

Relationship Preservation

by

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Abstract

This thesis deals with a number of puzzles related to word order, in which the co-occurrence of two elements in the same clause imposes a restriction on the distribution of these elements. I suggest that elements involved in Agree relationships [Chomsky (2000, 2001)] are subject to a requirement that they be aligned with the left or right edge of a prosodic phrase, following work done in Richards (2016). I argue that there is a restriction on the opaque satisfaction of this requirement, and show that this provides a unified solution to these word order puzzles.

Chapters 1 and 2 deal with movement phenomena, primarily in left-headed languages. In chapter 1, I show that some languages allow A-movement of subjects across other DPs, whereas others do not. I note that this appears to be determined by which edge of a prosodic phrase they require phrases in Agree relationships to be aligned with, and show that this is a consequence of the proposed restriction on opaque satisfaction of the alignment requirement. Chapter 2 builds on the results of chapter 1. I show that A-movement of a subject may cross another nominal in all languages, but only if there is a phase boundary between the launch site and landing site, and show how this falls out from the proposed restriction on opacity. I show also that languages that do not allow A-movement of subjects across other DPs display a similar restriction in *wh*-questions, and argue that this too is a result of the proposed restriction on opacity.

Chapters 3 and 4 deal with the distribution of *wh*-phrases in languages that allow them to remain in-situ. Chapter 3 deals with co-occurrence restrictions between foci and *wh*-phrases. I argue that these restrictions emerge as a result of a conflict between a prosodic strategy that languages might use to satisfy the alignment requirement, called Grouping, and the proposed restriction on opaque satisfaction of this requirement. Chapter 4 deals with Grouping more generally. I show that languages with Grouping have a particular prosodic signature which marks phonological phrases that contain *wh*-phrases, whereas languages that lack Grouping do not, and explore the consequences of this for the architecture developed in this thesis.

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Introduction

This thesis deals with patterns of acceptability and unacceptability that have been termed ‘intervention effects’. Intervention effects, at a high level of abstraction, can be described as bans on the presence of some element—*an intervener*—in between two other elements in a sentence, as schematized in (1).

(1) An intervention configuration



The basic intuition behind these effects is that the presence of an intervener in some sense disrupts a relationship between the two other elements, leading to unacceptability. In this thesis, I will attempt to develop a unified theory of these effects, which will offer a new view of the key notions of “disrupt” and “relationship”. In particular, I will argue that a number of intervention effects which have previously been argued to be syntactic in nature in fact have their origins in the phonology, and are only indirectly a syntactic phenomenon, insomuch as the syntactic structure partially determines the phonological properties of an utterance.

Two concrete examples of intervention effects follow. In (2a), we see that the French verb *sembler* allows an experiencer argument, which may appear between the verbal complex and clausal complement. In (2b), we see that the French verb *sembler* may also act as a raising verb—it may take a non-finite complement. However, in (2c), we see that the French verb *sembler* may not do both at once: raising ‘across’ an experiencer is banned. Here, the presence of a raised subject is impossible when an experiencer appears in between the raising verb and embedded clause, even though both are independently licensed. An experiencer cannot appear in between the embedded non-finite verb and fronted subject. It is an intervener for the relationship between the raised subject, and non-finite verb.

(2) An intervention effect in French

- a. *Il semble à Marie [que Jean a du talent]*
it seem to M. that J. has of talent
'It seems to Marie that Jean is talented.'
- b. *Jean semble [____ avoir du talent]*
J. seem have.INF of talent
'Jean seems to be talented.'
- c. **Jean semble à Marie [____ avoir du talent]*
J. seem to M. have.INF of talent
Intended: 'Jean seems to Marie to be talented.'

McGinnis (1998b)

Another example of an intervention effect can be found in Japanese. In (3a), we see that subjects in Japanese may be marked with a focus particle, *-dake*, with a meaning comparable to English *only*. In (3b), we see that objects in Japanese may be *wh*-phrases, and that such *wh*-phrases may remain in-situ. However, as we see in (3c), a *wh*-phrase cannot appear in between the sentence initial focused subject and verbal complex, even though we know that these particular configurations of focus-bearing subject/verbal complex, and *wh*-object/verbal complex are independently licensed. The *wh*-phrase is in an intervener for the focus-bearing subject and verbal complex.

(3) An intervention effect in Japanese

- a. *Ken-dake-ga hon-o yon-da*
K.-only-NOM book-ACC read-PST
'Only Ken read a book'
- b. *Ken-ga nani-o yon-da no?*
J.-NOM what-ACC read-PST Q
'What did Ken read?'
- c. **Ken-dake-ga nani-o yon-da no?*
K.-only-NOM what-ACC read-PST Q
'What did only Ken read?'

These effects, of course, do not reflect something idiosyncratic about French and Japanese. Effects similar or identical to those which we have seen above can be found in a number of related and unrelated languages. This suggests that these sets of facts tell

us something deeper about the language faculty as a whole, but exactly what is unclear. Previous accounts of these effects have argued that these facts tell us something about the nature of syntactic locality—that, when the grammar is faced with a choice between two potential operations, for instance, it reflects a general preference for the shorter operation, as schematized in (4).

(4) Locality restricts derivational steps



when Z is of the same sort as Y, because Z is closer to X than Y

For the case of French, under this sort of account, the reason that a subject cannot raise across an experiencer has to do with syntactic locality: movement of the experiencer would be preferred over movement of the subject, since the experiencer is in some sense more local to the higher subject position, as diagnosed by a number of syntactic tests. Likewise, for the case of Japanese, under this sort of account, the reason that a subject cannot raise across an experiencer has to do, again, with syntactic locality. Under this sort of account, the ungrammaticality of (3c) is attributed to the presence of a focus bearing subject causing a problem for some relationship between the question complementizer, and in-situ *wh*-object. The idea, again, is that the focus-bearing subject is the same sort of element as the *wh*-object, and is furthermore syntactically closer to the question complementizer than the *wh*-object. As a result, the preference for the shorter operation precludes the formation of the relationship between the question complementizer and in-situ *wh*-object.

However, purely syntactic approaches to these puzzles have a number of shortcomings. One shortcoming has to do with the fact that these effects do not arise in all languages, as shown for English in (5a) and Mongolian in (5b). This is despite the fact that diagnostics for which element is closest to subject position and question complementizer in (5a) and (5b), respectively, suggest that English and Mongolian should behave identically to French and Japanese.

- (5) a. John seems to Mary ____ to be talented.

- b. [zövxöng uran noyon] [yamar ünee-g] zursan bee
only artistic knight what cow-ACC paint Q

‘What cow did only the artistic knight draw?’

For theories that make use of syntactic locality requirements to account for the ungrammaticality of the French and Japanese facts above, the English and Mongolian facts pose a

serious challenge. Such accounts are forced to retreat, in one way or another, from the strongest possible proposal about syntactic locality. Usually this is done either by introducing some mechanism by which some languages might bypass the shortest operation requirement, or by enriching the lexicon, and allowing more fine-grained distinctions among lexical items of a particular sort.

The theory, to be developed

I will argue that these sorts of facts do not tell us much about the presence (or absence) of syntactic locality requirements—rather, the sort of theory that these facts motivate is one which involves a particular requirement on the phonological representation, called Contiguity, building on the work of Richards (2016), which is indirectly determined by the syntax. More specifically, I will argue that intervention effects result from a failure to preserve structures that satisfy this requirement. There exists a principle, given (6), which blocks operations when their application would cause the phonological representation to no longer satisfy this requirement.

(6) Contiguity Preservation

Contiguity relationships must be preserved within the domain in which they are created.

I begin here by laying out the assumptions that will hold throughout this dissertation here in some detail. The basic idea is that certain relationships in the syntax must be expressed, in some sense, in the phonological representation—the intervention effects we have seen before will result from violations of this requirement.

I will follow Chomsky (2000) in assuming a syntax that is relatively simple, consisting of two distinct operations. One operation is a structure building operation, Merge. Merge takes two syntactic objects, and combines them to creates a new syntactic object. Agree is an operation that applies within structures that have been built through Merge—it is, for our purposes, the way that our theory will account for grammatical relationships more generally. Certain elements may be said to have interpretable features or uninterpretable features. Agree is an operation which establishes a formal link between elements with uninterpretable features and elements with interpretable features. If a head X Agrees with a phrase YP, then we can say that X and YP are in an Agree relationship. It will be useful to refer to elements that initiate Agree—those with uninterpretable features—as *probes*; whereas elements that are targeted by Agree—those with interpretable features—will be referred to as *goals*.

Under the approach assumed in this thesis, where an element may or may not be pronounced is determined at least in part by its grammatical status—in other words, whether or not a functional head has entered into an Agree relationship with it. I assume that there are two principles that determine admissible forms of the prosodic structure/phonological representation and, crucially, make reference to the syntactic structure: Match Theory, and Contiguity. Subjects, under this approach, are in an Agree relationship with T. As a result of this, a subject may be pronounced only in positions in which it could satisfy Contiguity for respect to T. Objects, likewise, are in an Agree relationship with v; and therefore can only be pronounced in positions in which it could satisfy Contiguity for v. More abstractly, the distribution of arguments with respect to the verbal complex as a whole.

Match Theory makes reference to dominance relationships in the syntax—we can think of Match Theory as the part of our theory of the interface between syntax and prosody that ‘translates’ some of the constituent structure created by Merge into something sensible to the articulatory system.

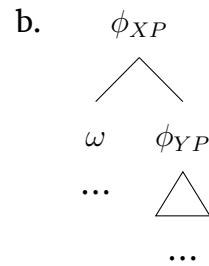
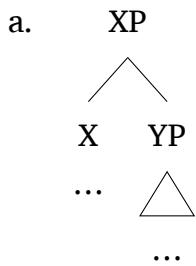
(7) Match Theory

Bennett, Elfner, and McCloskey (2016)

- a. Given a maximal projection X in a syntactic representation S, where X dominates all and only the set of terminal elements a, b, c, ..., n, there must be in the phonological representation P corresponding to S a ϕ -phrase that includes all and only the phonological exponents of a, b, c, ..., n.
- b. Terminal elements map to ω .

Match Theory leads us to expect the prosodic tree to be similar to, but not the same as, the syntactic tree. A maximal projection headed by an overt terminal, which has a complement and which lacks a specifier will correspond to a prosodic tree as shown in (8). ϕ_{XP} dominates all and only the set of phonological exponents of the terminal elements dominated by XP.

(8)



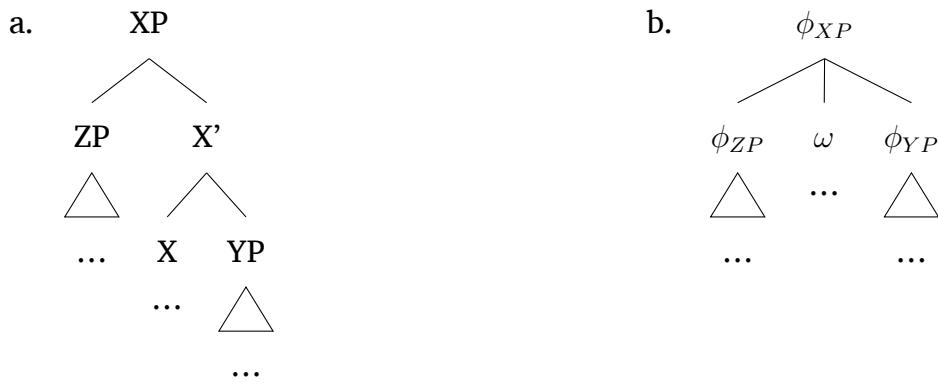
A maximal projection headed by a null terminal, which has a complement and which lacks a specifier will correspond to a prosodic tree as shown in (9).

(9)



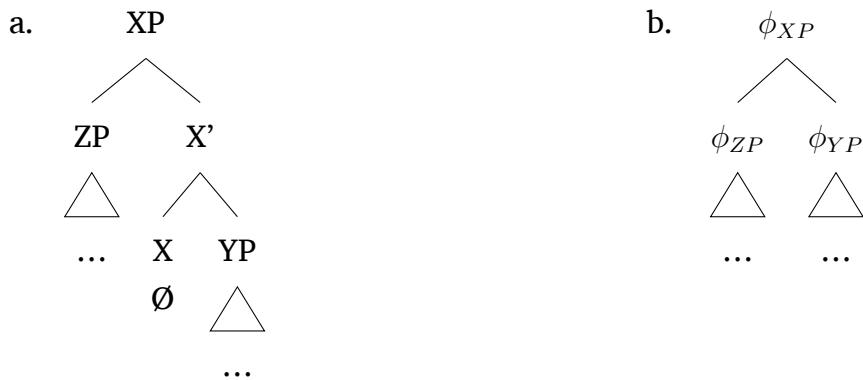
A maximal projection headed by an overt terminal with both a complement and a specifier will correspond to a prosodic tree as shown in (10).

(10)



A maximal projection headed by a null terminal with both a complement and a specifier will correspond to a prosodic tree as shown in (11).

(11)



A maximal projection headed by an overt terminal with neither a complement nor a specifier is underdetermined: it could potentially be mapped either to a ϕ or an ω .

(12)

a.	XP	b.	ϕ	c.	ω
		
	X				
	...				

Agree, like Merge, has a counterpart at the syntax-prosody interface, called Contiguity, given in (13). The idea behind Contiguity is that probe-goal relationships which are present in the syntax must find expression in the prosodic structure—the probe and the goal must form a constituent, and the goal must be in a position of *prominence* within that constituent. There are at least two ways we might determine the location of prosodic activity in a given language. The first is to find phonological properties that appear to also show a preference for a particular edge: Richards (2016) notes that the placement of boundary tones appears to be one diagnostic for prosodic activity, which Richards (2017c) provides a test—which I will refer to as Norvin’s Test—Involving the relative prominence of elements in a nominal phrase consisting of two lexical words. The second is to find elements which could plausibly be in an Agree relationship, and examine their relative distribution: for this theory, all probe-goal relationships in a language should have identical distributional requirements, since the choice of prosodically active edge is invariant within a language.

(13) **Contiguity *in toto***

a. *Contiguity:*

A Goal must be *contiguity prominent* within a ϕ that dominates a probe that Agrees with it.

b. *Contiguity prominent:*

G is *contiguity prominent* within ϕ_1 if no other ϕ lies between G and the prosodically active edge of ϕ_1 , and ϕ_1 dominates G .

(14) **Intervention uniformity principle**

Within a language, intervention configurations will be the same for all probe-goal relationships.

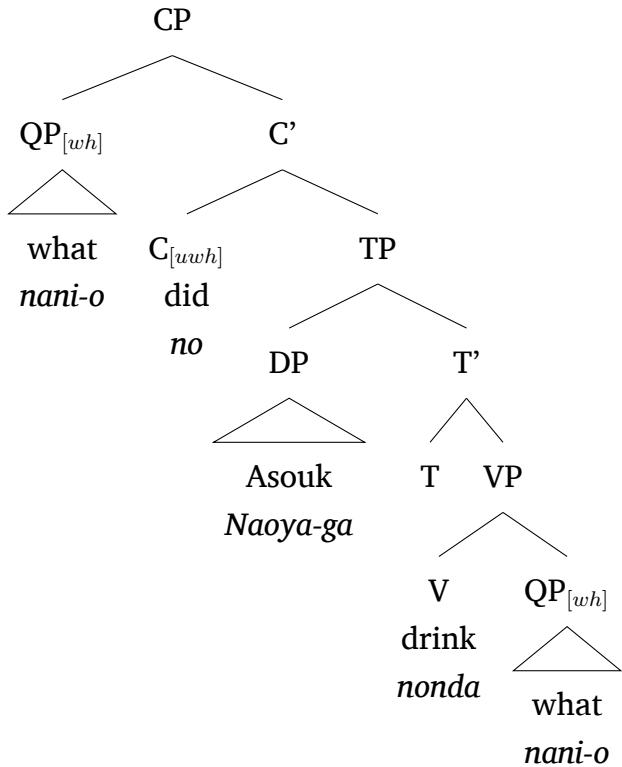
I will generally assume throughout the dissertation that the choice of edge for prosodic activity is made for all ϕ in a given language—in a language, all ϕ either have prosodically active left edges, or prosodically active right edges. I will refer to languages with prosodically active left edges as ‘left-active’ languages, and languages with prosodically active right edges as ‘right-active’ languages. When I provide graphic representations of the prosodic structure, I will use “ (ϕ) ” to denote a phonological phrase with a prosodically active left edge, and “ $\phi)$ ” to denote a phonological phrase with a prosodically active right edge.

It will be useful now to see exactly how this theory works. We will see that there are at least two strategies that a language might use to satisfy these demands: overt movement in the syntactic tree, or manipulation of the prosodic tree. Consider the sentences in (15), involving *wh*-questions in Japanese and in English, respectively. In English, we see that a *wh*-phrase must move overtly to the left of the sentence. In Japanese, we see that a *wh*-phrase need not move overtly to the left of the sentence.

- (15) a. What did Asouk drink?
 b. *Naoya-ga nani-o nonda no*
 N.-NOM what-ACC drink Q
 ‘What did Naoya drink?’

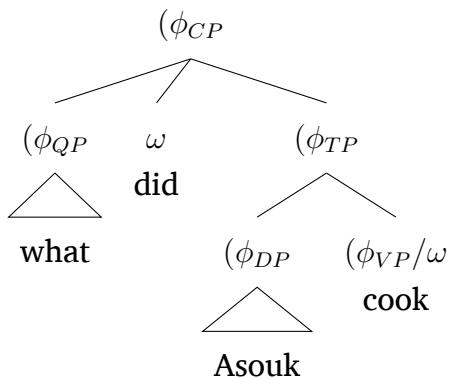
Match Theory and Contiguity allow us to explain this difference between Japanese and English.¹ We can assume a uniform syntax for these sentences, as in (16). There are two things of note in the sentence in (16). The first is that the QP object and interrogative question complementizer have entered into an Agree relationship. The second is that the QP has undergone movement to [spec,CP], presumably for reasons related to the interpretation of questions.

(16)



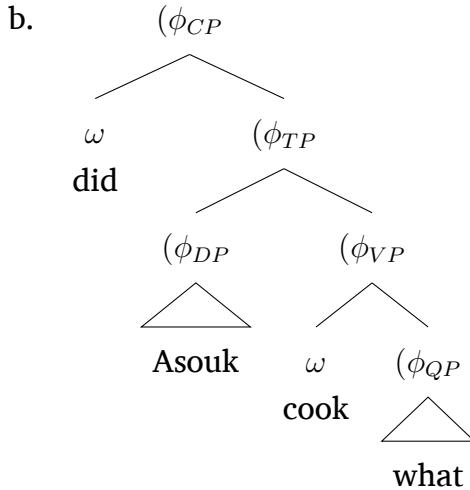
A prosodic structure for the licit English sentence in (15a) is shown in (17). Each overt terminal in (16) has a corresponding ω , and each maximal projection has a corresponding ϕ , as demanded by Match Theory—I will set aside questions related to headedness and the requirement that only a single copy be pronounced for the purposes of expedient exposition. Furthermore, the QP satisfies Contiguity for the interrogative complementizer which has Agreed with it, given the assumption that English is a language with prosodic activity on the left. ϕ_{QP} is Contiguity-prominent in ϕ_{CP} , since there are no ϕ which lie between ϕ_{QP} and the left edge of ϕ_{CP} . QP satisfies Contiguity for the interrogative complementizer, since ϕ_{QP} is Contiguity-prominent in ϕ_{CP} , and ϕ_{CP} dominates both ϕ_{QP} and the complementizer which has Agreed with it.

(17)



Consider now a prosodic structure for an illicit English sentence, in which the *wh*-phrase does not move overtly, as in (18). (18b) respects Match Theory, but violates Contiguity. ϕ_{CP} is the only phonological phrase that dominates the interrogative complementizer and ϕ_{QP} . But ϕ_{QP} is not Contiguity-prominent in ϕ_{CP} : the subject, for instance, lies between ϕ_{QP} and the left edge of ϕ_{CP} .

- (18) a. Did Asouk cook what?



The relevant properties that determine whether or not movement must be overt, under this theory, is that the left edge of ϕ is prosodically active in English. A goal, in English, must be aligned with the left edge of a phonological phrase that contains both that goal and its probe. Overt movement of the *wh*-phrase results in Contiguity being satisfied, as we have seen before.

We can turn now to the case of Japanese. We have just seen that the choice of copy pronunciation might be motivated so that Contiguity might be satisfied, accounting for the fact that movement in English must be overt. Another useful theoretical concept introduced by Richards (2016) is Grouping. The idea behind Grouping is that manipulation of the prosodic tree might be motivated for the same reason—Contiguity satisfaction. I will define Grouping as in (20). The implications of this particular definition of Grouping will come to the forefront in chapter 3. This definition of Grouping makes it more or less analogous to a movement operation which does not leave traces.

(19) **Grouping**

Create a ϕ within which a goal satisfies Contiguity for its probe.

(20) **The Grouping Procedure**

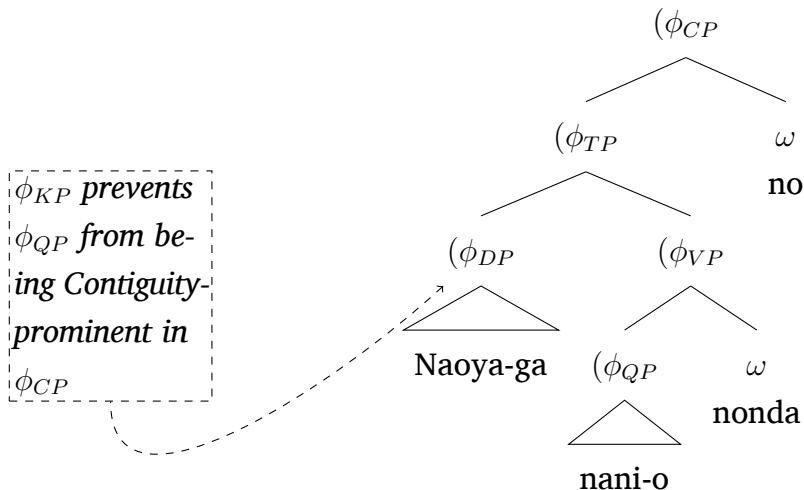
- a. Choose two nodes, N_1, N_2
- b. Create a copy of $N_2; N_C$
- c. Substitute N_1 with either $[N_1 N_C]$ or $[N_C N_1]$
- d. (i.) Substitute the mother of N_2 with a node dominating all of N_2 's sisters if N_2
(ii.) Substitute the mother of N_2 with a node dominating all of N_2 's sisters if N_2 has more than one sister.
- e. *Restriction:* Grouping cannot alter linear order.

Grouping allows us to explain, for instance, why Japanese allows its *wh*-phrases to remain in-situ, given the assumption that Japanese is like English, in that the left edge of ϕ is prosodically active in both languages. Consider now the sentence in (21a), with a corresponding prosodic sentence in (21b). Note here that the subject prevents ϕ_{QP} from being Contiguity-prominent within ϕ_{CP} , as in English.

- (21) a. *Naoya-ga nani-o nond_a no*
N.-NOM what-ACC drink Q

‘What did Naoya drink?’

