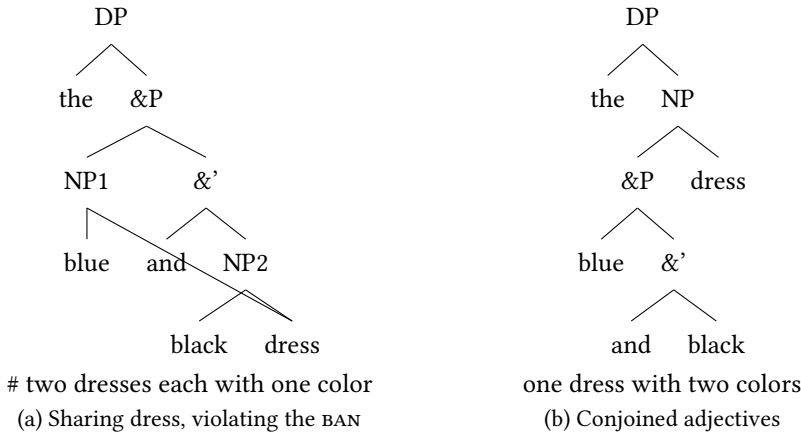


Figure 14: The blue and black dress

The blocking nature of the BAN predicts there to be no overlapping distribution of the two structures: when the non-sharing structure is available, the sharing structure is blocked; only when the non-sharing structure is not available does the sharing structure emerge. This predicts complementary distribution of the two structures, i.e. one string cannot optionally show telltale signs for both structures. This is borne out for the cases we have seen in English. In a given string of NP RNR in (19), either the singular or the plural shared noun is allowed, but not both. The complementary distribution in NP RNR is also observed in all the languages reported in Shen (2018) including Brazilian Portuguese, Cypriot Greek, Dutch, English, German, Icelandic, Italian, Polish, Serbo-Croatian, and Slovenian, Spanish.

- (19) a. John's and Mary's students/*student are a couple.
 b. John's tall and Mary's short student/*students are a couple.

4.2 Can the ban on string vacuous sharing replace MaxShare

I have shown that the BAN can replace MaxShare and the Agree requirement in NP RNR. Now we look at whether it can replace MaxShare in the ATB LBE and gapping paradigm discussed in Citko (2006) and earlier in this paper.

First, let's look at the ATB LBE data in (20) (repeated from (1c) and (2)). Both sentences involve two conjoined TPs and one adjective shared by two NPs (indicated by the traces). There is no conceivable alternative structure that involves no sharing and a smaller conjunction site as discussed above. Thus, the BAN correctly does not rule out the sharing structure which made ATB LBE possible in (20a). However, this means that the BAN can not rule out the less acceptable (20b). An additional constraint like MaxShare is still needed.

- (20) a. Ile_i [TP Maria napisała t_i książek] a [TP Jan przeczytał t_i
how-many Maria wrote books and Jan read
artykułów]?
articles
'How many books did Maria write and how many articles did Jan read?'
- b. *Ktora $_i$ [TP Maria poleciła t_i książkę] a [TP Jan przeczytał t_i
which Maria recommended book and Jan read
książkę]?
book
'Which book did Mary recommend and John read?'

Second, ATB LBE + gapping discussed in (9) with English glosses repeated in (21). (21a) involves both ATB LBE of *which* and gapping whereas (21b) only involves ATB LBE. The sharing analysis of gapping involves conjunction of vPs and sharing of the verb (*ordered* in 21). Again, there is no alternative non-sharing structure with a smaller conjunction site. Similar to (20), the BAN correctly does not rule out (21a) but the less acceptable (21b) is not ruled out either.

- (21) a. Which $_1$ Maria **ordered** t_1 coffee and Jan t_1 tea?
b. *? Which $_1$ Maria **ordered** t_1 coffee and Jan **ordered** t_1 tea?
(English glosses for Polish sentences in (9))

The positive note is that the BAN is compatible with the paradigm above in that it does not rule out the acceptable sentences; however, it also does not help accounting for (20b) and (21b). MaxShare as proposed by Citko (2006) is still needed and

cannot be replaced by the BAN. This result is not surprising, since the BAN only rules out a sharing structure in the face of a non-sharing one. What MaxShare accomplishes is choosing between two sharing structures, with one sharing more materials than the other. So far, I have shown that MaxShare can account for all the data in ATB LBE noted so far and part of the NP RNR paradigm, while the BAN can account for all the data in NP RNR but not ATB LBE. Considering both ATB LBE and NP RNR, MaxShare is needed plus either the Agree requirement or the BAN. The answer to “can the BAN replace MaxShare” is *no*. It turns out that it’s not MaxShare that the BAN can potentially replace but the Agree requirement. With MaxShare independently motivated, now the question becomes whether to retain the Agree requirement as in Shen (2018) or to replace it with the ban on string vacuous sharing. I will leave this question for future research.