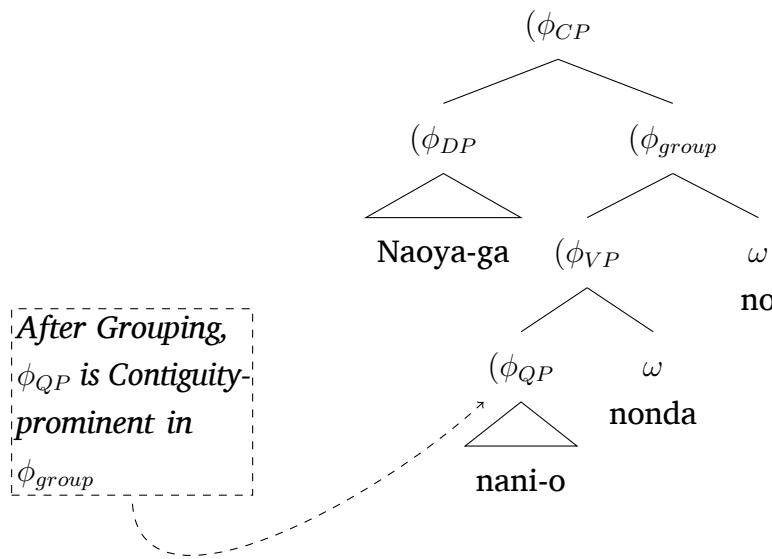
b.



However, if the prosodic structure is rearranged through Grouping, as in (22), the *wh*-phrase is able to satisfy Contiguity for its probe. Here, Grouping has moved the subject in the prosodic tree—it is no longer dominated by a node which immediately dominates the question complementizer. This means that we have chosen ϕ_{CP} as N_1 and ϕ_{DP} and N_2 . A

copy first was made of ϕ_{DP} . Next, a new node was created, which dominates ϕ_{CP} , and the copy of ϕ_{DP} . Then, the mother of the original ϕ_{DP} was replaced by the sister of ϕ_{DP} , which is ϕ_{VP} . This is the prosodic phrase ϕ_{group} in (22). The prosodic phrase ϕ_{group} , which has been created as a result of Grouping, dominates ϕ_{QP} and the interrogative question complementizer, and ϕ_{QP} is Contiguity-prominent within ϕ_{group} . After this has taken place, the node created by the third step of Grouping dominates all and only the elements that were dominated by ϕ_{CP} in (21)—I have therefore chosen to label it as ϕ_{CP} in (22).

(22)



Under this sort of approach, then, there are, in principle, two ways that Contiguity may be satisfied: either through overt displacement, or by manipulation of the prosodic tree. Whether or not a particular strategy is available to a language depends on whether the left or right edge of ϕ is prosodically active, and whether it is left or right headed. *Wh*-phrases in Japanese need not move overtly, for instance, since manipulation of the prosodic tree suffices for Contiguity satisfaction, as a result of Japanese being prosodically active on the right.

This theory, and the nuances of it, will be developed throughout the dissertation. The important pieces of this theory will be reviewed at the start of each chapter, and the relevance of these pieces of the theory to the facts under examination will be generally part of the discussion. Chapters 1 and 3 are the chapters where the theory undergoes the most development; readers that would feel more comfortable with a more explicit theory might benefit by using sections 1.2 and 3.3 as a guide.

I am now in a position to sketch, briefly, the line of attack that I will take to account

for the intervention effects in languages like French and Japanese. The basic idea is that interveners, in these languages, pose a problem for Contiguity. In this sense the problems are ultimately phonological in nature—and the nuances of the effect in a given language are determined by the relative configuration of probes and goals [i.e. headedness], and the preference for goals to be aligned with the left or right edge of a phonological phrase [i.e. the location of prosodic activity]. In the case of raising across experiencers in French, we will see that the presence of an experiencer prevents the raised subject from satisfying Contiguity with the verb of the embedded clause, given an analysis of French as a language with prosodic activity on the right, as sketched below. Subjects, under this approach, must satisfy Contiguity for the verbal complexes of all clauses that they are a subject of.

- (23) * *((Jean) semble (à Marie) avoir) du talent*

Intended: ‘Jean seems to Marie to be talented.’

A raised subject, in such languages, must be Grouped with the verbs of all the clauses it is a subject of, since it must maintain Contiguity with all of them. The presence of an experiencer in a clause medial position precludes the creation of such a phonological phrase, so raising of a subject across such an experiencer destroys the Contiguity relationship between the subject and embedded verb, in violation of Contiguity Preservation.

In the case of focus intervention in languages like Japanese, the problem is one of overlapping prosodic constituents. Here, we will see that Grouping to satisfy the Contiguity-theoretic needs of an in-situ *wh*-phrase illicitly disrupts the prosodic domain in which the focus-bearing subject satisfies Contiguity for its licensor, as sketched in (24).

- (24) *(*Ken-dake-ga (nani-o yon-da) no*)

Intended: ‘What did only Ken read?’

In other words, in the case of focus intervention, Grouping to satisfy the needs of an in-situ *wh*-phrase destroys the Contiguity relationship between the focused subject and verb.

Themes of the thesis

We now know what this thesis is about—intervention effects—and the line of attack we will use in developing an account of them—they all reflect that a Contiguity relationship has been destroyed illicitly in the course of the derivation. In this subsection, I will highlight a number of themes that recur throughout the thesis. Since the intervention phenomena to be investigated are quite diverse, and, at least on the surface, might appear unrelated, the fact that these themes are emergent from the analyses presented should

lend us hope that there is indeed a single underlying cause to these phenomena. I will then provide in some detail a roadmap to the thesis.

Restrictive typology of possible languages

An advantage to this approach to intervention effects is that it captures variation between languages in a principled way. We will see, consistently, that the presence or absence of the intervention effect in the same configuration in a given language is tied to other distributional properties determined by Contiguity. This will come to light, in particular, in our discussion of raising in French-like languages and English-like languages in chapter 1, a discussion of Romance subject inversion in chapter 2, and a comparison of Basque and Japanese in chapter 3. The theory, at its core, predicts two possible configurations of probes and goals:

- Probe appears to the left of the goal.
- Probe appears to the right of the goal.

One of these configurations will require the probe and goal to be strictly adjacent, depending on which edge is the locus of prosodic activity in a language. If a language has prosodic activity on its left, then it will require that no prosodic phrase may appear between the probe and the goal if the goal appears to the right of the probe. Conversely, if a language has prosodic activity on its right, then it will require that no prosodic phrase may appear between the probe and goal if the goal appears to the left of the probe.

The choice of prosodic activity is made at the language level—all ϕ in a language have prosodic activity on the same edge. Since the presence or absence of intervention effects in a given language is determined by the location of prosodic activity, we will see that the presence of intervention effects correlates with a number of other word order facts which are also determined by prosodic activity. For instance, in chapter 1, we will see that a number of features distinguishing English and French are determined by Contiguity—such as the relative position of verbs, adverbs, and arguments, and the presence or absence of left-edge restrictions on pied-piping elements. As a consequence, English-like languages generally lack the intervention effect in raising constructions, whereas French-like languages generally have the intervention effect in raising constructions. Likewise, we will see that certain restrictions on the application of Grouping between French-like languages seems to correlate straightforwardly with certain phonological properties in chapter 4.

Purely phonological properties of interveners

The theory of intervention effects developed in this thesis attributes these effects to prosodic malformedness. Since the theory refers to prosodic structure, and not syntactic structure, it leads us to expect that the characterization of an intervener should be determined by its status in the prosody, and not by its syntactic status. Facts of this sort can be found in all four chapters of the thesis. For instance, as we will see in Chapter 1, the intervention effect is much more general in cases of raising: in languages which display the effect, any element which maps to a phonological phrase is banned from appearing in between the subject and embedded verb. Conversely, experiencers which are syntactically present between the subject and embedded verb do not count as interveners if they do not map to a phonological phrase—either as a result of overt displacement, or if they are clitics. Similarly, we will see in Chapter 3 in languages like Japanese and Mongolian that the set of interveners has a prosodic signature, dubbed ‘span marking’, where the span of the sentence between the intervener and verbal complex is in some way marked. The presence or absence of ‘span marking’ reflects the presence or absence of an Agree relationship in the syntax, and thus determines whether or not a particular element must maintain Contiguity with the verbal complex.

In chapter 4, we will examine instances of ‘weight effects’ in languages like Zulu and Bùlì, which will be analyzed as left-headed, right-active languages. These effects will provide a particularly strong argument for a view of intervention effects as being rooted in the prosody, and will diffuse a possible argument that the discoveries of chapters 1-3 reflect an underlyingly syntactic requirement that may have apparently prosodic consequences, rather than being a strictly prosodic requirement per se. In these cases, we will see that in-situ *wh*-phrases are subject to a peculiar distributional requirement: they must be almost clause final. In double object constructions, however, the leftmost object may be followed by the rightmost object, provided the second object is phonologically light. We will see that manipulation of the prosodic status of the second object through the addition of additional lexical words determines whether or not that object will count as an intervener: if it consists of only one lexical word, it will not intervene, if it has two or more lexical words, it will.

Clause-boundedness of intervention effects

A third theme found in the analyses presented throughout this thesis has to do with the clause-boundedness of intervention effects. At the core of all of these analyses is a requirement that Contiguity requirements be maintained in the domain that they are

formed. Contiguity appears in some cases to be able to be broken throughout the course of the derivation, but not in others—leaving us to wonder exactly what the conditions are which allow Contiguity relationships to be broken derivationally. I follow Richards (2016) in assuming that the phase is the relevant domain in which Contiguity relationships must be preserved. This leads us to an expectation: intervention effects should disappear in cases where a phase boundary is introduced in particular locations in configurations where we expect the intervention effect to arise. We see this particularly clearly in chapters 1-3.

In chapter 1, we will see that languages of a particular sort ban raising across experiencers. The theory developed there attributes this ban to the disruption by the experiencer of a Contiguity relationship between the raised subject and embedded verbal complex. However, in chapter 2, we will see that a number of these languages allow ‘hyperraising’ out of fully finite clauses. This leads us to expect that hyperraising across experiencers should be fine, since one of the elements in the problematic relationship—that of the embedded verb and raised subject—is separated from the landing site of hyperraising by a phase boundary. We see that this expectation is borne out in a number of languages, such as Brazilian Portuguese, as in (25).

- (25) a. *Os alunos parecem pro professor [____ terem estudo para
 the students seem-3pl to.the teacher have-3pl-INF studied-3pl for
 a prova]
 the exam

‘The students seem to the professor to have studied for the exam.’

Moreno and Petersen (2017)

- b. Os alunos parecem pro professor [que ____ estudaram para a
 the students seem-3pl to the teacher that studied-pl for
 prova]
 the

‘The students seem to the professor that they studied for the exam.’

S. Fong, F. Kobayashi, N. Kobayashi (p.c.)

Likewise, in chapter 3, we will see that right-headed languages ban multiple Agree relationships when the goals of these Agree relationships are in particular positions, as determined by headedness. The introduction of a clause boundary between the problematic relationship causes the effect to vanish consistently. For instance, in Japanese, the focus intervention effect arises because Grouping to satisfy the needs of an in-situ *wh*-phrase disrupts the Contiguity relationship between a focus-bearing subject and verbal complex.

In cases where this relationship appears in an embedded clause, along with the *wh*-phrase, Grouping to satisfy the needs of the *wh*-phrase may take place safely, provided the trigger of Grouping is not also in the embedded clause, as in (26).

- (26) a. * *dare-mo nani-o yom-ana-katta no*
anyone-NOM what-ACC read-NEG-PST Q
‘What didn’t anyone read?’
- b. *Kimi-wa [dare-mo nani-o yom-ana-katta to] / omotteiru no*
you-TOP anyone-NOM what-ACC read-NEG-PST C think Q
‘What do you think that anyone didn’t read?’

Tomioka (2007b)

Roadmap

Chapter 1 deals with the problem of raising across experiencers. It first discusses other approaches to the problem in some detail. I then (re-)introduce the notion of Contiguity, develop a Contiguity-theoretic account of raising, and show that the choice that a language makes with respect to prosodic activity consistently determines a number of facts about where words and phrases may go in a sentence. Next, I show that the choice of prosodic activity appears to also determine whether or not a language allows raising across experiencers—a problem arises only in left-headed, right-active languages. After that, I (re-)introduce the notion of Contiguity Preservation, and show how this restriction on derivational steps correctly blocks raising in such languages. Then, the theory is contrasted with purely syntactic theories—we will examine various configurations where syntactic stories lead us to expect intervention to arise, but the theory developed does not. I next discuss a variety of extensions of the account. Finally, I discuss a set of effects discussed in Hartman (2011), and the challenge that they pose for the account presented, and sketch potential lines of attack.

Chapter 2 discusses two implications of the theory developed in Chapter 1 for cases of overt movement, with a particular focus on left-headed, right-active languages. The first implication has to do with the introduction of a phase boundary within the intervention configuration. We expect the presence of a phase boundary in between the launch site and landing site of overt movement to ameliorate the problem of raising across experiencers. I argue that hyperraising is a good candidate for this sort of structure, develop a theory of hyperraising, and show that the problem of raising across experiencers consistently disappears in hyperraising contexts. The second implication has to do with overt movement

chains more generally in left-headed, right-active languages: there should be a general ban on two or more goals appearing to the left of a single complex head which serves as a probe for both. I argue that this is what we see in Romance inversion cases—inverson is triggered in order to avoid this ban. I then show that this inversion in Romance displays the clause-bounded property we expect of this sort of ban. Finally, I show that similar patterns of inversion can be found in cases of object movement in Bantu languages, and note that Bantu languages which do not display inversion appear to utilize an alternative strategy to avoid a violation of this ban.

Chapter 3 tackles the problem of the cooccurrence of foci and *wh*-phrases in right-headed languages—an effect which I term the Hoji/Beck effect. I first introduce prior accounts of this effect, and note some outstanding problems for these accounts. I next introduce a new problem for this account: there are languages, like Basque, where the effect seems to be particularly strong: a repair for these problems that works in Japanese-like languages consistently fails to work in Basque-like languages. I argue that the banned configurations in Basque are analogous to the cases of inversion in Romance. I then further develop this prosodic theory of the Hoji/Beck effect, and show that it naturally captures the difference between Japanese-like languages and Basque like languages. I show that the set of elements which cause the Hoji/Beck effect to arise have a consistent prosodic signature, dubbed ‘span marking’, show that the Hoji/Beck effect displays the clause-boundedness property, and note that the effect is not limited strictly to focus-bearing subjects and *wh*-objects. Next, I contrast Mongolian with Japanese—I note that only a subset of focus bearing subjects cause the effect to arise in Mongolian, and show that the elements that cause the effect to arise display span marking, whereas the elements that do not cause the effect to arise do not. I then show that we expect the effect to arise as well in left-headed, right-active languages, such as French and Kikuyu. The chapter concludes with a discussion of challenges for the account developed in this chapter.

Chapter 4 discusses a problem that has not canonically been described as an intervention effect, having to do with the distribution of post-verbal *wh*-phrases in left-headed, right-active languages. I note that there are two different environments in which Grouping has been suggested to apply throughout this thesis, and make a generalization: Grouping for the needs of a non-adjacent probe and goal is possible only if the language displays span marking of the sort discussed in chapter 3. The result of this is that languages that lack span marking will require their *wh*-phrases to naturally be almost final in an intonational phrase. I show that this generalization holds in French when considered in opposition to Spanish, as well as in Chichewa when considered in opposition to Zulu, and develop a theory that derives this generalization. I then present novel evidence from Bùlì—I show

that it is a left-headed, right-active language which lacks span marking. I show that in-situ *wh*-phrases in Bùlì are subject to a particular requirement: that they be followed by no more than one lexical word, and show how the theory developed in this chapter leads us to expect this. Next I note that similar effects can be found in Zulu. The chapter concludes with a discussion of the implications of the theory for the architecture of the grammar more generally.

Chapter 1

An introduction to Contiguity Preservation: Intervention in raising

In this chapter, we will turn our attention to intervention effects in A-movement constructions. The phenomenon explained in this chapter can be characterized in the following way: there is a movement operation in a language like that in (1a) that has the properties of A-movement, but this movement operation cannot apply in the context (1b).

- (1) a. ... X ...YP ... b. ... X ...ZP ...YP ...

A concrete example of this can be seen in (2). Here we see that raising with the verb *sembler* cannot take place across an experiencer in French, even though French allows experiencers in principle to appear in this position to the right of the verb and to the left of the clausal complement.

(2) An intervention effect in French

- a. *Il semble à Marie [que Jean a du talent]*
it seem to M. that J. has of talent

‘It seems to Marie that Jean is talented.’
- b. *Jean semble [____ avoir du talent]*
J. seem have.INF of talent

‘Jean seems to be talented.’
- c. **Jean semble à Marie [____ avoir du talent]*
J. seem to M. have.INF of talent

Intended: ‘Jean seems to Marie to be talented.’

McGinnis (1998b)

First, I will outline a few recent prominent accounts of these effects, and examine in some detail how these accounts succeed or fail in capturing cross-linguistic variation, as well as within-language variation across constructions. I will then attempt to build a theory that will allow us to predict which nominals will count as interveners for A-movement in a given language, without making reference to any notion of (Relativized) Minimality. To do so, I will first provide a general account of raising constructions along the lines of that proposed in Richards (2016), corresponding to the second part of this chapter. In this chapter, I will also introduce the notion of Contiguity Preservation, a novel constraint requiring Contiguity relationships between two elements to be preserved whenever those two elements are in the same phase. This constraint will be relevant throughout the dissertation. We will see, in this chapter, that defective intervention effects are captured as a result of this constraint: A-movement, in some languages, results in prosodic structures in which the moved element no longer satisfies Contiguity for a probe that it previously satisfied Contiguity for, prior to movement. The problem with (2c), under this theory, is because the subject has moved to a position where it no longer satisfies Contiguity with the embedded verb—the presence of the experiencer precludes this from happening.

We will see that this theory makes at least two predictions of interest. The first of these predictions is that left-headed languages that have prosodic activity on their right, such as French, Italian, and Icelandic, will uniformly disallow A-movement across other nominals, as well as a number of adverbials. In these languages, I will argue that such instances of A-movement are ruled out by Contiguity Preservation: raising across a dative experiencer destroys a Contiguity relationship between non-finite T and the moved subject in these languages. The second of these predictions is that left-headed languages that have prosodic activity on their left, such as English and the mainland Scandinavian languages, will in principle allow A-movement across other nominals. I then show that the theory makes a number of additional, desirable predictions with respect to the effect. The chapter concludes with a discussion of puzzles in this domain, and sketches possible lines of attack.

1.1 Literature Review

In this section, I present a set of facts that characterize the intervention phenomenon that is the subject of this chapter, critically evaluate some analyses that try to tackle this problem, and lay out the desiderata for a theory of raising. The observation that we will start with is that certain types of A-movement are allowed across dative experiencers in some languages, but are not allowed not others. This can be seen in (3).

(3) A crosslinguistic contrast

- a. John seems (to Mary) to be nice.
- b. *Gianni sembra (*a Maria) ____ essere stanco*
G. seems (to M.) to.be ill

‘Gianni seems (to Maria) to be ill.’

Italian

A variety of theories have been advanced to account for facts like these. Generally, but not always, they take examples like (3b) to be the case of interest, with the exceptionality of English being treated as a special case. One set of theories, like those advanced in McGinnis (1998b); Chomsky (2000); Boeckx (2008), involve a mechanism of competition for feature checking. The core idea of all of these theories is that, in languages like Italian, the embedded subject as well as the dative experiencer are both competitors to undergo raising to the canonical subject position. Generally, this mechanism is considered to be quite myopic—the ungrammaticality of (3b) with an experiencer derives from the fact that the decision mechanism will choose to raise the experiencer rather than the subject to the canonical subject position, with sentences like (4) being ruled out for independent reasons. The term ‘defective intervention’ arises from this characterization: the dative experiencer, in such accounts, blocks movement of the subject for reasons of locality, but is defective in that it itself cannot undergo movement to the canonical subject position.

(4) The experiencer is a defective subject

- **A Maria sembra ____ Gianni essere stanco*
to M. seems G. to.be ill

‘Gianni seems (to Maria) to be ill.’

One problem for these accounts is that they end up being stipulative about why English behaves differently than languages like Italian. Generally, these stipulations have to do with positing some sort of difference between some property of English experiencers and Italian experiencers, generally having to do with features and feature checking. More generally, these stipulations fail to make interesting predictions about possible languages—it is unclear under these sorts of approaches what other properties should hold of an English-like language versus an Italian-like language.

The facts in (4) present a further challenge for locality theories like those advanced in McGinnis (1998b); Chomsky (2000); Boeckx (2008). Here, we see that Ā-movement of the experiencer to a position to the left of the landing site of the subject improves the status of the sentence dramatically. This is unexpected under the theories we are currently

discussing. Given the view of the derivation assumed in these theories, movement of the subject should take place before the experiencer undergoes Ā-movement. The syntax therefore has no way of knowing that the experiencer will undergo further movement at the stage of the derivation at which movement takes place—the information that the experiencer in question has undergone movement is not available at the stage of the derivation at which raising takes place.

(5) **Ā-movement ameliorates intervention**

- a. *À Marie, Jean semble _____ avoir du talent.*
to M. J. seemed to.have of talent

‘To Marie, Jean seemed to have talent.’
- b. *A Piero, Gianni sembra fare il suo dovere*
to P. G. seemed to.do his duty

‘To Piero, Gianni seems to do his duty.’

- (6) *Hvem hestarnir virðast _____ vera seinir?*
who.DAT the.horses seem be slow

‘To whom do the horses seem to be slow?’

Another problem has to do with the question of variation among constructions within languages. As pointed out by Hartman (2011), English does not allow raising across DPs in a variety of other constructions, demonstrated in (7).

(7) **Variability in acceptability of A-movement across a DP**

- a. It was claimed (to Bill) that John had stolen the art.
 - b. John was claimed (*to Bill) to have stolen the art.
- (8) a. John promised (the students) to perform well.
b. John’s performance promised (*the students) to be the best.
- (9) a. Mary proved (to me) that John was a liar.
b. Mary proved John (*to me) to be a liar.

Hartman (2011) advances a slightly different approach, and argues, following work done by Gereon Müller, for a constraint called Parallel Movement, which requires the

asymmetric command relationships at one level of the derivation to be preserved at the next level of the derivation. Raising of a subject across a dative experiencer is not generally allowed, since it will result in a violation of this condition. At the level of the derivation prior to raising, neither DP asymmetrically commands the other, but after raising, the subject asymmetrically commands the experiencer.

He proposes English *seem* constructions should be treated as a special case. It is argued that, in English *seem* constructions, the preposition of the dative experiencer may exceptionally be incorporated into the verb—this incorporation operation is the second ingredient of the account. This incorporation operation, when applied to the PP in an English raising construction, will result in satisfaction of the Parallel Movement constraint. Prior to raising, neither DP asymmetrically c-commands the other. After raising *and preposition incorporation*, neither DP asymmetrically c-commands the other, as the reincorporation operation places the argument of the preposition in a position such that it commands the lower copy of the raised element.

For Hartman (2011), it is crucial that traces of movement count for the purposes of evaluating Parallel Movement. If this is the case, we expect \bar{A} -movement not to ameliorate the intervention effect. \bar{A} -movement of the PP in these cases will leave behind an unpronounced copy, which is visible for Parallel movement. The raised DP will still asymmetrically c-command the DP in the unpronounced copy, and therefore Parallel movement will be violated. However, as we have seen before, \bar{A} -movement ameliorates the intervention effect. Likewise, as we see in (10), \bar{A} -movement ameliorates the intervention effect in the English cases that Hartman (2011) focuses on.

- (10) a. To whom was John claimed ____ to have stolen the art?
- b. Who does John's performance promise ____ to be the best?
- c. To whom has Mary made John out ____ to be a liar?

Hartman (2011) predicts, quite generally, that languages in which experiencers are not PPs should not allow raising across experiencers. For some languages, this appears to be correct. Icelandic, as is well known, disallows raising across a non-prepositional experiencer, as demonstrated in (11).

(11) No raising across an experiencer in Icelandic

<i>Ólafur</i>	<i>hefur</i>	<i>virst</i>	<i>(*mér)</i>	[____ <i>vera gáfaður</i>]
O.NOM	has	seem	me	be smart

‘Olaf has seemed to me to be intelligent.’

The proposed account leads us to expect the facts in (11). Icelandic has a raising construction in all relevant ways comparable to English, but crucially lacks a prepositional shell around the experiencer argument. Since there is no PP to introduce the experiencer, preposition incorporation cannot have taken place, and therefore the sentence in (11) will violate Parallel Movement.

However, Hartman (2011) is hard pressed to account for the facts in (12), which demonstrate that both Norwegian and Danish¹ allow raising across experiencers, even though the experiencers in question lack prepositional shells—they are thus comparable to Icelandic.² Given the account in Hartman (2011), we expect (12) to be ruled out for the same reason that (11) is. One of the core goals of the account put forth in the section will be to account for the difference between Norwegian and Danish on the one hand, and Icelandic on the other.

(12) Raising across experiencer in Danish and Norwegian

- a. *Jon forkommer (oss)/Maria [____ a ha drukket vin]*
J. appears (us/M.) to have.INF drunk wine

‘John appears (to us/M.) to have drunk wine.’ *Christensen (1986)*

- b. *Sofie ferekom (ham) [____ at være helt enig]*
S. appears (him) to be.INF completely agreed

‘Sofie appears (to him) to completely agree.’ *Vikner (1995)*

A more general problem for any sort of locality account is that non-arguments also trigger a comparable effect in raising constructions, as pointed out in Bruening (2014). Bruening’s examples from Italian are reproduced in (13), and the same facts are reported to hold in French. What we see in (13-14) is that an adverb may in principle appear between a verb and the element it selects in Romance, but this is not possible when the adverb appears between a verb and a non-finite verb, as in (13-14b).

(13) Adverbs intervene in Italian and French

- a. *Sembra in alcune occasioni che Gianni faccia il suo dovere.*
seems on some occasions that Gianni does the his duty

‘It seems on some occasions that Gianni does his duty.’

¹ Hartman notes comparable facts for Danish in an endnote, but leaves how to distinguish Danish from Icelandic an open question.

² Hartman notes that his consultants find Norwegian examples comparable to those in (12) to be unacceptable. I leave determining the reason for this discrepancy a task for further work.

- b. **Gianni sembra in alcune occasioni fare il suo dovere.*
 Gianni seems on some occasions to.do the his duty
 ‘Gianni seems on some occasions to do his duty.’

- (14) a. *Il a semblé au cours de la réunion que Jean avait du talent*
 it has seemed during the meeting that J. had of talent
 ‘It seemed during the meeting that Jean had talent.’
- b. **Jean a semblé au cours de la réunion avoir du talent*
 J. has seemed during the meeting to.have of talent
 ‘Jean seemed during the meeting to have talent.’

In this section, I have laid out a number of puzzles surrounding raising constructions with experiencers, and discussed what remains puzzling for various proposed solutions. In this chapter, I will lay out an account of raising across experiencers that will allow us to predict from independent principles whether or not a language will display the intervention effect or not. This account will also successfully account for Bruening’s adverb facts, as well as the ameliorating effect of Ā-movement of the intervener. I will argue that the apparent English intervention effects reported by Hartman are a red herring. The ungrammaticality of such constructions has nothing to do with movement chains at all. I will also show that the account developed in this chapter can extend to account for intervention effects in tough-constructions.

1.2 A Contiguity-theoretic account of raising constructions

In this section, I will sketch an account of raising constructions along the lines of that given in Richards (2016).³

Richards (2016) argues for a condition on heads in a selectional relationship: they must, for some portion of the derivation, become strictly adjacent. A condition along these lines is given in (15).⁴

³ The account sketched here is considerably simpler than the one sketched in Richards (2016). I have opted for a simpler account primarily for expository purposes. I believe that the account put forth in this chapter should be fully compatible with the more detailed derivations outlined in Richards (2016).

⁴ Richards (2016) attempts to refine the definition of Contiguity in such a way to capture the effect of (15) as an effect of Contiguity more generally. For expository purposes, I will not do this here—although

(15) **S-Contiguity**

At some point during the derivation, there must be no overt elements between a head, and the head of the phrase which it selects.

Consider first the two structures in (16), corresponding to a point in the derivation in which a V has been Merged with the non-finite TP it selects. In (16a), V and T are in a selectional relationship, and must therefore satisfy S-Contiguity. At this point in the derivation, V and T do not satisfy S-Contiguity, as there is an overt element between *seem* and *to*, namely, *John*, the subject of the . Following Nespor & Vogel (1986), I assume that phonologically null elements, such as unpronounced copies, are absent in the prosodic structure. Given this assumption, we expect movement of the subject, *John*, as in (16b) to repair the problem that arises for Contiguity in (16a). After *John* has raised, the intervening lower copy is deleted at PF, and therefore invisible to the prosodic structure—allowing V and T to satisfy S-Contiguity.

(16) **A problem solved by raising**

- a. ...seem John to ...
- b. ...John ...seem John to ...

To put it in other words, the matrix V and non-finite embedded T are in a selectional relationship in raising constructions. This relationship will create a small ‘span’ of structure which must be vacated, in one way or another, in order for V and non-finite T to satisfy Contiguity. Movement of the subject to a different position is one way of vacating this span of structure.⁵ Some advantages of this account of raising over traditional approaches to raising are that it correctly captures the fact that all elements must evacuate from this position: not just nominals.

(17) **CPs and PPs must evacuate too**

Pesetsky (2016)

- a. That the world is round seems ____ to be a tragedy.
- b. * It seems that the word is round to be a tragedy.
- c. Down the hill seems to roll a baby carriage.
- d. * It seems down the hill to roll a baby carriage.

this refined version of Contiguity should be fully compatible with what is proposed in this chapter.

⁵ Richards (2016) proposes that deletion or non-pronunciation might be another—this is part of the proposed derivation of control clauses in Richards (2016).

Likewise, it accounts for the fact that nominals cannot remain in [spec,TP] of non-finite clauses in *there*-expletive constructions, as in (18).⁶ (18b) is bad because the subject has failed to evacuate the poison position.

(18) **Case-having subjects cannot remain in non-finite [spec,TP]**

- a. There seems ____ to be a problem with this analysis.
- b. * There seems a problem to be with this analysis.

Having established the basics of an account of raising, we can turn now to the first interesting prediction made by the theory developed made by this theory: that raising across experiencers should be possible in languages that have prosodic activity on their left, but not in languages that have prosodic activity on their right. First, we will examine a set of diagnostics for prosodic activity, and divide a set of languages into two groups based on these diagnostics. We will then see that the prediction is borne out: the group of languages with prosodic activity on their left allow raising across experiencers, but the group of languages with prosodic activity on their right do not.

1.2.1 Diagnostics for prosodic activity

In this subsection, I will introduce the set of facts that the theory developed in this chapter is meant to capture. This chapter concerns itself primarily with the difference between two groups of languages spoken in Europe. We will see that the dividing factor of these two groups is the location of prosodic activity in the relevant languages. There are two phonological diagnostics for the location of prosodic activity. The first has to do with the association of phonological phenomenon, such as boundary tones, with one edge or the other of a phonological phrase: for phonetic evidence along these lines that French, Spanish, and Italian have prosodic activity on the right edge of ϕ see Selkirk (1986), Jun (2005); Zubizarreta (1998) for Spanish. Richards (2017c) proposes a simple, novel, prosodic diagnostic—Norvin’s Test—that makes predictions in line with the set of syntactic diagnostics about prosodic activity for a number of the languages examined in this section, having to do with the relevant prominence of lexical words in binary branching nominals;

⁶ As pointed out to me by Norvin Richards, this theory also blocks examples like (i.), involving multiple instances of expletive insertion. (i.) is ungrammatical because the rightmost *there* occupies the zone of structure between V and non-finite T.

(i.) *There seems there to be a problem with this analysis.

in left-active languages, the leftmost element generally receives a pitch boost, whereas in right-active languages, the rightmost element generally receives a pitch boost. However, since detailed prosodic work has not been done on all of the languages in this section, I will use primarily a set of syntactic diagnostics developed in Richards (2016, 2017a). It has been argued [Richards (2016, 2017a)] that a number of other syntactic properties correlate with left-headed languages with prosodic activity on the left [hereafter left-active or English-like languages], and left-headed languages with prosodic activity on the right [hereafter right-active or Icelandic-like languages]. I will now recapitulate these differences, and mention how Contiguity is meant to capture these differences.

The first property has to do with the distribution of verbs, direct objects, and adverbials with respect to each other. In left-active languages, such as English and the mainland Scandanavian languages, adverbs may not intervene between the verb and direct object, as seen in (19). This is because the adverb prevents Contiguity from between the verb and direct object, which I assume, following Richards (2016), among others, are in an Agree relationship. The presence of the adverb causes the direct object, a goal, not to be Contiguity-prominent within the same ϕ as the verb, its probe. The adverb introduces a ϕ boundary between the left edge of the ϕ containing both the verb and the direct object, which causes the object not to be Contiguity-prominent in that ϕ , given the definition of Contiguity in (9). As a result, Contiguity is not satisfied, so these sentences are ungrammatical.⁷

(19) *...V ADV O

- a. * Harry buys often shoes.
- b. * at Jan kysser ofta Maria...

that J. kiss often M.

'That Jan often kisses Maria' Swedish, Koeneman (2000)

- c. * At Johan spiser ofte tomater...

that J. eats often tomatoes

'That John eats tomatoes often...'

Danish, Vikner (1995)

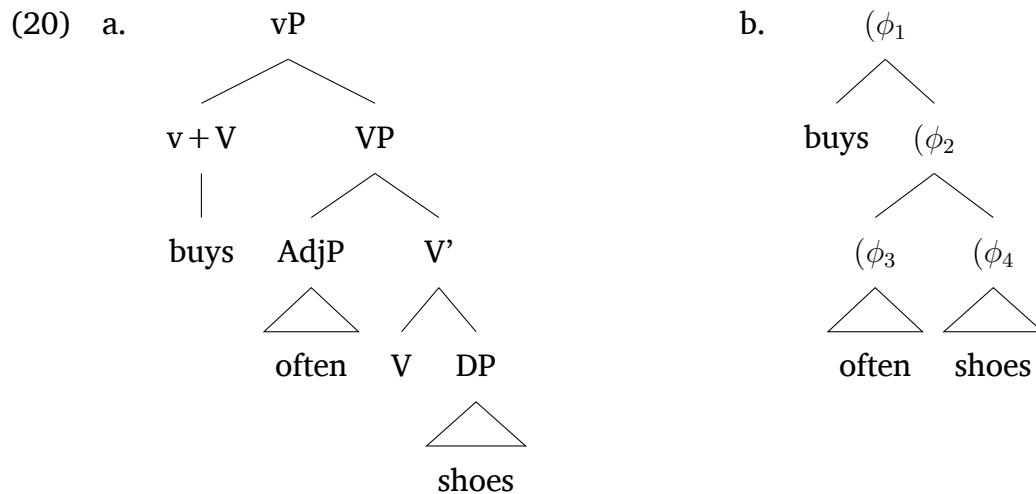
⁷ It is important to note that in the Mainland Scandanavian languages, these restrictions are present only in non-V2 clauses. See the discussion at the end of this section for more on why the V2 property might allow freer word order. Furthermore, note the contrast between Mainland Scandanavian on the one hand and Icelandic, to be described, which allows the adverb to intervene even in non-V2 clauses.

- d. **Jeg vet [hvorfor Hedda kjøper ofte sko]*
 I know why H. buys often shoes

‘I know why Hedda often buys shoes’

Norwegian, Richards (2017a)

Consider now a partial syntactic and prosodic structure for a sentence like (19a), provided in (20). In this sentence, *v* Agrees with the object *shoes*, so the object should be Contiguity-prominent in a ϕ containing both it and *buys*; in the structure provided, the only ϕ that contains both *shoes* and *buys* is ϕ_1 . *Shoes* is not Contiguity-prominent in ϕ_1 , since there is an active prosodic boundary, introduced by ϕ_3 , between *shoes* and the prosodically active left edge of ϕ_1 . The sentence is therefore ungrammatical.



In right-active languages, such as Icelandic, Spanish, Italian, French, and Brazilian Portuguese, adverbs may intervene between the verb and direct object, as seen in (21). The presence of the adverb here in this position does not result in a Contiguity violation. In right-active languages, unlike left-active languages, the right edges of ϕ are prosodically active, so placing an adverb, or indeed any sort of ϕ , to the left of the goal will have no effect on the Contiguity-prominence of that goal.

- (21) ✓...V ADV O

- a. *Ég veit [af hverju Hedda kaupir oft skó]*
 I know why H. buys often shoes

‘I know why Hedda often buys shoes.’

Icelandic

- b. *Jean voit souvent Marie*
 J. sees often M.

‘John sees Mary often.’

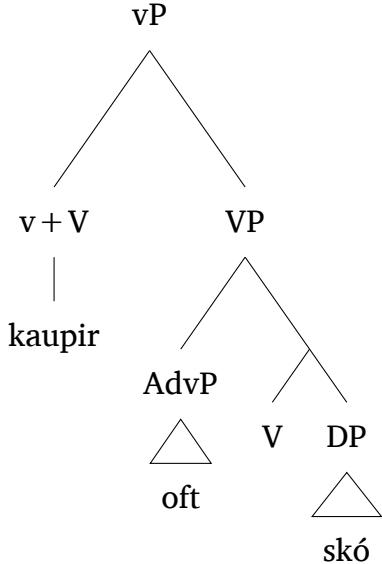
French

- c. *Juan habla a menduo italiano*
 J. speaks often Italian
 ‘John speaks Italian often.’ Spanish
- d. *Giovanni parla spesso italiano*
 G. speaks often Italian
 ‘John speaks Italian often.’ Italian
- e. *A Bia faz sempre o dever de casa*
 B. does always the work of house
 ‘Bia always does the homework’ *Silva (2001), Brazilian Portuguese*

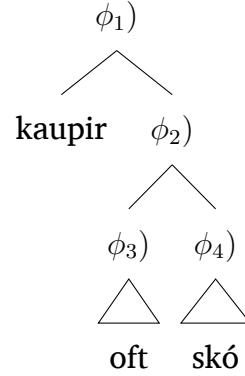
Left-active languages have prosodic activity on their left, so their direct objects are in a position of Contiguity-prominence with respect to the verb that Agrees with them only if no ϕ intervenes between the verb and the object. In contrast, right-active languages have prosodic activity on their right, so their direct objects are in a position of Contiguity-prominence with respect to the verb that Agrees with them regardless of how many ϕ appear between the verb and object.⁸ Consider now a partial syntactic and prosodic structure for a sentence like (21a), provided in (22). In this sentence, v Agrees with the object *skò*, so the object must be Contiguity-prominent in a ϕ containing both it and *kaupir*; in the structure provided, the only ϕ that contains both *skò* and *kaupir* is ϕ_1 . *Skò* is Contiguity-prominent in ϕ_1 , since there is no active prosodic boundary, like that introduced by ϕ_3 , between *skò* and the prosodically active right edge of ϕ_1 . The sentence is therefore grammatical.

⁸ We would not necessarily expect the presence of an adverb to the right of the verb to cause a problem for Contiguity. In such cases, Grouping of the verb and object could potentially apply, creating a ϕ in which Contiguity is satisfied between the verb and its object.

- (22) a.



- b.



The second property determined by the location of prosodic activity has to do with how far a *wh*-word may be from the left edge of a constituent it pied-pipes. As we see in (23), left-active languages require such *wh*-words to be relatively close to the left edge of that constituent. It is not possible for post-nominal possessors or complements of the nominal to pied-pipe a *wh*-phrase, but it is possible for prenominal possessors to do so.

(23) Left-edge restriction on pied-pipers in left-active languages

- a. Whose pictures did you see?
- b. * Pictures of whom did you see?

- (24) a. [*Hvis datter*] *traff dere på fjellet*?
whose daughter did.you meet in the.mountains

'Whose daughter did you meet in the mountains'

Taraldsen (1978)

- b. * [*Fotografier av hvem*] *kjøpte hun*?
photographs of who bought she

'Who did she buy photographs of?'

Norwegian, Richards (2017a)

- (25) a. [*Hvilket lands salgsteam*] *har solgt bedst*?
which country's salesteam has sold best

'Which country's salesteam has sold best?'

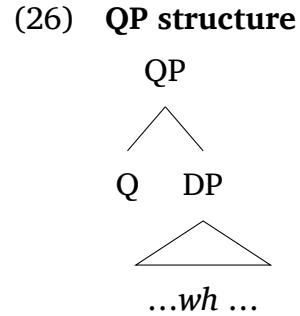
- b. *[*Præsidenten fra hvilket land*] *har Dronning Margrethe inviteret til klimaforandringskonference?*
 president.the of which country has queen M. invited to climate.change.conference

'The president of which country has Queen Margrethe invited to a climate change conference?' *Danish, Engels (2010)*

Richards (2017a) proposes that the left-edge restriction on pied-piping demonstrated in (23-25) is the result of Contiguity. He follows Cable (2010) in assuming that pied-piping involves the presence of a QP projection which dominates the pied-piped structure, as schematized in (26). Crucially, Cable (2010) and Richards (2017a) assume that Q enters into an Agree

relationship with the *wh*-word. As a result, Contiguity between Q and the *wh*-word must be respected within the QP. In the examples with the prenominal possessors, the *wh*-word is Contiguity-prominent within QP, since it is relatively close to the left edge of a ϕ that dominates both it and Q, which Agrees with the *wh*-phrase. However, in the examples with postnominal possessors, the *wh*-word is not Contiguity-prominent within QP. Richards (2017a) proposes that the structure of DP is such that a ϕ boundary should always appear between a nominal head and arguments to its right. Since the *wh*-word is not Contiguity-prominent with respect to Q in such a configuration, structures for pied-piped constituents like those in (25-27) are ruled out.

In left-active languages, probes and goals must be relatively close to each other, resulting in the left-edge restriction on pied-pipers. This leads us to expect there not to be a such a restriction on pied-pipers in right-active languages, since such languages do not require probes and goals to be close to each other. As we see in (27), this prediction is borne out.



(27) No left-edge restriction on pied-pipers in right-active languages

- a. [*hvers móður*] *hittir þú?*
 whose mother met you

'Whose mother did you meet?'

Webelhuth (1992)

- b. [*Málverk eftir hvern*] sást þú
 painting by who saw you
 ‘A painting by whom did you see?’ *Icelandic, Richards (2017a)*

- (28) a. [*Combien de voitures*] n’as-tu pas vues?
 how.many of cars NEG-have-you NEG seen
 ‘How many cars haven’t you seen?’ *Valois (1997)*

- b. [*Des photos de qui*] penses-tu que je devrais acheter?
 of.the photos of who think-you that I should buy
 ‘Pictures of whom do you think I should buy?’ *French, Richards (2017a)*

- (29) a. *Cuántos coches ha visto Juan?*
 how.many cars has seen J.
 ‘How many cars has John seen?’
 b. [*El retrato de quién*] ha dicho Juan que viste en el museo?
 the picture of who has said J. that you saw in the
 ‘The picture of who did John say that you saw in the museum?’
Spanish, Richards (2017a)

- (30) a. *Piero non è riuscito a capire* [[*quanti libri di Gianni*]
 P. not is managed to understand how.many books by G.
siano stati pubblicati quest'anno]
 have been published this.year
 ‘Piero didn’t manage to understand how many books by Gianni have been published this year.’
Rizzi (2015)

- b. *Non sapevamo [con la macchina di chi] fossero riusciti a scappare*
 not knew.1PL with the car of whom been succeeded to escape
 ‘We didn’t know with whose car they had managed to escape.’

Cinque (1982)

- (31) a. *Eu não sei quanto tempo eu moro lá*
 I not know how long I live there
 ‘I don’t know how long I have been living there’ *Duarte (1995)*
- b. *Fotos de quem o João viu?*
 pictures of who the João saw
 Who did João see pictures of *Brazilian Portuguese*

In these examples, Q and the *wh*-phrase are in an Agree relationship. However, the *wh*-phrase will always be in a position of Contiguity-prominence within a ϕ that contains it and Q, since prosodic activity in right-active languages is located on the right edge of ϕ .⁹

The third property is whether or not a language allows *wh-in-situ*.¹⁰ Languages with prosodic activity on their left disallow *wh-in-situ*, since a ϕ cannot be constructed that dominates both the *wh*-phrase and C, and in which the *wh*-phrase is Contiguity-prominent. Languages with prosodic activity on their right allow *wh-in-situ*, at least in principle, since a ϕ that dominates both the *wh*-phrase and C, and in which the *wh*-phrase is Contiguity-prominent can be easily constructed. All of the left-active languages disallow *wh-in-situ*.

- (32) **Left-active languages disallow *wh-in-situ***
- a. * John ate what?
- b. * *Jag kysste inte vem?*
 I kissed not who
 ‘Who have I not kissed?’ *Swedish*
- c. * *Peter ville koge hvilke grønsager?*
 P. will cook which vegetables
 ‘Which vegetables will Peter cook?’ *Danish*

⁹ One might expect that the presence of sufficient prosodic material to the *right* of a *wh*-phrase in a right-active language might be disallowed—that such languages would display a right-edge restriction comparable to the left-edge restriction in left-active languages. We will see in chapter 4 that this is the case for at least Spanish and Bùli, two languages that are also right-active with respect to prosodic activity.

¹⁰ Contiguity, by itself, leads us to expect left-headed, right-active languages to generally allow long distance Agree without concomitant movement of the goal. As we will see shortly, however, other factors may conspire to force elements to undergo movement independent of Contiguity.

- d. **Du snakker om hvem?*
 you talking about whom
 ‘Who are you talking about?’ *Norwegian*

Among the right-active languages there is a split. Some allow *wh*-in-situ.