4.3 Another alternative

The BAN is by no means the only potential alternative to MaxShare. Another possible alternative that I do not have space to discuss here beyond several sentences is related to the contrast conditions on ellipsis proposed in Hartmann (2000, 2003), Féry & Hartmann (2005). Although the original proposals are meant for ellipsis, the phenomena the proposed conditions cover include RNR and gapping, largely overlapping with MaxShare. Hartmann (2000, 2003) argues that RNR is derived from phonetic deletion rather than multi-dominance, and that phonetic deletion requires the preceding materials to be contrastive. In addition, a *maximal contrast principle* in (22) is proposed for gapping, which is very similar in essence to MaxShare. I will group the various conditions proposed in these works and label them as *contrastive conditions*.

(22) The maximal contrast principle

In a Gapping construction maximize the number of contrasting remnant-correspondent pairs. (Hartmann 2000: p. 165, 43)

Assuming that ATB movements are subject to contrast conditions of the same nature, the contrast is required not only on the material preceding the shared element but also the materials following it to account for the ATB LBE data in (1) and (2) from Citko (2006). The interaction of ATB movement and gapping shown in (9) where one requires the other can be accounted for as well by applying (22) to ATB and gapping.

Regarding NP RNR, requiring the materials preceding the shared noun to be contrastive can correctly rule out Figures 5 and 6. However, something like the

Agree requirement or the BAN is still needed in addition to rule out the structure in Figure 7. Since *John's* and *Mary's* are contrastive, but as we have learned, sharing of the noun phrase following these contrasting elements is disallowed.

Further research is needed to thoroughly evaluate whether the contrastive conditions can replace MaxShare in general. For example, Hartmann (2000) proposes that the domain of application of the condition in (22) is the phonological phrase. It remains to be seen whether such restrictions are the same when the condition is applied to ATB and NP RNR. The full paradigm including ATB, gapping, and NP RNR can be accounted for by different combinations of the conditions/constraints discussed in this paper: MaxShare, the Agree requirement on sharing, and the two alternatives presented in this section. Pros and cons of each combination require careful investigation that goes beyond this paper.

5 Summary

This paper discussed three aspects of MaxShare: its formulation, its restrictions, and possible alternatives. We have seen that the numeration formulation of MaxShare is more empirically powerful in ruling out sentences and less stipulative regarding the motivation of such a constraint on sharing. At the same time, the effects of the numeration MaxShare seems less robust within or across languages than that of the dominance MaxShare. I have also shown that the effects of MaxShare need to be restricted within structures that involves sharing in the first place. Lastly, the ban on string vacuous sharing, a potential alternative to MaxShare, turns out to be successful for NP RNR but not for other cases of sharing.

In this paper, I was only able to scratch the surface of these issues, which all deserve more detailed, cross-linguistic research. One promising direction is on the locality of MaxShare, i.e. the domain within which MaxShare is enforced. MaxShare states that the shared materials within a domain must be maximized, in other words, if one element is shared in this domain, all other shareable elements must be shared as well. The locality question is how far the two shared elements can be for one to trigger the sharing of the other. The cases we have been looking at are limited in this aspect. In NP RNR, the domain of MaxShare is within two conjoined DPs: the sharing of the head noun triggered the sharing of the Poss head and the NUM head within the DP. In ATB LBE cases, the domain is within two conjoined matrix clauses: sharing of the adjective of the objects triggers sharing of the verb via gapping. We have not seen long distance triggering where, for example, the sharing of the *embedded* object forces gapping of the *matrix* verb. We also have not seen triggering across islands or other boundaries proposed in

the literature.¹⁰ To address this question, one interesting project would be to look at the interaction of MaxShare, a constraint on size of shared constituents, and clausal complements of different sizes.

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¹⁰An assumption made in Section 4.1 is that numerations are evaluated phase by phase. It follows then that the MaxShare effects should be confined within phases. However, this is not compatible with the interaction of ATB of adjectives of the objects and the gapping of the verb discussed in Citko (2006).

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The size of things I

This book focuses on the role size plays in grammar. Under the umbrella term *size* fall the size of syntactic projections, the size of feature content, and the size of reference sets. The contributions in this first volume discuss size and structure building.

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