(33) **Some right-active languages allow *wh*-in-situ...**

- a. *Tu as vu qui?*
 you have seen who
 ‘Who have you seen?’ *French*
- b. *¿Tú le diste la guitarra a quién?*
 you CL gave the guitar to whom
 ‘Who did you give the guitar to?’ *Spanish*
- c. *Bill acha que a Sue comprou o quê?*
 B. thinks that S. bought the what
 ‘What does Bill think that Sue bought?’ *Pires and Taylor (2007), Brazilian Portuguese*

On the other hand, Icelandic and Italian do not, but require *wh*-phrases to front.

(34) **...while others do not.**

- a. **Pétur hefur talað við hvern?*
 P. has spoken with who.ACC
 ‘Who has Pétur spoken with?’ *Icelandic*
- b. **Gianni ha comprato che cosa?*
 G. has bought what thing
 ‘What did Gianni buy?’ *Italian*

Why should this be the case? Richards (2016) argues that V2 languages have a constellation of properties which will require such languages to front their *wh*-phrases.¹¹ Icelandic, as a V2 language, will therefore disallow *wh*-in-situ. Furthermore, Richards (2016) argues that Italian, while not demonstrating V2, is a language which has at least some of the properties

¹¹Recapitulating Richards (2016) of V2 in more detail would take us too far afield. I will point curious readers to §7 of that book for a more detailed discussion of this generalization, and why it should hold.

associated with V2 languages—presumably, this is the reason why Italian patterns with Icelandic in disallowing V2. In other words, Icelandic and Italian should in principle allow *wh*-in-situ, but other forces in the language outside of Contiguity will require *wh*-phrases to front.

A fourth property that appears to correlate with prosodic activity is the relative ordering of head and non-head in compound words. In English, Swedish, Norwegian, and Danish the head of nominal compounds consistently appears on the right, as we see in (35).

- (35) a. dog-house
 b. hunde-hus
 c. hund-koja

In Italian, French, Brazilian Portuguese, and Spanish on the other hand, the head of nominal compounds consistently appears on the left.

(36) **Compound for ‘swordfish’**

- a. poisson-épée
b. pesce-spada
c. peisce-espada
d. pez-espada

In later chapters, we will see that this is generally the case, for other languages we examine: left-active languages like Japanese, Korean, and Mongolian all follow the English-like scheme of nominal compounding, whereas right-active languages like Bùlì, Kikuyu, and Zulu all follow the Italian scheme.

However, we have an apparent counterexample here. Icelandic passes many of the diagnostics for being a language that has prosodic activity on the right. Unexpectedly, as we see in (37), Icelandic nevertheless places the heads of its nominal compounds on the right.

- (37) a. hunde-hus
 b. * hus-hunde

Why should this be the case? We have seen that, when there are selectional relationships between heads, the selected head is required to occupy a place of prosodic prominence relative to its selector. It is worth noting here that, unlike the other languages that we

have mentioned in this section, word-level stress in Icelandic is uniformly placed on the initial syllable of that word; stress in English [Chomsky & Halle (1968)], Swedish [Bruce (1999)], Norwegian [Kristoffersen (2000)], Italian and French [Roca (1999)] is not fixed in this way. It seems reasonable that fixed word stress would be a ‘more relevant’ cue for prosodic activity at the level of the compound. If this is indeed correct, then the diagnostic we have seen will work only for languages that do not have fixed initial stress at the word level.

We now have four syntactic diagnostics for the location of prosodic activity in a language, in addition to the two phonological diagnostics mentioned at the outset of the chapter. I recapitulate these diagnostics here, in the form of a list.¹²

(38) **Properties of left-headed, left-active languages**

- a. Boundary tones associated with the left edge of ϕ
- b. Pitch boost on leftmost element in a NP with two lexical words
- c. Require verb and direct object to be adjacent
- d. Left-edge restriction on pied-pipers
- e. No *wh-in-situ*
- f. Right-headed compounds

(39) **Properties of left-headed, right-active languages**

- a. Boundary tones associated with the right edge of ϕ
- b. Pitch boost on rightmost element in a NP with two lexical words
- c. Do not require verb and direct object to be adjacent
- d. No left-edge restriction on pied-pipers
- e. *Wh-in-situ*
- f. Left-headed compounds

To reiterate the point of this section differently: what I have demonstrated in that a number of apparently unrelated—other than plausibly involving an Agree relationship—properties of two sets of languages can be given a straightforward explanation by appealing to Contiguity. Furthermore, this theory has predictive power: if a language has its heads on the left and prosodic activity on the left, we expect it to not allow adverbs to appear

¹² For those reading this document in text form, each element in the list is a hyperlink to the discussion in this chapter of that particular property.

between the verb and direct object, we expect it to exhibit a left-edge requirement in pied-piping constructions, and we expect it to require its *wh*-phrases to move leftward. As a counterpoint, if a language has its heads on the left and prosodic activity on the right, we expect it to allow adverbs to appear between the verb and direct object, we expect it not to exhibit a left-edge requirement in pied-piping constructions, and we expect it to allow, but not require, its *wh*-phrases to move leftward. This is a result of Contiguity: if a language has prosodic activity on its left, then it will require that no prosodic phrase may appear between the probe and the goal if the goal appears to the right of the probe. Conversely, if a language has prosodic activity on its right, then it will require that no prosodic phrase may appear between the probe and goal if the goal appears to the left of the probe.

1.2.2 Prosodic activity determines the presence of dative experiencer intervention

In the previous section, we saw that left-active languages require probes and goals to be quite close to each other as a result of Contiguity, and a number of properties common to these languages derives from this. We also saw that right-active languages allow probes and goals to be quite distant from each other as a result of Contiguity, and a number of properties common to those languages also derives from this. In this section I will show that left-active languages consistently allow raising across a dative experiencer but right-active languages do not, and show that a preference to preserve Contiguity relationships created in the same phase straightforwardly accounts for this. I will then show that this account predicts several other restrictions on raising constructions in right-active languages.

As we see in (40), both left-active and right-active languages have raising constructions. I use English and Icelandic as representatives, but these constructions are common to all languages in both groups.

(40) Raising

- a. John seems [____ to be intelligent].
- b. *Ólafur hefur virst* [____ *vera gáfaður*].
O.NOM has seemed be.inf intelligent
‘Olaf seems intelligent.’

However, there is a difference between left-active languages and right-active languages. As we see in (41), it is grammatical for the path of A-movement to cross a dative experiencer

in left-active languages.

(41) **Left-active languages allow raising across an experiencer**

- a. John seems to Mary [____ to be upset].
- b. *Olof har förfallit dem* [____ vara intelligent]
O. has seemed them be.inf intelligent

‘O. has seemed to them to be intelligent.’

Swedish, Holmberg (2001)

- c. *Jon forkommer oss/Maria* [____ a ha drukket vin]
J. seems us/M. to have drunk wine

‘John seems to us/Maria to have drunk wine’

Norwegian, Christensen (1986)

- d. *Sofie forekom ham at være helt enig*
S. appears him to be completely agreed

‘Sofie appears to be in complete agreement’

Danish, Ura (2004)

Strikingly, the opposite judgements arise in right-active languages. Raising across a dative experiencer is not possible.

(42) **Right-active languages don’t**

- a. * *Hestarnir virðast mér* [____ vera seinir]
the.horses-NOM seem me.DAT be.inf slow

‘The horses seem to me to be slow.’

Icelandic, Holmberg and Hróarsdóttir (2004)

- b. * *Gianni sembra a Piero* [____ fare il suo dovere]
G. seems to P. to.do the his duty

‘Gianni seems to Piero to do his duty.’

Italian, Boeckx (2008)

- c. * *Jean semble à Marie* [____ avoir du talent]
J. seems to mary to.have of talent

‘Jean seems to Marie to have talent’

French, Boeckx (2000)

- d. *Os alunos parecem pro professor [____ terem estudo para
 the students seem-3pl to.the teacher have-3pl-INF studied-3pl for
 a prova]
 the exam

'The students seem to the professor to have studied for the exam.' Moreno and Petersen (2017), Brazilian Portuguese

This difference has been attributed to a 'defective intervention' effect [Chomsky (2000)], as well as formulations like those put forth in Boeckx (2008), Bruening (2014). Chomsky (2000) proposes that goals which have already interacted with a probe may nonetheless intervene for further Agree relationships, schematized in (43).

- (43) *The Defective Intervention Constraint* Chomsky (2000)
 $\alpha > \beta > \gamma$
 (*AGREE (α, γ), α is a probe and β is a matching goal, and β is inactive due to a prior Agree with some other probe.)

Given the constraint in (43), it is possible to account for the difference between Icelandic on the one hand and English on the other. In Icelandic, the configuration in (43) arises for raising constructions with an experiencer, and since the experiencer is inactive, it is not possible for matrix T⁰ to Agree with the embedded subject given the condition in (43). As a result, the embedded subject cannot raise to [spec,TP] of the matrix clause. In English, either the configuration in (43) does not arise for raising constructions with an experiencer, or there is something special about the experiencer argument in English. As a result, matrix T⁰ may Agree with the embedded subject and that subject may raise across the experiencer. The logic of Boeckx's (2008) and Hartman's (2011) accounts work in much the same way.

While this sort of account is appealing as it is able to explain the difference between Icelandic and English, it lacks predictive power, as noted in the previous section. That is to say: for these accounts, there is no way of knowing by independently observable properties of a language whether or not an experiencer will count as a defective intervener. I will now give an account that can predict this property. I propose the following constraint.

(44) Contiguity Preservation

A goal G must satisfy Contiguity for a probe P with which it agrees in every spellout domain that contains¹³ P and G .

What the constraint in (44) is meant to do is to capture the fact that Contiguity relationships established within the same phase must be preserved, making explicit an idea floated in Richards (2016) that some Contiguity relationships must be preserved whereas others may be broken. More generally, we could see the constraint in (44) as a ban on movement of elements from positions of prominence, particularly if the element in question is required to be prominent relative to a given probe.¹⁴

As we have seen, left-active and right-active languages differ in that the former have prosodically active left edges and the latter have prosodically active right edges. Given the constraint in (44), we will expect left-active languages and right-active languages to behave differently in certain types of raising constructions. To begin, we will examine instances of raising that do not involve an experiencer, and show that the constraint in (44) does not rule such operations out.

Consider first a partial prosodic structure for a raising sentence in English, given in (45). In English, the subject *John* is in two Agree relationships: it is the goal of both the embedded T^0 and matrix T^0 . As a result, it must satisfy Contiguity with both, even after it has moved.¹⁵ After it has moved, it satisfies Contiguity: there is a ϕ , namely ϕ_1 , that dominates the subject and both T^0 , and no prosodically active boundary appears between the subject and the left edge of ϕ_1 .

(45) (John seems (*John* to ...) $_{\phi_2}$) $_{\phi_1}$

Now, consider a partial prosodic structure for a raising sentence in Icelandic, given in (46). In Icelandic, the subject *Ólafur* is in two Agree relationships: it is the goal of both the embedded T^0 and matrix T^0 . As a result, it must satisfy Contiguity with both, even after it has moved. After it has moved, and—if there is some other phonological phrase to the right of both the verbs—Grouping has applied, as in (46b), it satisfies Contiguity: there is a ϕ , namely ϕ_3 , created by Grouping, that dominates the subject and both T^0 , and no prosodically active boundary appears between the subject and the right edge of ϕ_3 .¹⁶

¹³Where ‘contains’ means: the ϕ corresponding to a spell-out domain dominates P and G , but doesn’t dominate a ϕ corresponding to any other spell-out domain that also dominates P and G .

¹⁴For instance, the constraint in (44) will not apply to successive cyclic applications of \bar{A} -movement so long as those movements cross phase boundaries. The constraint in (44) also says nothing about movement of probes, which Richards (2016) argues is one way that a Contiguity relationship might be broken.

¹⁵Presumably, the subject must undergo movement in such cases to satisfy Contiguity with the matrix T^0 . See Richards (2016) for another proposal about what motivates such movement.

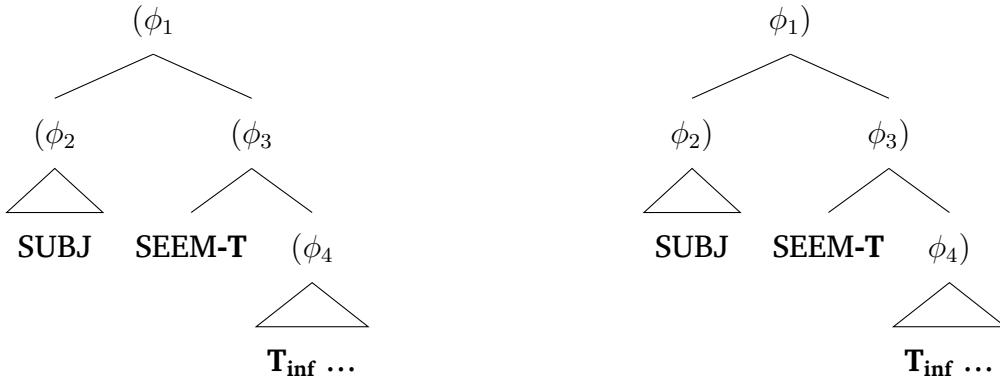
¹⁶It is a general ‘quirk’ of the system developed here that subjects in left-headed, right active languages will often need to be Grouped with the verb which Agrees with them, to guarantee that Contiguity between the two is satisfied.

- (46) a. $(\text{Ólafur} \text{ virst } (\text{Ólafur} \text{ vera } \dots)_{\phi 2})_{\phi 1}$
b. $((\text{Ólafur} \text{ virst } \text{Ólafur} \text{ vera})_{\phi 3} \dots)_{\phi 2})_{\phi 1}$

In other words, we see that the account predicts raising to be allowed in both left-active and right-active languages. This is, as we have seen, correct.

For some readers, it may be useful to consult an abstract tree diagram, rather than the bracketed structures given in (45-46). Such a tree is given in (47). In (47), we see that no active prosodic boundary will intervene between the landing site of the subject and either the left or right edge of ϕ_1 .

(47)



We will now examine an instance of raising across a dative experiencer in a left-active language like English. A partial prosodic structure for such a sentence in English is given in (48). Again, the subject *John* is in two Agree relationships: it is the goal of both the embedded T^0 and matrix T^0 . As a result, it must satisfy Contiguity with both, even after it has moved. Indeed, the subject does satisfy Contiguity: there is a ϕ that dominates the subject and both T^0 , and no prosodically active boundary appears between the subject and the left edge of that ϕ .

- (48) $(\text{John} \text{ seems } (\text{to Mary})_{\phi} (\text{John} \text{ to } \dots)_{\phi})_{\phi}$

We can now turn to the case of raising across a dative experiencer in a right-active language like Icelandic, with a partial prosodic structure given in (49). Again, the subject *Ólafur* is in two Agree relationships: it is the goal of both the embedded T^0 and matrix T^0 , and so must satisfy Contiguity with both. Here, the subject fails to satisfy Contiguity with both: while there is a ϕ , namely ϕ_1 , that dominates the subject and both T^0 , there is a prosodically active boundary—that of the dative experiencer, or ϕ_3 —between the subject

and the right edge of ϕ_1 . As a result, raising across a dative experiencer is not possible, since it will violate the Contiguity Preservation requirement in (25).

- (49) *(Ólafur virst (mír) $_{\phi 3}$ (Ólafur vera ...) $_{\phi 2}$) $_{\phi 1}$

The presence of the dative experiencer introduces a prosodically active boundary between the subject and prosodically active right edge of the ϕ that immediately dominates it. As a result, it does not satisfy Contiguity with either the embedded T^0 or matrix T^0 . However, prior to movement to [spec,TP] of the matrix cclause, it was in a position in which it satisfied Contiguity with the embedded T^0 . Movement to matrix [spec,TP] is thus ruled out in (49), given (25).

More precisely, the problem with the structure in (49) has to do with Grouping, an operation on prosodic structures that can be used to create a structure that satisfies Contiguity, but which cannot alter linear order. An informal definition of Grouping is given in (50).

(50) **Grouping (informal)**

Create a ϕ in which a goal satisfies Contiguity for its probes.

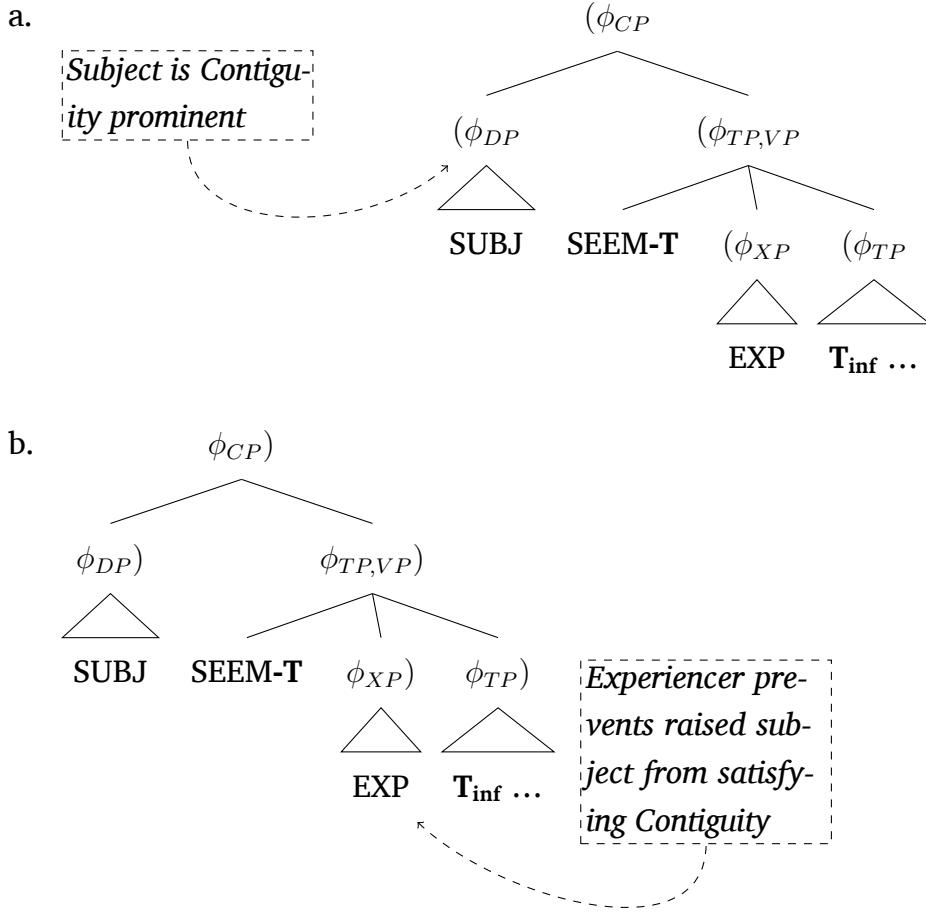
I will defer a deeper discussion of Grouping until chapters 3 and 4, which detail the operation, and restrictions on it, in more detail. In examples like (49), it will be necessary to Group the subject, matrix T, and embedded T into one ϕ , so that the subject will satisfy Contiguity for both. However, in (49), it will be impossible for Grouping to do this—the ϕ created by Grouping must always contain the experiencer, which will therefore always prevent the subject from satisfying Contiguity for its probes in the ϕ created by Grouping. In such cases, any ϕ created by Grouping that dominates both the raised subject and embedded T will necessarily also contain the experiencer, since the experiencer follows the subject, but precedes embedded T. As a result, the experiencer will always intervene between the subject, and right edge of the ϕ created by Grouping, preventing the subject from satisfying Contiguity in this ϕ .¹⁷ Such derivations are thus ruled out, given (25).

In the case of languages with activity on the left, i.e. left-active languages, there will be no active prosodic boundary between the subject and left edge of ϕ_1 , the only ϕ that dominates the subject and both T, shown in (51a). However, in the case of languages

¹⁷ As pointed out by Danny Fox, we might wonder what prevents Grouping from destroying the ϕ that the experiencer maps to, allowing the subject to satisfy Contiguity after Grouping. When I introduced Grouping at the outset of this thesis, I suggested that Grouping was restricted in terms of the elements it may affect. More specifically, I suggested that Grouping cannot destroy ϕ that do not dominate both the probe and goal that “trigger” Grouping. Since the ϕ that the experiencer corresponds to does not dominate either the subject or embedded T, it cannot be destroyed in this way by Grouping.

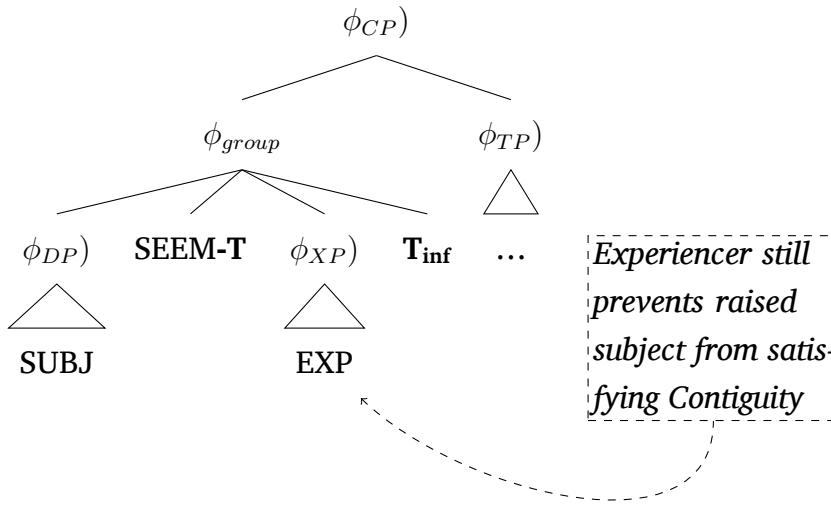
with activity on the right, i.e. right-active languages, this is not the case. There will be an active prosodic boundary between the subject and right edge of ϕ_1 : namely, the boundary introduced by ϕ_4 , which corresponds to the dative experiencer, shown in (51b). Raising across an experiencer is blocked in these languages, as such derivations cannot be Contiguity Preserving.

(51) Raising can illicitly break Contiguity



Furthermore, Grouping cannot rescue the structure in (51b): the experiencer will still prevent the subject from being Contiguity-prominent after Grouping takes place, as schematized in (52).¹⁸

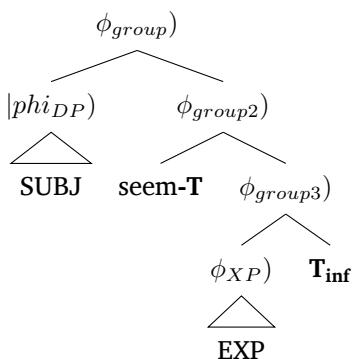
(52)



I have just demonstrated that the constraint in (25) correctly rules out raising across a dative experiencer in right-active languages. The reason it is bad to raise across a dative experiencer in such languages is because the experiencer introduces a prosodically active ϕ boundary between the raised subject and embedded T^0 , resulting in a violation of Contiguity Preservation—Contiguity relationships must be maintained in the same phase that they were created. What we have seen so far is that Contiguity predicts there to be two sorts of language: those with prosodic activity on the left, and those with prosodic activity on the right. This choice determines a number of distributional properties, such as the availability of *wh-in-situ*, the relative distribution of arguments, verbs and adverbs,

¹⁸ Given the stricter definition of Grouping laid out in the introductory section of this thesis, the prosodic phrase ϕ_{group} in (52) cannot actually be generated—the Grouping Procedure, strictly speaking, disallows the creation of non-binary branching nodes. Multiple applications of the Grouping Procedure could place all the verbs in the same phonological phrase as the subject by creating a cluster of binary branching nodes, as in (i.). (i.) runs afoul of the same problem as (52): there is at least one $|\phi|$ —that of the experiencer, which lies between the subject and the right edge of ϕ_{group} .

(i.)



and the presence or absence of a left-edge restriction in pied-piped constituents, among other things. What we have seen in this section is that the availability of raising across experiencers appears to also be tied to the location of prosodic activity in a given language. Under the theory we have developed, this should not be seen as an accident. The reason that raising across an experiencer is bad in languages with prosodic activity on the right comes down to a much more general fact about these languages: they do not allow phonological phrases to occur between a probe and its goal when the probe is to the right of its goal.

The theory we have developed in this section for the problem with raising across experiencers makes reference to the prosodic status of the experiencer, rather than its syntactic status. The experiencer prevents the raised subject from satisfying Contiguity with the embedded verb, since the experiencer maps to a ϕ and appears in the position that it does. We thus expect the intervention property not only to hold of dative experiencers in right-active languages, but more generally of any phrasal material that appears between matrix T^0 and embedded T^0 —that is, any element which maps to ϕ in the prosody should count as an intervener. Also, the opposite should be true in left-active languages—adverbs should be fine in such a position for the same reason that raising across an experiencer is fine in left-active languages. In other words: adverbs should be able to appear between matrix T^0 and embedded T^0 in left-active languages, but not right-active. As we see in (53), this prediction is correct.

(53) **Left-active allows raising across adverbs, right-active doesn't**

- a. John seemed during the meeting to have talent.
- b. * Jean a semblé au cours de la réunion avoir du talent.

*Bruening (2014)*¹⁹

(53a) is acceptable for the same reasons that raising across a dative is in English. Similarly, (53b) is unacceptable for the same reasons that raising across a dative is in right-active languages: the adverb, like the dative experiencer, introduces a prosodically active ϕ boundary between the subject and right edge of the ϕ that immediately dominates it; movement to such a position breaks the Contiguity relationship between the subject and embedded T^0 and is therefore illicit.

A second prediction that this account makes is that prosodically reduced interveners in right-active languages should not act as interveners. Since I have argued that the effect we are examining is prosodic, we should expect manipulation of the prosodic status of a

¹⁹Bruening (2014) reports that these judgements hold also for Italian.

potential intervener to determine whether or not it will actually cause the effect to arise. Italian and French have the option of realizing their dative experiencers as clitics, rather than as full lexical phrases. As we see in (54), in just these cases, it is possible to raise the subject.

(54) **Raising across cliticized dative acceptable in right-active languages**

- a. * Jean semble à Marie avoir du talent.
- b. Jean lui semble avoir du talent.

The cliticized experiencer does not map to a ϕ , (55). As a result it does not introduce a prosodically active ϕ boundary into the prosodic representation. Therefore, raising across a dative experiencer is allowed, since raising to matrix T^0 will respect the Contiguity Preservation requirement.

(55) **Proposed prosodic structure for (54b)**

(Jean lui semble (Jean avoir) $_{\phi}$) $_{\phi}$...

A third prediction that this account makes is that movement of the intervener in right-active languages should allow raising.²⁰ As we see in (56), this is borne out robustly. In French, Italian, and Icelandic Ā-movement of the dative experiencer to the left of the subject results in the sentence being grammatical, (56-53). The lower copy of the dative experiencer does not map to a ϕ . As a result it does not introduce a prosodically active ϕ boundary into the prosodic representation in a position that would result in a Contiguity Preservation violation, and in these cases raising is allowed.

(56) **Movement of experiencer ameliorates intervention**

- a. * Jean semble à Marie avoir du talent.
- b. À Marie, Jean semble avoir du talent.

²⁰ In these sorts of language, movement of the experiencer must presumably be followed by Grouping. So long as the attracting element is also to the left of the landing site of the raised subject, Grouping to satisfy the needs of the attracting head and extracted experiencer should not disrupt the Contiguity relationships between the subject and matrix and embedded T.

- (57) a. **Jean a semblé au cours de la réunion avoir du talent.*
 Jean has seemed during the meeting to.have of talent
 ‘Jean seemed during the meeting to have talent.’
- b. *Au cours de la réunion, Jean a semblé avoir du talent.*
 during the meeting Jean has seemed to.have of talent
 ‘During the meeting, Jean seemed to have talent.’

*Bruening (2014)*²¹

- (58) a. **Hestarnir virðast mér vera seinir.*
 horses seem.3PL me.DAT to.be slow
 ‘The horses seem to me to be slow.’
- b. *Hvem hestarnir virðast vera seinir?*
 who.DAT horses seem.3PL to.be slow
 ‘To whom do the horses seem to be slow?’

Holmberg and Hróarsdóttir (2004)

The ameliorating effect of cliticization and Ā-movement under syntactic approaches are somewhat surprising. Many recent approaches to displacement phenomenon hold the difference between the gap and its filler to be essentially phonological—the copy theory of movement, for instance, posits that cases of apparent movement involve the introduction of multiple instances of the same phrase in the syntactic tree, followed by deletion of some or all of those copies at PF. If these approaches are correct, then the fact that a displaced nominal should no longer ‘count’ as an intervener should come as a surprise for approaches that make use of a syntactic locality requirement, since the syntactic status of an element in-situ and the syntactic status of a fronted constituent should be identical.

A fourth prediction is that A-movement across datives should be allowed in left-headed, right-active languages, at least in principle, so long as the dative appears to the right of all functional heads involved in the A-movement operation. Icelandic passives of ditransitives furnish an argument for this being the case. The internal arguments of Icelandic ditransitives can appear in a variety of case frames. Among them is the following pattern, where the dative precedes the accusative.

(59) **Dat-Acc Icelandic ditranstive**

Ég sagði þér söguna
 I.nom told.1sg you.dat story-a.acc

‘I told you a story.’

Zaenen, Maling, and Thráinsson (1985)

In the case of the passive, the dative can move to subject position, with the now nominative object remaining low, as in (60a). Perhaps surprisingly, the nominative object may also move to subject position, as we see in (60b).²²

(60) Icelandic has a symmetric passive with Dat-Acc ditransitives

- a. *Konunginum voru gefnar _____ ambáttir*
the-king were given maidservants

'The king was given maidservants'

- b. *Ambáttin var gefin konunginum _____*
the-maidservant was given the-king

'The maidservant was given to the king' Zaenen, Maling, and Thráinsson (1985)

This is something that we expect under the theory developed in this chapter. Movement of a nominative across a dative should be fine in languages like Icelandic, so long as the dative does not appear between the nominative and any probes which have Agreed with it. In (60b), the dative appears to the right of the verbal complex—it therefore does not interfere with Grouping of the verbal complex and the raised nominative.

In this section, I noted that left-active languages allow raising across a dative experiencer but right-active languages do not. I proposed a novel analysis of these facts, rooted in the idea that Contiguity relationships established in the same phase must be preserved, and formulated a constraint, *Contiguity Preservation* to capture this requirement. I showed that this account correctly predicts that left-active languages should allow raising across experiencers but not right-active languages, and that this derives from the difference in directionality of prosodic acitivity in the respective groups. I went on to show that this account correctly predicts three additional properties of raising constructions in right-active languages: they should not allow raising across adverbs in positions comparable to

²² As pointed out by Zaenen, Maling, and Thráinsson (1985), this is possible only in passives of Icelandic ditransitives with the Dat-Acc case frame. All other ditransitives behave asymmetrically—they allow only the leftmost DP to be promoted to subject. Why should this be the case? One possibility is that this teaches us something about conflicts between locality requirements like Shortest, and other restrictions on the derivation like Multitasking [Richards (2016); van Urk (2015)], which requires heads to satisfy their distributional requirements with things that they have entered into Agree with. In the cases where Icelandic behaves asymmetrically, either the leftmost element is the thing that T agrees with, or neither element is the thing that T Agrees with. In such cases, obeying Shortest would always result in Multitasking being obeyed as well. Only in ditransitives with the Dat-Acc case frame does the second argument appear with nominative case. We could see the optionality as the result of the grammar being forced to disobey one requirement in order to obey another: either Multitasking is obeyed at the expense of Shortest, resulting in the nominative being promoted to subject position, or Shortest is obeyed at the expense of Multitasking, resulting in the dative being promoted to subject position. I will leave the development of a theory of conflicting locality requirements a topic for future investigation.

that of the dative experiencer, they should allow raising across a dative experiencer if the dative experiencer is reduced prosodically, and they should allow raising across a dative experiencer if the dative experiencer is moved to the left of the landing site of the raised subject.²³

In other words, I have succeeded in developing a theory that fulfills the desiderata laid out in the literature review section. It is able to predict cross-linguistic variation with regard to the intervention effect through independently observable properties of those languages—like all of the analyses rooted in Contiguity, we expect there to be, underlyingly, two types of language: those with prosodic activity on the left, and those with prosodic activity on the right. The distribution of all probes and goals in the language is determined by this, accounting for a number of similarities between left-active languages, which lack the effect, and right-active languages, which have the effect. It successfully accounts for the fact that experiencers moved from their canonical position do not appear to induce the effect, without having to make any recourse to the status of unpronounced copies other than that they are unpronounced. Finally, it successfully predicts facts first noted in Bruening (2014), namely, that certain adverbs placed in the correct position induce the effect. In the following section of this chapter, I will attempt to tie up a number of loose ends left by this account, and extend the empirical scope of the account to include languages originating outside of Europe.

1.3 Extensions of the account

This section considers a number of extensions of the account of raising and defective intervention we have developed in this chapter. First, we examine Singapore English, contrasted with Standard English. We will see that Singapore English displays a number of properties consistent with it being a right-active language, unlike Standard English—and as a result does not allow raising across experiencers. Next, we will examine a number of left-headed, left-active languages. There we find that these languages also lack the effect, consistent with the theory we have developed. Finally, we turn to the ameliorating effect of clitic doubling in the case of raising across experiencers in languages like Modern Greek. Here, we will see that raising across experiencers is allowed, so long as the experiencer has undergone clitic doubling. We will see that clitic doubled nominals in Modern Greek appear to be prosodically demoted, and as a result should not pose a problem for raising.

²³ As noted by Danny Fox, right dislocation of the dative experiencer to a position to the right of embedded T should also ameliorate the effect.

1.3.1 Intervention effects obtain in Singapore English

In this subsection, we will examine differences in raising constructions between Singapore English and Standard English. The former will be shown to display the intervention effect, and to have prosodic and syntactic phenomena consistent with an analysis under which it has prosodically active right edges, in contrast to Standard English. For the theory developed in this chapter, the choice of whether or not a language has prosodic activity on the left or prosodic activity on the right determines whether that language will allow raising across experiencers. We expect that altering the choice of prosodic activity should have wide-spread effects in the language, including whether or not it displays the intervention effect investigated in this chapter.

As stated in the previous section, Standard English has its complementizers on the left, and has prosodic activity on its left (Richards, 2016). Since *wh*-words are in an Agree relationship with question complementizers, *wh*-words must be close to the complementizer to satisfy Contiguity, resulting in obligatory fronting of *wh*-words.

(61) ***wh*-movement satisfies Contiguity, and is obligatory**

- a. What C-did you eat?
- b. * C You ate what?

Standard English

Singapore English is like Standard English in many ways. It has many of the same lexical items, and its complementizers appear to the left, as in Standard English. However, unlike Standard English, prosodic activity in Singapore English is on the right, evidenced by the presence of a high tone at the edge of roughly every phonological word (Ng, 2012) and by an F0 boost and lengthening at the right edge of certain prosodic constituents (Chong and German, 2016)—recall here that the presence of phonetic effects at the left or right edge of a prosodic boundary correlates with whether or not that boundary is active, as argued by Richards (2016). Similarly, Tan (2017) shows that the relative prominence of elements in a binary branching NP in Singapore English is comparable to patterns found in Icelandic; which Richards (2017c) shows to correlate generally with the directionality of prosodic activity. In Singapore English, *wh*-words need not close to the complementizer to satisfy Contiguity, resulting in optional fronting of *wh*-words.

(62) ***wh*-movement satisfies Contiguity, but is not obligatory**

- a. What C John must buy?
- b. C John must buy what?

Singapore English

In other words, the two Englishes we have examined are relatively similar in a number of ways, but differ in their prosody. Standard English has activity on the left, so *wh*-words must front to a position of Contiguity-prominence relative to C, whereas Singapore English has activity on the right, and *wh*-words are in a position of Contiguity-prominence relative to C when they remain in-situ, so they need not front.

If the analysis presented in this section is on the right track, then we expect Singapore English not to allow raising across an experiencer or structurally high adverb. As we see in (63), this expectation is borne out.²⁴ In (63a), we see a Singapore English raising construction. In (63b-c), we see that the presence of an experiencer between the gap and landing site results in ungrammaticality. This is expected if Singapore English is a left-headed language with prosodic activity on its right.

(63) Intervention with experiencer

- a. John look like ____ got talent.
- b. * John look to Mary like ____ got talent.
- c. * John look like to Mary ____ got talent.
- d. ‘*John seems to have talent.*’ Singapore English

In (64a-b), we see that moving the experiencer either to the left or to the right improves the sentence dramatically.

(64) Repair through movement

- a. To Mary, John look like ____ got talent.
- b. John look like got talent to Mary. Singapore English

We expect the same effect to arise when an adverb is introduced in comparable positions. As we see in (65), this expectation is also borne out.²⁵

(65) Adverbs intervene

- a. ?? John look during meeting like got talent.
- b. ?? John look like during meeting got talent.²⁶ Singapore English

²⁴ I am very grateful to Michael Yoshitaka Erlewine for gathering these data from four native speakers of Singapore English for me.

²⁵ Speakers generally found adverbs to be more acceptable in these positions than experiencer, but still degraded. These findings align with what Bruening (2014) reports for French and Italian.

Dislocation of the adverb in (66) improves acceptability, again, as expected.

(66) **Dislocated adverbs don't**

- a. During meeting, John look like got talent.
- b. John look like got talent during meeting.

Singapore English

Here, we see that a language similar to English, which shares many of its lexical items but differs in its prosody, displays the intervention effect. We expect this given the theory put forth in this chapter.

1.3.2 Intervention should not arise in left-active, right-headed languages

So far, in this chapter, we have examined two languages of the four-way Contiguity-theoretic typology. However, the theory is predictive for the entire typology. We expect, for instance, that raising in head-final, left active languages should not be subject to intervention. In this subsection, we will see that this is in fact the case. Our languages of study for this subsection will be Japanese, Hindi, and Turkish. Japanese has been well established to be a language with prosodic activity on the left, with heads on the right, see Richards (2016) for details. Hindi, too, has prosodic activity on the left, and heads on the right. Harnsberger (1994) finds that Hindi, like Japanese, exhibits a prosodic ‘span’ connecting in-situ *wh*-phrases with a question complementizer. Féry (2010) argues for a treatment of Hindi intonation in which a boundary tone associates with the left edge of minor prosodic constituents.²⁷ Turkish follows Japanese and Hindi in having boundary tones on the left edge of ϕ [Güneş (2015)], *wh*-in-situ [Kornfilt (1997); Göksel and Kerslake (2004)], and deaccenting in the post-*wh*-domain, [Göksel and Kerslake (2004)].

²⁶ Some speakers find (65b) acceptable, however, in these cases the sentence has a parse in which the adverb appears to scope quite low, producing a reading like ‘John seems to have talent during meetings [but not at any other time]’. This suggests a structure like that in (i.).

- (i.) John look like [____ T [during meeting got talent]]

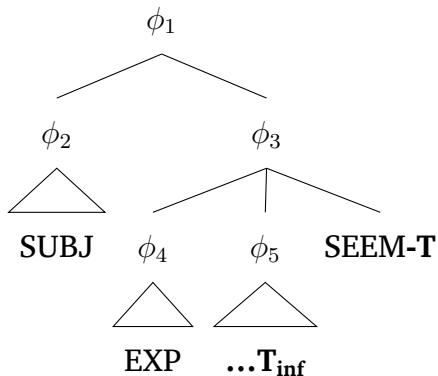
Singapore English

We accept this sentence to be acceptable, since the adverb does not appear between T and either position associated with the subject.

²⁷ Féry (2010) argues in this same treatment that Hindi associates a separate boundary tone with the right edge of prosodic constituents. If this treatment of Hindi intonation is completely correct, then Hindi is comparable to Irish. Irish, like Hindi, appears to associate tones with both edges of prosodic constituents. Interestingly, Irish is also like Hindi in behaving like a language with prosodic activity on the left. A full treatment of how languages that have boundary tones on both right and left edges is outside the scope of this chapter. I leave this a topic for further work.

The account developed in this chapter derives the intervention effect from Contiguity Preservation, a requirement that Contiguity relationships formed in a phase not be broken within that phase. Raising across dative experiencers is bad in languages that have prosodic activity on the right and heads on the left, since movement in these languages will result in a derivation that is not Contiguity Preserving. We have also seen that raising across dative experiencers is fine in languages that have prosodic activity on the left, and heads on the left, since movement in these languages will result in a derivation that is Contiguity Preserving. The question arises: does headedness have an effect on whether or not a language allows raising across a dative experiencer? The theory developed in this chapter predicts that it should not. Such a language would have a prosodic structure for raising constructions like that in (67). After raising, the subject will be Contiguity-prominent in ϕ_1 , and therefore satisfy Contiguity for both T. Such a derivation will be Contiguity Preserving, and thus allowed.

(67) **Raising in a right headed language**



We will now examine some facts about raising constructions in Hindi and Japanese. Malhotra (2011) notes that Hindi displays a finite/non-finite alternation comparable to English raising constructions, demonstrated in (68). As shown in (68a), raising across an argument in the matrix clause is allowed.

(68) **No intervention for Hindi raising construction**

- a. *raam siitaa-ko [____ thakaa huā] lagtaa hai*
R. S.-DAT tired happen seems be-PRES

‘Ram seems to Sita to be tired.’

- b. *siitaa_i-ko lagtaa hai ki raam us_i-kii jaan-pehcaan-kaa hai*
 S.-DAT seems be-PRES C R. her-GEN familiar-GEN be-PRES
 'It seems to Sita that Ram is familiar to her.' *Malhotra (2011)*

Similarly, as demonstrated in (69), Japanese allows raising, and this raising may take place across a dative experiencer.²⁸

(69) **No intervention for Japanese raising**

- a. *siraha-no ya-ga Yawara-ni tatta*
 white.feather-GEN arrow-NOM Y-DAT stood
 'lit. An arrow with white feathers hit Yawara.'
 'Yamara was nominated'
- b. *Siraha-no ya-ga Huziko-ni [] Yawara-ni tatu to]*
 white.feather-GEN arrow-NOM H.-DAT Y.-DAT stand that
omoeta
 seemed

'It seemed to Fujiko that Yawara would be nominated.' *Moore (1998)*

This holds too for Turkish, (70).

(70) **No intervention for Turkish raising**

- a. *Biz viski-ya iç-ti san-il-iyor-uz*
 we-NOM whiskey-ACC drink-PST believe-PST-PROG-1PL
 'We are believed to have drunk the whiskey.'
- b. *Biz san-a s ut- u iç-ti gibi gel-di-k*
 we-NOM you-DAT milk-ACC drink-PST like seem-PST-1PL
 'We seem to you to have drunk the milk.' *Moore (1998)*

We see that both Japanese, Hindi, and Turkish all allow raising across dative experiencers, as predicted by our theory. The lack of intervention effects in these languages is unexpected under theories that make reference to minimality—the linear ordering of constituents

²⁸ Takahashi and Uchibori (2003) is a careful study of constructions such as those in (69). It is shown that raising in Japanese displays many, but not all, of the properties associated with raising in languages like English. Takahashi and Uchibori (2003) term the movement 'pseudoraising', to distinguish it both from regular raising and A-scrambling.

should not alter the command relationships that many formulations of minimality make reference to. Again, Contiguity determines, generally, the distribution of probes and goals in a given language. Left-active languages—like the ones we have examined in this section—generally allow phonological phrases to appear between a goal and its probe when the goal is to the left of the probe, and thus are not expected to display the intervention effect investigated in this chapter. And, as we have seen here, this expectation is borne out.

1.3.3 The ameliorating effect of clitic doubling

This subsection deals with facts about clitic doubling of experiencers in raising constructions. In a number of languages, such as Greek, raising across an experiencer is ungrammatical, shown in (71b), but raising across an experiencer is allowed if the experiencer in question undergoes clitic doubling, as in (71c). This fact is somewhat surprising for both the syntactic approach to the problem with raising across experiencers, as well as the prosodic approach. For the prosodic approach, however, we have an expectation: a clitic doubled experiencer should not display the prosodic signature of a phonological phrase—we will see here that this is indeed the case. The discussion in this section will focus primarily around Greek, as I have been unable to find comparable phonetic analyses of clitic doubling in Spanish.

- (71) a. *O Gianis fenete eksipnos*
the G.-NOM seem-3SG intelligent
'John seems to be intelligent.'
- b. ?* *O Gianis fenete tis Marias eksipnos*
the G.-NOM seem-3SG the M.-GEN intelligent
'John seems to Mary to be intelligent.'
- c. *O Gianis tis fenete tis Marias eksipnos*
the G.-NOM cl-gen seem-3SG the M.-GEN intelligent
'John seems to Mary to be intelligent.' *Alexiadou and Anagnostopoulou (2000); Anagnostopoulou (2003)*²⁹

The facts in (71c) are surprising, both under the account at hand as well as accounts rooted in minimality. Neither straightforwardly lead us to expect clitic doubling of an

²⁹ Anagnostopoulou (2003) notes that movement of the experiencer as in (71c) ameliorates the effect, as shown in (i).

experiencer to allow raising across the experiencer. Anagnostopoulou (2003) accounts for these facts in a way comparable to Boeckx's (2008) analysis of raising across Ā-moved experiencers. Anagnostopoulou (2003) extends the idea that the tail of a movement chain is invisible to raising to cases of clitic doubling. There, it is argued that clitic doubling is comparable to movement operations in that it forms a chain; the doubled argument is therefore irrelevant for the evaluation of minimality in much the same way that the tail of a movement chain is irrelevant.

For the account at hand, the facts in (71) are also surprising. Greek appears to be a left-headed language with prosodic activity on the right. It allows *wh-in-situ*, as demonstrated in (72a), allows adverbs to occur between the verb and its object, (72b), and does not display a left-edge restriction on pied-piping, (72c). In addition, Skopeteas (2016) notes that a number of boundary tones in Greek associate with the right edge of prosodic constituents.

We therefore expect Greek not to allow raising across dative experiencers, and this is indeed correct, (71b). (71c) remains a mystery—we do not predict clitic doubling to have an ameliorating effect, unless clitic doubling has some sort of prosodic effect.

(72) Greek is a left-headed, right-active language

- a. *o nikos xtipise pion*
the-nom N.-nom hit-3sg who-acc

‘Who did Nikos hit?’ *Alexopoulou and Baltazani (2012a)*
- b. *o Janis erikse grigora tis bananes*
the-nom J. dropped quickly the-acc bananas

‘John quickly dropped the bananas.’ *Alexiadou (1997)*
- c. *Anarotieme [to vivlio tinos] mu ipes pos dhiavases*
wonder.1SG the book whose you said that read.2SG

‘I wonder whose book you said that you read’ *Heck (2008)*

Skopeteas (2016) shows that there does appear to be an appreciable phonetic difference between arguments that have been clitic doubled, (73a), and those that have not, (73b).

- (i.) *O Gianis fenete arostos s-tin Maria*
the G. seem-3SG sick to-the M.

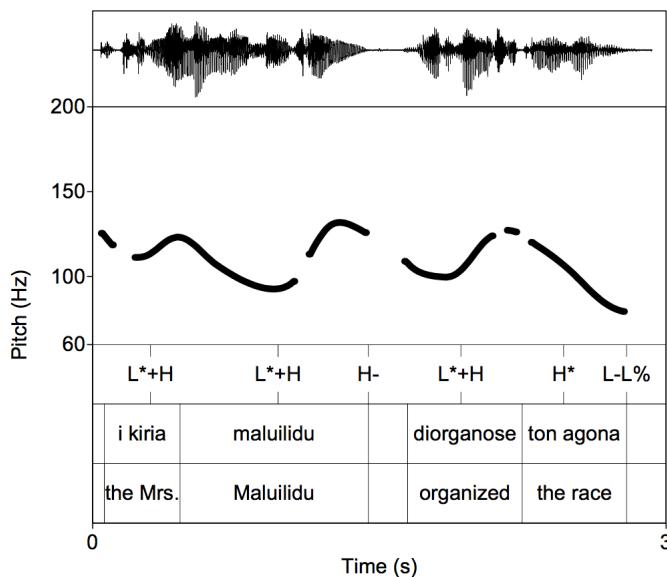
‘John seems sick to Mary.’ *Anagnostopoulou (2003)*

We are concerned in this case with the phonetic realization of the object in the examples in (73), see Skopeteas (2016) for details pertaining to everything else in the sentence. Skopeteas (2016) notes that nuclear accent, realized by a H*, tends to appear on the object in SVO sentences such as the ones in (73). As we see in (73a), when the object is not clitic doubled, it receives the nuclear accent. In (73b), however, when the object is clitic doubled, it does not receive the nuclear accent. Instead, the verb does.

(73) Phonetic effect on associate of clitic doubling

- a. *i kiria maluividu diorganose ton agona*
 the-NOM Mrs. M. organized the-ACC race

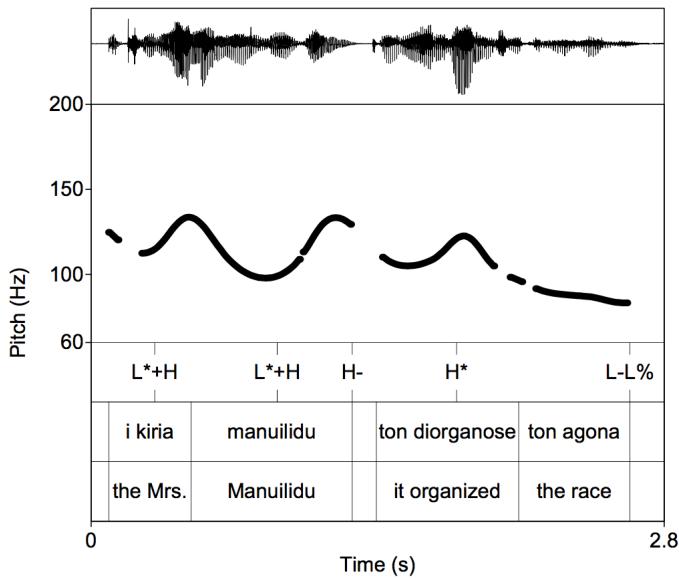
‘Mrs. Manouilidou organized the race.’



- b. *i kiria maluividu ton diorganose ton agona*
 the-NOM Mrs. M. 3:ACC:M organized the-ACC race

‘Mrs. Manouilidou organized the race.’

Skopeteas (2016)



There are several things that the facts in (73) could be telling us. One possibility—the one that I will adopt here—would be to follow Skopeteas (2016) in analyzing doubled arguments as being extrametrical in some way. If clitic doubled arguments are truly extrametrical, then we expect them not to count as interveners. If this is the case, then the grammaticality of (71c) is explained straightforwardly: the doubled constituent is extrametrical, and is therefore associated with no ϕ . The subject may therefore raise across the extrametrical experiencer, as the derivation will be Contiguity Preserving: the doubled constituent introduces no addition ϕ into the structure that would cause a problem for Contiguity Preservation. The ameliorating effect of clitic doubling in Modern Greek on this sort of intervention effect, then, might not be a property of clitic doubling generally. Rather, it should only occur in languages like Modern Greek, where the associate of a clitic ends up being prosodically reduced.

We have seen that Modern Greek displays a number of properties that suggest it is a language with prosodic activity on the right. It disallows raising across experiencers, as we have seen. It also does not require an overt subject, like Italian, and it allows *wh-in-situ*, as we see in (74). However, interestingly, the heads of Greek compounds generally appear on the right, rather than the left, as we would expect. Furthermore, Modern Greek is not a fixed stress language, comparable to Icelandic.

- (74) kuklóspito ‘doll house’

What does this mean for the status of headedness in nominal compounding as a diagnostic for prosodic activity? One possibility is that there is some other factor about nominals in Modern Greek that forces the unexpected order in (74), perhaps related to the inflectional system of nominals in Modern Greek. Along these lines, as noted in Ralli (2012), Greek compounding is unlike English and the Romance languages in that it builds its compounds out of uninflected stems, rather than lexical words. It could be possible that stem-stem compounding works differently than head-head compounding because neither element is in a selectional relationship with the other. Interestingly, further noted by Ralli (2012), there is a small class of compounding constructions in Modern Greek that does not involve stem-stem compounding; these compounding constructions demonstrate the expected order of compounding—here, the head of the compound consistently appears on the left.

- | | |
|-------------------------------|-------------------------|
| (75) a. <u>léksi</u> kliδí | ‘key word’ word + key |
| b. <u>prósopo</u> triandáfilo | ‘rose face’ face + rose |
- Ralli (2012)

I must leave here an investigation of Modern Greek compounding and the implications thereof for the ordering of compound nominals a topic for future research.

What we have seen in this section, once again, is that the prosodic status of a potential experiencer matters for determining whether or not it will actually be an intervener. Previously in this section, we saw that prosodically light and phonologically null elements could be raised across, despite still occupying in the syntax a position which is ‘between’ the raising verb and embedded verb. For the theory developed in this chapter, this should not come as a surprise—the problem with raising across experiencers arises as a more general ban in right-active languages on phonological phrases appearing between a probe and a goal when the goal is to the left of the probe. If an element is not a phonological phrase, then it should not count as an experiencer, since this ban will not be violated. The Greek facts are simply showing this to us again: clitic doubled arguments in Greek have a reduced prosodic status. As a result, they pose no problem for raising, despite occupying a position ‘between’ the raising verb and embedded verb in the syntax.

1.4 Open questions

In this section, I will discuss some open questions for the account presented in this section, posed by English data presented in Hartman (2009, 2011). Recall that English is a language with heads on the left, and prosodic activity on the left. In such languages, we

generally expect movement of one nominal to be able to cross another nominal in cases of A-movement: the presence of a ϕ between a goal and its probe is generally tolerated in such languages. This is why raising across experiencers is good in English.

Hartman notes the contrast between (76a) and (76b-c).

(76) **Raising is good...sometimes**

- a. John seems (to me) to be upset.
- b. Mary proved John (*to me) to be a liar.
- c. John was claimed (*to Bill) to have stolen the art.
- d. John's performance promised (*the students) to be the best.

Hartman argues that the ungrammaticality of (76b-c) arises for the same reason that raising across an experiencer is bad in languages like French—these nominals are closer to a potential landing site than the embedded subject, and therefore block movement to this position. Similar facts are reported for *tough*-constructions in English, as we see in (77).

(77) **Intervention (sometimes) in English *tough* constructions**

- a. Cholesterol is important for Mary to avoid.
- b. * Cholesterol is important to Mary to avoid.
- c. John is annoying for Mary to talk to.
- d. * John is annoying to Mary to talk to.

Hartman (2009)

The theory of raising across experiencers developed in this chapter does not straightforwardly account for the facts in (76-77). This raises the question: should it? Facts about this effect suggest that this effect is not the same as the problem with raising across experiencers in left-headed, right-active languages like French. There, we saw that raising was generally bad across any sort of element which maps to a ϕ . However, the English facts seem to be selective in a way unlike the effect in left-headed, right-active languages. As we see in (77), *for* PPs do not appear to cause the effect to arise in contrast to *to* PPs, likewise, as we see in (78); arguments higher in the structure appear to be allowed in this position, in contrast to arguments which appear lower in the structure.³⁰

³⁰Evidence from (backwards) binding suggests that the *by* phrase is in fact structurally higher than the *to* phrase in such constructions. In (i.), we see that *by* and *to* phrases may be reordered. However, in (i.a), we see that the *by* phrase may bind into the *to* phrase, but in (i.b) we see that the *to* phrase may not bind into the *by* phrase.

(78) **Height matters for arguments**

- a. * John was said to Mary to be guilty of that crime.
- b. John was said by Mary to be guilty of that crime.

Likewise, adverbs may appear between the verb and embedded TP, provided they are sufficiently high in the structure—again, unlike the effect in left-headed, right-active languages.³¹

(79) **Height matters for adjuncts**

- a. * Mary proved John well to be a liar.
- b. Mary proved John yesterday to be a liar.

(80) a. * John was claimed rudely to have stolen the art.

- b. John was claimed yesterday to have stolen the art.

(81) a. * John's performance promises strongly to be the best.

- b. John's performance promises today to be the best.

This sensitivity to syntactic height suggests that the effect which appears in certain constructions in English is not comparable to the problem with raising across experiencers in languages like French. The former is sensitive to syntactic structure, but the latter is sensitive to prosodic structure. This suggests that the right theory of the effects examined in this section should be a different theory than the theory developed earlier in this chapter. One possible explanation would be to appeal to the notion of S-Contiguity, which drove our account of raising more generally. S-Contiguity causes the span of a structure between two elements in a selectional relationship to become poisonous—a selecting head must become strictly adjacent to the head of what it selects for some brief portion of the derivation. The unacceptability of the sentences we see in this chapter would be comparable to the unacceptability of an in-situ subject in the case of *wager*-class verbs, as in (82). (82a) is bad because the overt subject of the non-finite clause, *Mary*, disrupts S-Contiguity between *wager* and *to*; Ā-movement of the subject, as in (82b), would fix this problem.

(i.) **Backwards binding indicates by phrase commands to phrase**

- a. It was proved to his_i mother by each_i fraternity brother that beer is unhealthy.
- b. * It was proved by his_i mother to each_i fraternity brother that beer is unhealthy.

³¹ See Runner (1995) for some discussion of the types of adverbs that can and cannot appear in this position.

- (82) a. * John wagered Mary to be guilty.
 b. Who has John wagered ____ to be guilty?

An advantage of this approach is that it correctly leads us to expect these effects to disappear when the PP argument undergoes dislocation, comparable to the case of *wager*-class verbs.

(83) **\bar{A} -movement ameliorates the effect**

- a. To whom has Mary proved John to be a liar?
 - b. To me, Mary has proved John to be a liar.
- (84) a. To whom was John claimed to have stolen the art?
 b. To Bill, John was claimed to have stolen the art.
- (85) a. Which students has John's performance promised to be the best?
 b. These students, John's performance promised to be the best.
- (86) a. How well did Mary prove John ____ to be a liar?
 b. How rudely was John claimed ____ to have stolen the art?
 c. How strongly does John's performance promise ____ to be the best?

This approach—if a more fleshed out verison proves to be correct—would require us to ask any question of any potential intervention effect, since they could potentially have two distinct causes. The problem with raising across experiencers would be category-insensitive, and the location of the intervener in the syntactic structure should not matter. The problem examined in this section would be category-sensitive, and the location of the intervener in the syntactic structure should matter.

1.5 Summary/recap

This section has done a number of things. First, we introduced the first intervention phenomenon discussed in the thesis: the problem associated with raising across experiencers. I then (re-)introduced Contiguity, and discussed a number of properties in left-headed languages which derive from Contiguity and the location of prosodic activity. I then introduced the notion of Contiguity Preservation, and showed that it correctly leads us to expect that left-headed, right-active languages should not allow raising across experiencers. Raising, in these cases, will result in the Contiguity relationship between the embedded

verb and raised subject being destroyed—a configuration will arise in which a prosodic phrase appears between a probe and a goal when the goal is to the left of the probe, which is generally not allowed in languages with prosodic activity on the right. I showed that this account successfully captures the fact that raising across a cliticized or \bar{A} -moved experiencer is acceptable, as well as the fact that certain adverbs trigger the effect that experiencers do.

I then discussed a number of extensions of the account. First, we examined Singapore English, and found it to be a language with prosodic activity on the right, unlike standard English. As we expect from the theory developed in this chapter, Singapore English does not allow raising across experiencers or adverbs in a clause medial position. Then, we examined raising constructions in a number of left-headed, left-active languages; these languages allow raising across experiencers, consistent with the theory developed herein. We next examined the effect of clitic doubling in Modern Greek, which was shown to be right-active language. There we saw that a clitic doubled experiencer could be raised across, in contrast to an experiencer which has not undergone clitic doubling. I showed that clitic doubled arguments in Modern Greek appear to be prosodically demoted, and as such should not count as interveners for the raising construction.

The chapter concluded with a discussion of English facts first noted in Hartman (2009, 2011), which appear to be problematic for the theory developed in this chapter. These facts involve apparent French-like behavior on the part of English. I argued that this effect in English were not in fact a problem for the theory developed in this chapter, since it was not clearly the same as the effect in French. I then sketched a potential line of attack for dealing with these effects, which suggested that these problems were analogous in nature to *wager*-class verbs, and not a problem with movement of one element across another.

What we have seen in this chapter is that Contiguity predicts there to be two sorts of language: those with prosodic activity on the left, and those with prosodic activity on the right. We have seen, among other things, that raising across elements which map to a phonological phrase is banned in the latter sort of language—this sort of raising would place the subject in a position in which it would no longer be able to satisfy Contiguity for all the probes which have Agreed with it. We saw also that there was a particular prosodic signature of interveners in right-active languages: anything that maps to a phonological phrase cannot appear between the raising verb and embedded clause, since they will pose the same problem for the raised subject. The theory developed in this chapter leaves us with two expectations. The first is that raising—were it able to cross a clause boundary—should not be subject to the intervention effect. Contiguity Preservation does not require Contiguity relationships to be preserved throughout the derivation, but only

within the phase that they were created. The second expectation is that this effect should not be restricted to A-movement. In a right-active language, a phonological phrase cannot appear between a goal and a probe if the goal is to the left of the probe. In these languages, any movement operation which places a goal to the left of its probe should be subject to a restriction like the one investigated in this chapter. These two topics will be the focus of chapter 2.

Chapter 2

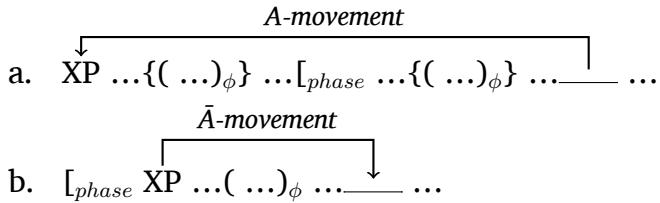
Avoidance strategies: hyperraising and inversion

This chapter investigates hyperraising constructions and obligatory subject inversion in *wh*-question formation, in light of some of the results of chapter 1. In chapter 1, we saw that languages varied predictably in whether or not they allow raising across an experiencer. Left-headed, left-active languages like English allow raising across experiencers, but left-headed, right-active languages like French do not. This was shown to be a result of Contiguity Preservation, a requirement that Contiguity relationships formed within a spell-out domain be preserved: raising of the subject across an experiencer ends up violating this requirement in left-headed, right-active languages. In those languages, the presence of an experiencer—at least those which map to a phonological phrase—will always prevent the subject from continuing to satisfy Contiguity for T of the embedded verb, no matter how the prosodic structure is altered.

In this chapter, we will see that the theory developed in chapter 1 makes two much more general predictions about movement in left-headed, right-active languages. Movement which crosses a phase boundary, as schematized in (1a), will never be subject to ‘defective intervention’ effects comparable to those examined in chapter 1, even in left-headed, right-active languages, the sort of language that our theory predicts to exhibit the effect—the presence of a phase boundary between the launch site and landing site allows Contiguity relationships between the moved element and heads in the lower phase to be safely ignored. Movement which does not cross a phase boundary, as schematized in (1b), on the other hand, can never cross another element which maps to a ϕ , so long as that ϕ appears between a lower head and higher head which both Agree with the moving element. Importantly, this cross-cuts the A/ \bar{A} distinction—we will see instances of ‘long’ A-movement, which are not subject to the defective intervention effect, and we will also

see instances of ‘short’ \bar{A} -movement, which are subject to the defective intervention effect.

(1) Short and long movement



In this chapter, we will see that left-headed, right-active languages generally allow hyperraising across experiencers and adverbs, even though they do not allow regular raising across experiencers and adverbs. I will argue that the right analysis of hyperraising involves ‘long’ A-movement of the sort in (1a), which we should expect, in left-headed, right-active languages, to be able to cross other ϕ without causing the derivation to fail to be Contiguity Preserving. I show that this allows us to tease apart two competing families of theories of hyperraising, and makes a number of additional desirable predictions about hyperraising constructions in a number of languages.

We will then turn our attention to \bar{A} -movement of non-subjects in left-headed, right active languages. We will see that these languages generally require \bar{A} -movement chains to target a position slightly below C in these languages. This means that \bar{A} -movement in these languages will always instantiate a ‘short’ movement chain, of the sort that we see in (1b), and therefore be subject to an effect comparable to the defective intervention effect. This allows us to account for the fact that inversion is obligatory in a number of Romance and Bantu languages—inverting the subject and verb destroys the problematic configuration, allowing Contiguity to be maintained between the verbal complex and \bar{A} -moved element. This interacts with the height of the verb in a given language in an interesting way. Languages with high verbs—those that raise V to T—will be shown to prefer to pronounce a lower copy of the subject, so that the *wh*-phrase may maintain its Contiguity relationship with the verbal complex. Languages with low verbs—which I argue lower T to V—avoid movement of non-subjects altogether, utilizing a strategy of resumption to derive what appear to be movement chains.

2.1 Recap of chapter 1, and a prediction

In chapter 1 of this dissertation, we saw that the presence or absence of defective intervention effects in raising constructions correlated with the directionality of prosodic activity,

at least in left-headed languages. Left-headed, left-active languages like English do not display the effect, and a number of syntactic properties correlate with this, listed in (2).

(2) **Properties of left-headed, left-active languages**

- a. Boundary tones associated with the left edge of ϕ
- b. Pitch boost on leftmost element in a NP with two lexical words
- c. Require verb and direct object to be adjacent
- d. Left-edge restriction on pied-pipers
- e. No *wh-in-situ*
- f. Right-headed compounds

Left-headed, right-active languages like French, in contrast, display the effect, with a number of syntactic properties correlating with the difference in prosodic activity.

(3) **Properties of left-headed, right-active languages**

- a. Boundary tones associated with the right edge of ϕ
- b. Pitch boost on rightmost element in a NP with two lexical words
- c. Do not require verb and direct object to be adjacent
- d. No left-edge restriction on pied-pipers
- e. *Wh-in-situ*
- f. Left-headed compounds

Why should the directionality of prosodic activity make a difference? Recall first our definition of Contiguity, given in (4).

(4) **Contiguity *in toto***

a. *Contiguity*:

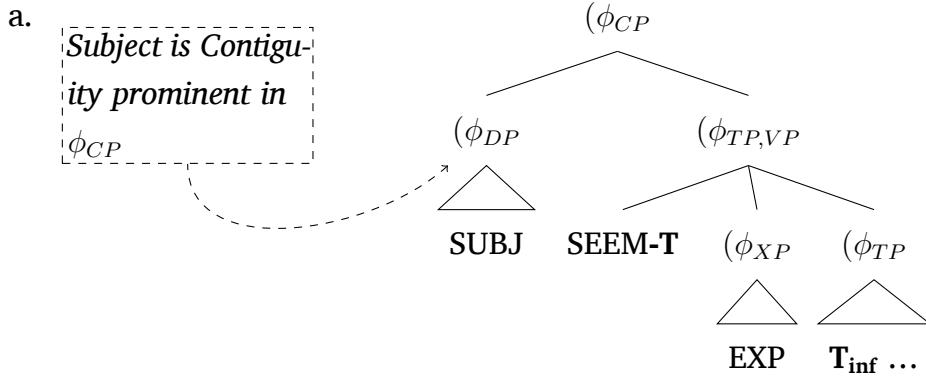
A Goal must be *contiguity prominent* within a ϕ that dominates a probe that Agrees with it.

b. *Contiguity prominent*:

G is *contiguity prominent* within ϕ_1 if no other ϕ lies between G and the prosodically active edge of ϕ_1 , and ϕ_1 dominates G .

Now consider the prosodic structures in (5), corresponding to a sentence in which the subject has raised across an experiencer in a left- and right-active language, respectively. Assume also that the subject has entered into an Agree relationship with both embedded and matrix T. In (5a), the subject is Contiguity-prominent in ϕ_{CP} after raising has taken place; it therefore satisfies Contiguity for both matrix and embedded T. In contrast, in (5b), the subject is not Contiguity-prominent in ϕ_{CP} after raising. The prosodic boundary introduced by the experiencer— ϕ_{XP} —occurs in between the right edge of ϕ_{CP} and ϕ_1 , the ϕ corresponding to the subject. As a result, it will be impossible to use Grouping¹ to create a ϕ in which the subject satisfies Contiguity for both T, since ϕ_{XP} will always closer to the right edge of that ϕ .

(5) Raising can affect Contiguity relationships in some languages

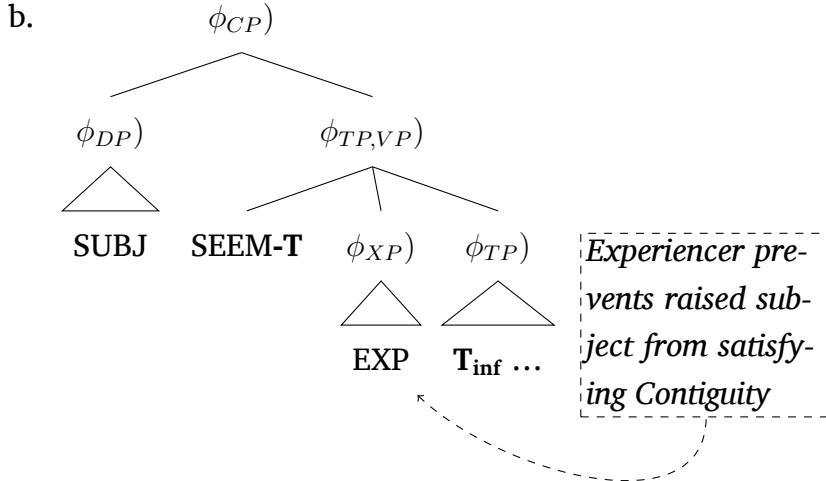


¹ An informal definition of Grouping is given in (5).

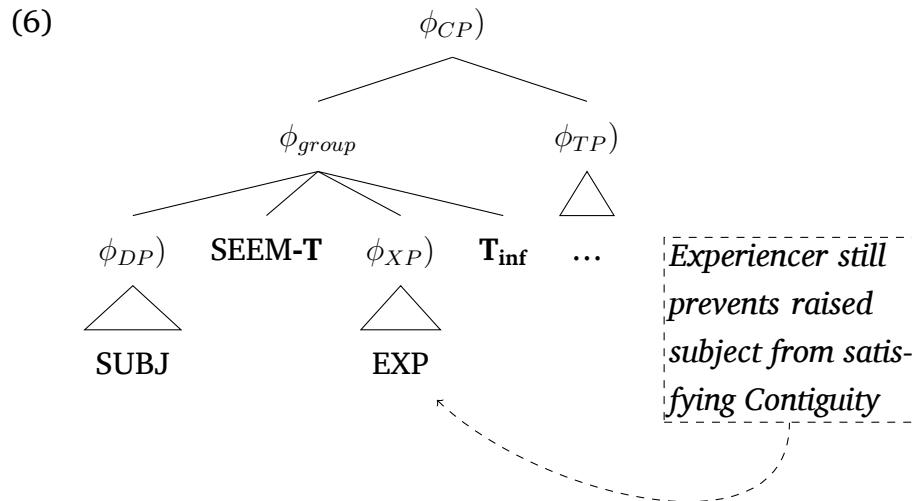
(i.) *Grouping*

Create a ϕ dominating a probe and its Goal. Do so in a way that minimally alters the prosodic structure.

A more formal definition of Grouping, and the effects that it has on the derivation are given in chapters 3 and 4.



In other words, in left-headed, right-active languages, movement of a goal to the left of its probe will always need to be followed by Grouping of that goal and its probe, so that Contiguity may be satisfied. The problem caused by raising across an experiencer, as in (5b), is that the presence of the experiencer prevents Grouping of the lower, non-finite T and subject from satisfying Contiguity—the ϕ created by Grouping, in such cases, will contain the ϕ which corresponds to the experiencer, which prevents the subject from satisfying Contiguity for its probes, given the definition of Contiguity in (4). The problematic structure that arises after Grouping is schematized in (6).

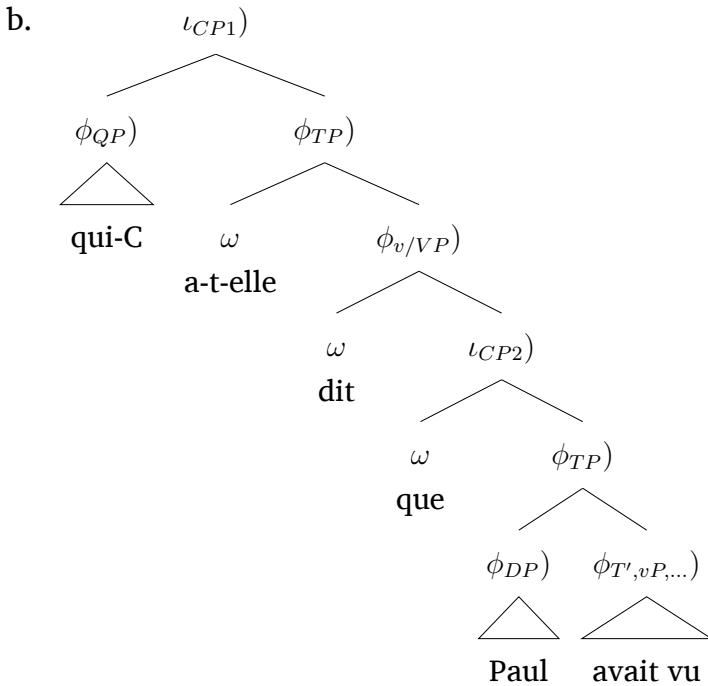


We clearly want Contiguity relationships to be able to be broken—saying that Contiguity is a surface requirement will not do. If it were generally the case that Contiguity relationships had to be preserved over the course of the entire derivation, languages like

French would not allow long-distance *wh*-movement—the prosodic structure for a sentence like that in (7a) will look something like that given in (7b).

(7) Contiguity is not a surface requirement

- a. *Qui a-t-elle dit que Paul avait vu*
 who has.she said that P. had seen
 ‘Who has she said that Paul has seen?’



In chapter 1, I suggested a ban on breaking Contiguity relationships too soon after they are formed, given in (8). Raising across an experiencer in French is ungrammatical, given (8), because the Contiguity relationship between the subject and non-finite T is broken in the same phase that it was created. *Wh*-extraction of a subject in French is grammatical, given (8), because there is a phase boundary—that introduced by the phase head C—that separates the landing site of the subject and the embedded T.

(8) Contiguity Preservation

A goal G must satisfy Contiguity for a probe P with which it agrees in every spellout domain that contains² P and G .

If this approach is on the right track, we expect, generally, that the introduction of a phase

²Where ‘contains’ means: the ϕ corresponding to a spell-out domain dominates P and G , but doesn’t dominate a ϕ corresponding to any other spell-out domain that also dominates P and G .

boundary between the launch site and landing site of movement will result in the absence of ‘blocking’ intervention effects. For instance, A-movement that crosses a finite clause boundary should not be subject to the defective intervention effect, even in languages that we expect to display the effect more generally. Such movement would place the goal in a phase that is not the one in which the Agree relationship between it and the lower goal was formed—although there would be a ϕ between the landing site and launch site, Contiguity Preservation would still allow this movement, because the Contiguity relationship between P_1 and XP is no longer relevant in the next phase. The sort of configuration that we are now considering is schematized in (9).

(9) **A correctly placed phase should ameliorate defective intervention in A-movement**

$XP \dots (\dots)_\phi \dots [_{phase} \dots ___XP P_1 \dots]$

This, of course, raises the question: are such movement operations possible? There is a body of work that suggests a decent candidate for derivations involving such a derivation. Some languages allow apparent raising out of finite clauses, such as Brazilian Portuguese and Zulu. Examples of this are given in (10). I will follow this literature in using the term *hyperraising* to describe this construction.

(10) **Examples of hyperraising**

- a. *O João parece [que ____ comprou um carro]*
 the João seems that bought a car

‘It seems that João bought a car.’

Nunes (2008)

- b. *uZinhlei u-bonakala [ukuthi ____ u-zo-xova ujeqe]*
 AUG.1Zinhlei 1S-seem that 1S-FUT-make AUG.1steam.bread

‘It seems that Zinhle will make steamed bread.’

Halpert (2018)

Whether or not hyperraising involves a derivation like (9) is an open question. A number of theories of hyperraising have been proposed in the literature. Some theories of (10) suggest that the derivation in (9) is in fact instantiated by hyperraising, other theories suggest otherwise. In the following section, we will review these families of theories, and try to determine which one is correct.

2.2 A puzzle, and theories of hyperraising

Hyperraising has been a topic of interest because hyperraising is not acceptable in all languages, such as French and English, as we see in (11)—indeed, many theories of structural Case assignment, developed to account for the ungrammaticality of (11), end up ruling out sentences like (10) without further emendation.

- (11) a. * John seems (that) has talent.
b. * *Jean semble (que/qui) a du talent*
J. seems (that) have of talent
'Jean seems (that) has talent.'

A number of theories have been developed to account for this crosslinguistic variation. To my knowledge, the first study in detail of constructions like (10), and the problem it poses for linguistic theory, was presented in Harford-Perez (1985). Harford noted that such constructions are possible in three Bantu languages, and proposed that Bantu languages lack abstract Case, allowing A-movement from a Case position—in contrast, languages like French and English have abstract Case, so A-movement from a Case position, as in (11), is blocked. This theory is characteristic of the first family of analyses of hyperraising constructions, in which the grammaticality of hyperraising is tied to the properties of the launch and/or landing site, making no reference to the distance of movement.

A second family of theories, pursued independently by Nunes (2008, 2017) for Brazilian Portuguese and Halpert (2016, 2018) for Zulu, argue that the availability of hyperraising is determined by the presence or absence of an Agree relationship between the verb and embedded clause. Languages that have this relationship—such as Brazilian Portuguese and Zulu—allow the embedded finite clause to not ‘count’ as a barrier for movement, allowing hyperraising; whereas, in languages that lack this relationship, the embedded clause will count as a barrier for movement, blocking hyperraising. In this section, we will examine some of these proposals in more detail, and then juxtapose these families of proposals with the proposal made in the first chapter of this thesis.

We will see that this juxtaposition allows us to decide between theories of hyperraising, while providing a solution to a puzzle about hyperraising: namely, that hyperraising across experiencers is possible, even in languages like Brazilian Portuguese, in which regular raising across experiencers is not possible, as we see by the contrast in (12).

- (12) a. *Os alunos parecem pro professor [____ terem estudo para
 the students seem-3pl to.the teacher have-3pl-INF studied-3pl for
 a prova]
 the exam

‘The students seem to the professor to have studied for the exam.’

Moreno and Petersen (2017)

- b. Os alunos parecem pro professor [que ____ estudaram para a
 the students seem-3pl to the teacher that studied-pl for
 prova]
 the

‘The students seem to the professor that they studied for the exam.’ *S. Fong, p.c.*

2.2.1 Avoiding barriers

As mentioned before, one family of theories of hyperraising attributes the availability of hyperraising to the presence, or absence, of a particular relationship between subjects of finite clauses and T.³ There are two subclasses within this family of theories. The first simply makes no reference to barriers for movement, or locality domains, as an additional factor that determines whether or not hyperraising is available in a given language. The second does—languages that allow hyperraising must also have a way of getting the subject to the edge of the phase of the lower clause.

We will discuss each subclass in turn. Harford-Perez (1985) notes that Shona, Kikuyu, and Kiruúndi each allow raising out of finite clauses.⁴

(13) Hyperraising in Shona, Kikuyu, and Kiruúndi

- a. Mbavhá í-no-fungir-w-a kuti ____ y-áká-vánd-á mú-bako
 9.thief 9-PRES-suspect-PASSIVE-FV that 9-FAR.PAST-hide-FV in-cave

‘This thief is suspected to be hidden in the cave.’

Shona

³ Or comparable categories, in the case of Harford-Perez (1985).

⁴ Interestingly, my Kikuyu consultant rejects sentences like (13b)—hyperraising appears to be subject to dialectal variation.

- b. *Mündū mū-rūmē ūyū nī-óólkáíne átī nī* _____ óórágíre
 1.person 1.man 1.dem foc-1s-has.been.known that FOC 1.kill-PAST
mündū
 1.person

‘This man is known to have killed a person.’ Kikuyu

- c. *I-nzovu z-aa-menyeekan-ye kó* _____ *z-iish-e báa-ba-antu*
 AUG-10.elephants 10-PST-be.known-FV that 10-kill-FV 2.those-2-people

‘Elephants are renowned for having killed those people’

Kiruúndi, Harford-Perez (1985)

Harford-Perez (1985) argues that the relevant distinction between languages like English on the one hand, and Bantu languages like those in (13) on the other, is that the former have abstract Case, whereas the latter do not. Under this approach, hyperraising in English is ruled out by a requirement that the traces of A-movement cannot receive Case; the condition is vacuously satisfied in the languages in (13) since Case is never assigned in these languages, according to Harford-Perez (1985).

Ura (1994) proposes a similar account. He claims, based on a survey of 8 languages, that all languages that allow hyperraising also allow *pro*, a phonologically null pronominal, to appear in the subject position of finite clauses. Ura suggests that *pro* lacks ϕ and Case features—under Ura’s theory, this means that finite T, in languages that allow *pro* in subject position, need not bear ϕ or Case. Hyperraising from the subject position in a finite clause will be allowed in these languages, for the same reason that *pro* is allowed in a comparable position.

Carstens (2011) proposes an account similar to that in Harford-Perez (1985)—the difference between English-like languages and Bantu-like languages has to do with the featural makeup of lexical items. Carstens proposes that nominals in Bantu languages bear a valued but uninterpretable gender feature, which is never checked during the course of the derivation. This property of Bantu nominals, in addition to a condition like that in (14), derives the difference between English-like languages on the one hand and Bantu-like languages on the other.⁵

(14) Activity Condition

To be a licit goal, a nominal must bear an uninterpretable feature.

⁵ Carstens’ account is somewhat more elaborate, I have attempted to distill it here.

Since Bantu nominals bear an uninterpretable gender feature, which cannot be checked during the course of the derivation, they will always be licit goals for Agree and movement. In contrast, English nominals bear only an uninterpretable Case feature, which can be checked during the course of the derivation—as a result, they will be ‘deactivated’ for A-movement once they have been Agreed with by finite T, and moved to its specifier.

The second subclass of this family of theories notes that hyperraising is possible from some, but not all, finite clauses in a language. Diercks (2013) notes that, in Lubukusu, hyperraising is available from an embedded clause with some complementizers, but not others. Diercks proposes that the relevant difference between (15a-b) is that the C head of the embedded clause in (15a), *mbo*, is not a phase, whereas the C head of the embedded clause in (15b), *a-li*, is a phase. Hyperraising, for Diercks, is possible only across a phase head.

(15) **Presence of upward agreeing complementizer blocks hyperraising**

- a. *Sammy a-lolekhana mbo* _____ *a-likho a-lwala*
1S. 1S-appear that 1S-PROG 1S-be.sick

‘Sammy appears to be sick.’
- b. % *Sammy a-lolekhana a-li* _____ *a-likho a-lwala*
1S. 1S-appear 1-that 1S-PROG 1S-be.sick

‘Sammy appears to be sick.’

Fong (2017) makes a similar observation for hyperraising-to-object constructions in Japanese, shown in (16). Fong suggests that the accusative marked subject of the embedded finite clause in (16a) has hyperraised into the matrix clause. As we see in (16b), this is possible with some complementizers, but not others—more specifically, the absence of *to* results in the hyperraising construction being ungrammatical.⁶

- (16) a. *Taroo-wa Hanako-o baka ka to tazune-ta*
Taroo-sc top Hanako-sc acc stupid Q C inquire-PST

‘Taro inquired whether or not Hanako is stupid.’
- b. * *Taroo-wa Hanako-o baka ka tazune-ta*
Taroo-sc top Hanako-sc acc stupid Q inquire-PST

‘Taro inquired whether or not Hanako is stupid.’

⁶ The absence of *to* is tolerated in cases without hyperraising.

Fong's proposal is somewhat different than the Case based approaches that made up the bulk of the first subclass of theory discussed in this section. For Fong, the properties of the subject and finite T play no role in determining whether or not a language allows hyperraising; nor is there variation within a language with respect to the phasal status of C. Rather, Fong argues that the properties of the complementizer alone determine whether or not hyperraising will be possible from a finite clause. If a language—or more specifically, a complementizer in that language—has A-features [van Urk (2015)] on its complementizers, then it will have hyperraising. In such languages, a subject may A-move to the edge of CP, allowing it to escape the CP phase while still being able to undergo further A-movement. The contrast in (16) receives a simple explanation: *ka to* has A-features whereas *ka* does not. Hyperraising may take place in the former case, but not in the latter.

2.2.2 Voiding barriers

A second set of theories concerning hyperraising take a different approach. The availability [or not] of hyperraising, for these theories, is not determined by the absence of abstract Case, or a comparable relationship between finite T and its subject [as in Harford-Perez (1985); Ura (1994); Carstens (2011); Diercks (2013)], or by the absence of an Agree relationship followed by A-movement, as proposed by Fong (2017). For these theories, hyperraising is the result of a particular relationship being established between the embedded finite CP, and some higher functional head. The presence of this relationship allows the CP to ‘not count’ as a phase, at least for considerations of A-movement.

Nunes (2008, 2017) concerns itself with hyperraising in Brazilian Portuguese. Nunes notes that some predicates allow hyperraising in Brazilian Portuguese, (17a), but that other predicates do not, (17b).

(17) Hyperraising contrast

- a. *O João parece [que ____ comprou um carro]*
the João seems that bought a car

‘It seems that João bought a car.’
- b. **O João foi dito [que ____ comprou um carro]*
the João was said that bought a car

‘It was said that João bought a car.’

Nunes (2008)

It is further noted that this appears to correlate with another property of these predicates—whether or not the finite clause may itself raise to [spec,CP].

(18) Hyperraising is possible only when the CP cannot move

- a. *[que os meninos fizeram a tarefa] parece
that the boys did the homework seems
- b. os meninos parecem [que ___ fizeram a tarefa]
the boys seem that did the homework

‘The boys seem to have done their homework.’

(19) a. [que os meninos fizeram a tarefa] não foi dito
that the boys did the homework not was said

‘That the boys did their homework was not said.’

- b. *os meninos foram dito [que ___ fizeram a tarefa]
the boys not were said did the homework

Nunes argues that the case in (19) should be taken as the basic case. It is proposed that the ungrammaticality of (19b) should be seen as a violation of the A-over-A condition. Movement of the subject in (19b) is blocked, because movement of the clause that contains it, as in (19a) is possible. Nunes suggests that in the case of (18), hyperraising is allowed because movement of the CP to matrix [spec,TP] is not possible. It is further suggested that this is a result of verbs like *parecer* assigning inherent case to their complement; the status of the sentences in (20) is taken to be evidence for this claim. When *parecer* takes a small clause as its complement, hyperraising from the finite clause becomes ungrammatical. *Parecer* can only assign inherent case to its complement—when the finite clause is *not* a complement to *parecer*, it may move to the matrix subject position, blocking the hyperraising example in (20b).

(20) Inherent Case is assigned only to the complement of *parecer*

- a. [Que eles viajaram] parece óbvio
‘That they traveled seems obvious.’
- b. *Eles parecem óbvios [que ___ viajaram]
they seem obvious that traveled

‘It seems obvious that they traveled.’

Nunes (2008)

Halpert (2016, 2018) makes a similar proposal, based on similar evidence, for Zulu. Halpert notes that, in Zulu, hyperraising is possible—with the additional twist being that agreement with the hyperraised subject is optional, rather than obligatory, as in Brazilian Portuguese.

(21) **Optional agreement in Zulu hyperraising constructions**

- a. *uZinhle u-bonakala [ukuthi ____ u-zo-xova ujeqe]*
AUG.Zinhle 1S-seem that 1S-FUT-make AUG.1steamed.bread
 - b. *uZinhle ku-bonakala [ukuthi ____ u-zo-xova ujeqe]*
AUG.Zinhle 17S-seem that 1S-FUT-make AUG.1steamed.bread
- ‘It seems that Zinhle will make steamed bread.’ *Halpert (2016)*

Halpert notes that finite clauses in Zulu are generally unable to occupy the preverbal subject position, as we see in (22).

(22) **Finite clauses cannot occupy preverbal subject position in Zulu**

- *[*ukuthi w-a-thatha unhlala phansi] kw-a-ngi-mangaza*
that 1S-PST-take AUG.1sit down 17S-PAST-1SG.O-surprise

‘That he retired surprised me.’ *Halpert (2016)*

Halpert’s proposal is comparable to the claim made in Nunes (2008, 2017)—the availability of hyperraising correlates with the (un)availability of finite clause movement to subject position. Halpert proposes that, in Zulu hyperraising constructions, finite T Agrees with the embedded clause. Following Rackowski and Richards (2005), it is suggested that this Agree operation ‘unlocks’ the phase for further probing.⁷ Hyperraising, under this theory, involves T further probing into the embedded CP, Agreeing with the subject, and moving it to the preverbal subject position. Again, the presence of a particular relationship between the embedded CP and some element in the matrix verbal complex voids its status as a locality domain. For Halpert, the optionality of agreement with the raised subject, shown in (21), supports the claim that T has entered into an Agree relationship with both the embedded clause and its subject—the option in (21a) reflects a choice to realize the ϕ -features of the raised subject, whereas the option in (21b) reflects a choice to realize the ϕ -features of the embedded clause.

Deal (2017) makes a proposal comparable to that made by Halpert and Nunes—the availability [or not] of hyperraising is not tied to the presence or absence of a relationship

⁷See Branan (2018); Branan and Davis (2018) for similar proposals about subextraction from nominals.

between the raised subject and T of the embedded finite clause, but rather, comes from an interaction between the embedded complementizer and a functional element in the verbal complex of the matrix clause. This interaction voids the status of the embedded clause as a phase/locality domain. Deal suggests that hyperraising constructions involve a structure like (23), in which there is an intermediate landing site for movement which appears above the embedded C, but below v .

- (23) ...[_{vP} v ...[_{FP} SUBJ F ...[_{CP} C ...SUBJ]]]

This analysis is contingent on the adoption of a ‘relaxed’ Spell-out mechanism, in which the complement of a lower phase head—here, C—is sent to Spell-out only once a higher phase head—here, v —has entered the structure. The presence of a landing site below v , in combination with this relaxed Spell-out mechanism, determines whether or not hyperraising is allowed.

2.2.3 Deciding between theories

In the previous section of the paper, we saw that there are two families of theories of hyperraising. The first makes no reference to phases or locality domains—it is either implicitly [Harford-Perez (1985); Ura (1994); Carstens (2011)] or explicitly [Diercks (2013); Fong (2017)] assumed that hyperraising cannot cross a locality domain, or phase. The second are constructed entirely in terms of phases or locality domains—hyperraising necessarily crosses a locality domain or skips phase edge, with some other mechanism being responsible for the ‘voiding’ of the phase as a barrier for the purposes of movement. I will first show that the theory developed in the previous section might allow us to distinguish between the two families of theories. We will then examine hyperraising constructions from a number of languages in more detail, and see that facts from these languages suggest that a theory of hyperraising in the second family seems to be on the right track.

In chapter 1 of this thesis, I presented a theory of defective intervention effects—a ban, in certain languages, on raising subjects across experiencers and adverbs. It was couched in the notion of Contiguity and Contiguity Preservation, given in (24-25).

- (24) **Contiguity *in toto***

- a. *Contiguity*:

A Goal must be *contiguity prominent* within a ϕ that dominates a probe that Agrees with it.

b. *Contiguity prominent*:

G is *contiguity prominent* within ϕ_1 if no other ϕ lies between G and the prosodically active edge of ϕ_1 , and ϕ_1 dominates G .

(25) **Contiguity Preservation**

A goal G must satisfy Contiguity for a probe P with which it agrees in every spellout domain that contains⁸ P and G .

The effect arises only in left-headed, right-active languages, as a result of (24-25). Raising across an experiencer in these languages will always result in a structure in which the subject is no longer Contiguity-prominent within the ϕ that dominates it and both embedded and matrix T. As a result, such raising is ruled out by (25)—such a derivation is not Contiguity Preserving.

(25) leads to an interesting expectation. If a left-headed, right-active language had a construction *comparable* to raising, but in which the lower T and higher T were separated by a phase boundary, and in which the subject is not in any other Agree relationship above that phase boundary, then we would expect the problem associated with raising across experiencers not to be present in such constructions. This is the sort of construction that hyperraising is proposed to be by the second family of theories—in all of these cases, hyperraising ‘skips’ the phase edge of the embedded clause, moving directly to some position higher in the matrix clause. On the other hand, if a left-headed, right-active language had a construction *comparable* to raising, but in which the lower T and higher T were still *not* separated by a phase boundary, then we should expect this effect to be present in such constructions. We will now turn to hyperraising in a number of languages, and see that the second family of theories appears to be on the right track—hyperraising may freely occur across an experiencer or adverb in a number of languages. This highlights, for the first time, a third feature of intervention effects more generally—that they display a ‘clause-boundedness’ property, which turns out to be naturally captured by the approach to intervention effects generally assumed throughout this dissertation. A Contiguity relationship present in a lower phase may be broken, but it may not be broken in the same phase in which it was formed.

Brazilian Portuguese

To begin, we will examine hyperraising in Brazilian Portuguese in more detail. As we saw earlier in this section, Brazilian Portuguese has hyperraising, demonstrated in (26). Several

⁸Where ‘contains’ means: the ϕ corresponding to a spell-out domain dominates P and G , but doesn’t dominate a ϕ corresponding to any other spell-out domain that also dominates P and G .

arguments have been provided that suggest that constructions like (26) really do involve a movement chain, rather than base generation of a topic in the matrix left periphery. The first is that they hyperraising subject controls agreement in both the embedded and matrix clause—clause peripheral topics are not able to control verbal agreement in Brazilian Portuguese.

- (26) a. *Eles parecem que compraram um carro novo.*
 they seem-3PL that bought-3PL a car new
 ‘They seem to have bought a new car.’
- b. *Eu pareço que ‘tou doente.*
 I seem-1SG that be-1SG sick
 ‘I seem to be sick.

Martins and Nunes (2010)

A second argument for hyperraising in Brazilian Portuguese involving an (A-)movement chain, rather than being some sort of topicalization construction, is that it is possible to hyperraise indefinite subjects, which cannot normally be topicalized, as in (27).

- (27) a. * *Alguém, o João me disse que ____ está doente.*
 someone the João me said that is sick
 ‘João told me that someone was sick.’
- b. *Alguém parece que ____ está doente.*
 someone seems that is sick
 ‘Someone seems to be sick.’

Martins and Nunes (2010)

A third argument for Brazilian Portuguese hyperraising being an instance of (A-)movement is that it preserves idiomatic readings, unlike topicalization.

- (28) a. *A vaca, o João disse que ____ foi pro brejo.*
 the cow the João said that went to-the swamp
 Idiomatic reading (‘John said that things went bad.’): *
 Literal reading (‘John said that the cow went to the swamp.’): OK

- b. *A vaca parece que ____ foi pro brejo.*
 the cow seems that went to-the swamp

Idiomatic reading ('It seems that things went bad.'): OK
 Literal reading ('It seems that the cow went to the swamp.'): OK Martins and Nunes (2010)

A fourth argument for Brazilian Portuguese hyperraising being an instance of (A-)movement comes from the availability of reconstruction for NPI licensing. Certain NPIs are subject to a clause-mate licensing condition—there is a requirement that the licensor of the NPI be in the same clause as the NPI it licenses. This is shown by the contrast between (29a-b). As we see in (29c), an NPI in a hyperraising construction is able to license such an NPI across a clause boundary; this can be explained if the NPI is able to reconstruct into the lower clause.

- (29) a. *Ninguém mexeu um dedo para me ajudar*
 nobody moved a finger to me help
 'Nobody lifted a finger to help me.'
- b. * [*Ninguém disse [que a Maria mexeu um dedo para me ajudar]*]
 nobody said that the Maria moved a finger to me help
 'Nobody said that Maria didn't lift a finger to help me.'
- c. [*Ninguém parecia [que ____ ia mexer um dedo para me ajudar]*]
 nobody seemed that went move a finger to me help
 'It seemed that nobody was going to lift a finger to help me.' Nunes (2008)

We saw before that there is a particular requirement on hyperraising in Brazilian Portuguese—it is possible only when the embedded clause is unable to raise to the preverbal subject position of the matrix clause, (30).

(30) **Hyperraising is possible only when the CP cannot move**

- a. * [*que os meninos fizeram a tarefa*] *parece*
 that the boys did the homework seems
- b. *os meninos parecem [que ____ fizeram a tarefa]*
 the boys seem that did the homework

'The boys seem to have done their homework.'

- (31) a. [*que os meninos fizeram a tarefa*] *não foi dito*
 that the boys did the homework not was said
 ‘That the boys did their homework was not said.’
- b. **os meninos foram dito* [*que ____ fizeram a tarefa*]
 the boys not were said did the homework

This motivated the ‘voiding’ analysis for Brazilian Portuguese. I will propose a similar mechanism: T is able to probe into the embedded finite clause just in cases where V has entered into a probe-goal relationship with the finite clause. I follow Nunes (2008) in assuming that verbs that probe the finite clause lock the finite clause in place, as in (30), whereas verbs that do not probe the finite clause do not lock the finite clause in place, as in (31).

If this analysis is on the right track, it makes an interesting prediction: hyperraising should be possible across an experiencer or adverb in Brazilian Portuguese. First we must establish that Brazilian Portuguese has prosodic activity on the right. It passes a number of syntactic tests which suggest that it does. As we see in (32), it allows *wh*-in-situ, does not enforce V-O adjacency, has left-headed compounds, and displays no left-edge requirement on pied-pipers.

- (32) a. *Bill acha que a Sue comprou o quê?*
 B. thinks that S. bought the what
 ‘What does Bill think that Sue bought?’ *Pires and Taylor (2007)*
- b. *A Bia faz sempre o dever de casa*
 B. does always the work of house
 ‘Bia always does the homework’ *Silva (2001)*
- c. cidáde-satélite *Guzzo (2015)*
- d. *Fotos de quem o João viu?*
 pictures of who the João saw
 Who did João see pictures of

Evidence from the prosodic literature corresponds with this analysis. Frota and Vigário (2001) finds that a high boundary tone usually demarcates the right edge of ϕ in Brazilian Portuguese. Similarly, the pitch peak on the adjective in the branching subject in (33) is higher than that of the noun. Recall that Norvin’s Test shows that the presence of pitch

peaks of the sort in (33) suggest that the language is right-active [left-active languages have an inverted pattern].⁹

- (33) a. *Café quente queima a boca*
coffee hot burns the mouth

'Hot coffee burns the mouth.'

b.

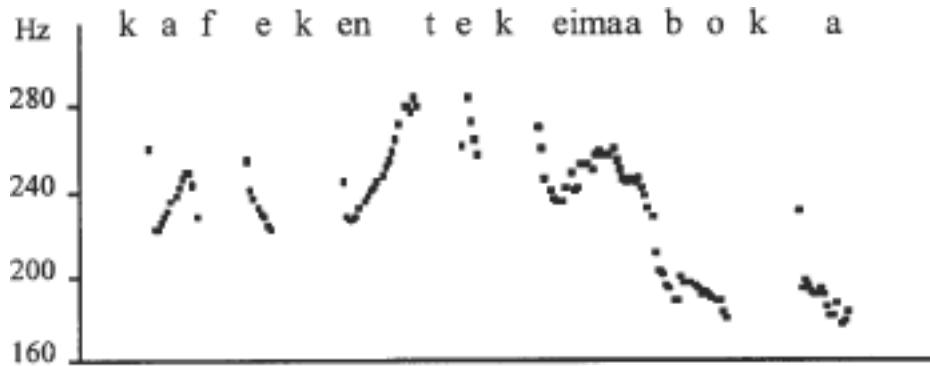


Figura 1: Entoação NAVN

Sandalo and Truckenbrodt (2003)

This leads us to expect Brazilian Portuguese to have the defection intervention effect. As we see in (34), Brazilian Portuguese is indeed subject to defective intervention, comparable to that of the cases examined in chapter 1.

- (34) a. *Os alunos parecem pro professor [____ terem estudo para
the students seem-3pl to.the teacher have-3pl-INF studied-3pl for
a prova]
the exam

'The students seem to the professor to have studied for the exam.'

⁹ The basic idea behind this test is that prosodic activity correlates with where languages place prominence within a prosodic domain. In languages that have prosodic activity on the left, the first element in a binary branching prosodic phrase should be higher than the first, above what we might expect given only a process of gradual downdrift. In languages that have prosodic activity on the right, the second element in a binary branching prosodic phrase should either be slightly higher than the first or the two should be roughly equal—here the ‘boost’ of the pitch would be working against downdrift, and would therefore be less apparent.

- b. * *Maria parece nessas condições* [____ *não quer sair mais de férias*]
 Maria seem in-these conditions not want-INF leave-INF more of vacations

'It seems that Mary doesn't want to go on vacations anymore in these conditions.'

Moreno and Petersen (2017)

Recall now our theory of defective intervention—(34a-b) are ungrammatical because raising across the defective intervener illicitly breaks the Contiguity relationship between the subject and embedded T. The relationship is broken in the same phase that it was formed in violation of Contiguity Preservation.

Interestingly, as we see in (35), no defective intervention effect arises in Brazilian Portuguese hyperraising.¹⁰ The presence of a phase boundary between the launch site and landing site in (35) appears to allow the Contiguity relationship between the embedded T and hyperraised subject to be broken. This is a natural consequence of the way we have defined Contiguity Preservation—the landing site of hyperraising is in a different phase than the launch site, and may therefore be broken while still respecting Contiguity Preservation, as schematized in (36).

- (35) a. *Os alunos parecem pro professor* [*que* ____ *estudaram para a prova*]
 the students seem-3pl to the teacher that studied-pl for the

'The students seem to the professor that they studied for the exam.'

S. Fong, F. Kobayashi, N. Kobayashi (p.c.)

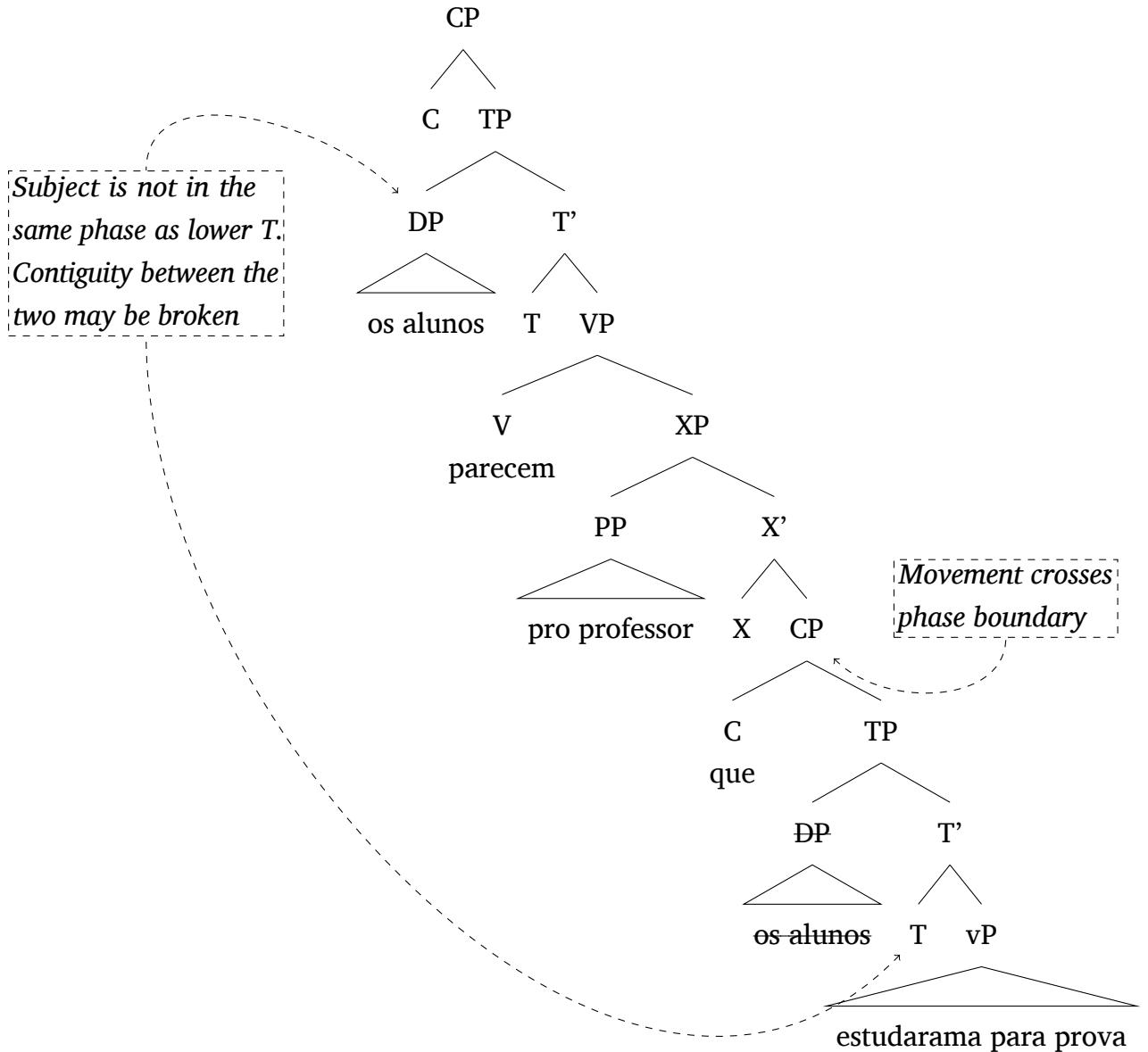
- b. *Maria parece nessas condições* [*que* ____ *não vai sair mais de férias*]
 Maria seem in-these conditions that not will-IND leave more in vacations

'It seems that Mary will not be going on vacations anymore in these conditions.'

Fernández-Salgueiro (2011)

¹⁰ There is apparent variation. Fong (p.c.), F. Kobayashi, and N. Kobayashi (p.c.) all report (35a) to be perfect; Moreno and Petersen (2017) report (35a) to be ungrammatical.

(36)



Note that an ‘avoiding’ derivation like that proposed in Fong (2017) will not result in amelioration of the defective intervention effect, given the theory developed so far. For Fong, hyperraising requires the subject to be probed by C, triggering movement to the edge of CP, thereby allowing the subject to escape the phase. As a result, Contiguity between the subject and embedded complementizer must be respected within the phase corresponding to the matrix clause, since both are contained in the spell-out domain

delimited by matrix C. Moving the subject across an experiencer, from [spec,CP] of the embedded clause to [spec,TP] of the matrix clause, should therefore result in a violation of Contiguity Preservation: after movement, in such cases, there will be no way to apply Grouping to create a ϕ that contains the raised subject, matrix T, and embedded C that does not also contain the experiencer.¹¹

The presence or absence of the defective intervention effect can be used to probe the nature of hyperraising in a particular language. If the language is left-headed and right-active, then we expect the defective intervention effect to arise in hyperraising in languages that utilize an ‘avoiding’ derivation to derive hyperraising. The effect should not arise in languages that utilize a ‘voiding’ strategy, such as Brazilian Portuguese. As we will see in the following subsections of this chapter, the presence of the defective intervention effect in hyperraising is perspicuously absent—even in languages for which an ‘avoiding’ derivation has been posited—suggesting that the ‘voiding’ strategy is the only option available for deriving hyperraising, crosslinguistically.

Zulu

We will now examine hyperraising in Zulu in more detail. Halpert (2015) provides several arguments that constructions like that in (37) involves an A-chain. The raised subject can control verbal agreement in both the embedded and matrix clause, as we see in (37a). Furthermore, as seen by the contrast between (37a-b), hyperraising a subject is idiom preserving, in contrast to left-dislocation.

(37) Hyperraising preserves idioms

- a. *iqhina li-bonakala ukuthi li-phuma embizeni*
aug.5steinbok 5s-seem that 5s-exit loc.9cooking.pot

‘The secret seems to be coming out.’

- b. # *iqhina ngi-cabanga ukuthi li-phuma embizeni*
aug.5steinbok 1sg-think that 5s-exit loc.9cooking.pot

‘(As for) the steinbok, I think that it’s coming out of the cooking pot.’

Halpert (2015)

¹¹ It would of course be possible to develop a different version of this sort of theory that would not have this problem, as pointed out to me by Danny Fox. An imaginable alternative would be to say that the probe which triggers movement is T, but T triggers movement in these cases not to its specifier, but to the specifier of C. Under this sort of approach, we could maintain an account like that in Fong (2017) for hyperraising, since this account would interact ‘correctly’ with the theory developed so far.

A second argument comes from binding. As we see in (38), hyperraising of a pronominal creates new binding possibilities—the hyperraised pronominal subject in (38b) c-commands a coindexed R-expression, and is ruled out by condition C.

(38) Hyperraising creates new possibilities for binding

- a. *ku-fanele [ukuthi [ngo-buhlakana bukaSipho_i] pro_i 17s-necessary that nga-aug.14wisdom 14assoc.1Sipho pro_i a-m-siz-e uThemba] 1sjc-1o-help-sjc aug.1Themba*
 ‘It’s necessary that out of Sipho_i’s wisdom, he_i helps Themba.’
- b. **pro_i u-fanele [ukuthi [ngo-buhlakana bukaSipho_i] a-m-siz-e pro_i 1s-necessary that nga-aug.14wisdom 14assoc.1Sipho 1sjc-1o-help-sjc uThemba] aug.1Themba*
 ‘It’s necessary that out of Sipho_i’s wisdom, he_i helps Themba.’ Halpert (2015)

We will first establish that Zulu is a left-headed, right-active language. As we see in (39), Zulu passes a number of our syntactic diagnostics for being such a language. It allows *wh*-in-situ, displays no left-edge restriction on pied-piping, allows adverbs to appear between the verb and object, and has left-headed compound nouns.

(39) Syntactic tests suggest that Zulu is a left-headed, right-active language

- a. *Ngi-buze [ukuthi uPeter u-thenge-ni]*
 1SG-asked that 1a.Peter 1a-bought-what.9
 ‘I asked what Peter bought’ Sabel and Zeller (2006)
- b. *[Isibonelo sika-bani] oku-melwe si-si-landel-e*
 AUG.7.example 7.ASSOC.1-1.who 17.REL-ought 1PL.S-7.O-follow-SUBJ
 ‘[The example of who] ought we to follow?’ Richards (2017a)
- c. *A-ngi-wu-bon-i kahle umbala oluhlaza*
 NEG-1sg.S-3O-see-NEG well AUG.3color 3REL-green
 ‘I don’t see the color green well’ C. Halpert (p.c.)

- d. *u-m-khumbi-m-khathi*
 AUG-NPX3-3.ship-NPX3-3.firmament
 ‘spaceship’

de Dreu (2008)

Testing for defective intervention in hyperraising with experiencers is somewhat more difficult in Zulu. Many speakers do not like the experiencer to appear in the crucial position, regardless of whether or not hyperraising has taken place.

(40) **Experiencer can't appear in crucial position**

- a. % *ku-bonakala kuSipho ukuthi uZinhle u-zoxova ujeqe*
 17-seem ku-S. that 1.Z. 1S-make steamed.bread
 intended: It seems to Sipho that Zinhle will make steamed bread
- b. % *uZinhle u-bonakala kuSipho ukuthi u-zoxova ujeqe*
 1.Z. 1S-seem ku-S. that 1S-make steamed.bread
 intended: It seems to Sipho that Zinhle will make steamed bread

C. Halpert (p.c.)

However, recall from the discussion of Brazilian Portuguese that the contrast between raising and hyperraising with respect to defective intervention arises with adverbs, as well—see (41).

- (41) a. * *Maria parece nessas condições [____ não quer sair mais de férias]*
 Maria seem in-these conditions not want-INF leave-INF more of vacations

‘It seems that Mary doesn’t want to go on vacations anymore in these conditions.’

Moreno and Petersen (2017)

- b. *Maria parece nessas condições [que ____ não vai sair mais de férias]*
 Maria seem in-these conditions that not will-IND leave more in vacations

‘It seems that Mary will not be going on vacations anymore in these conditions.’

Fernández-Salgueiro (2011)

Zulu has a set of monoclausal constructions involving two verbs, in which the subject Agrees with both the higher and lower verb. As we see in (42), it is not possible for the subject in these constructions to raise across a temporal adverb. The ungrammaticality of (42b) is comparable to the ungrammaticality of (41a).¹²

(42) Defective intervention with adverbs in multi-verb constructions

- a. *namhlanje izingane zi-phinde za-wa*
today AUG.10child 10s-again 10.SJC-fall
‘Today, the children fell again.’
- b. * *izingane zi-phinde namhlanje za-wa* Halpert
(2015)
AUG.10child 10s-again today 10.SJC-fall

Hyperraising behaves as expected—it is not subject to defective intervention by adverbs. As we see in (43a-b), an adverb comparable to that in (42) can appear in the crucial position to be a defective intervener. Hyperraising across the adverb, in these cases, is completely acceptable.

(43) Hyperraising crosses adverbs in Zulu

- a. *UJabu u-be-fanele izolo ukuthi a-hamb-e namhlanje*
Jabu1a SM1a-AUX-ought yesterday that SM1a-leave-SUBJ today
‘It was vital yesterday for Jabu to leave today.’ Zeller (2006)
- b. *uThembeka ku-bonakala ngokusobala ukuthi keneme udangele.*
1.T 17-seem obviously that still 1-discouraged
‘It obviously seems that Thembeka is still discouraged’

http:

//nxayezwe.byo24.com/index.php?id=iblog&iblog=754&comment=2600

These facts suggest that Zulu, like Brazilian Portuguese, utilizes a ‘voiding’ strategy in the derivation of hyperraising constructions. Hyperraising derived through a ‘voiding’ strategy is expected to not display the defective intervention effect. Halpert (2015, 2016, 2018) proposes such an account for Zulu hyperraising. Recall that, similarly to Brazilian Portuguese, finite clauses in Zulu cannot appear in the pre-verbal subject position, shown in (44).

¹² Note also that (38) shows us that hyperraising across an adjunct contained in the embedded clause is also possible.

(44) **Finite clauses cannot occupy preverbal subject position in Zulu**

*[*ukuthi w-a-thatha unhlala phansi*] *kw-a-ngi-mangaza*
that 1S-PST-take AUG.1sit down 17S-PAST-1SG.O-surprise

‘That he retired surprised me.’

Halpert (2016)

Halpert proposes that T enters into two Agree relationships in hyperraising constructions—once with the embedded clause, and then later with the subject of the emebdded clause. Agree with the subject of the embedded clause, across the phase boundary of the embedded clause, allows the subject to raise to subject position. The proposed Agree relationship between T and the embedded CP accounts for the fact that a hyperraised subject in Zulu may control subject agreement in the matrix clause, but need not, as seen in (45). It is proposed that the optionality in Agreement reflects a choice between exponing the ϕ -features of the subject, as in (45a), or the embedded clause that contained the subject prior to raising, as in (45b).

(45) **Optional agreement in Zulu hyperraising constructions**

- a. *uZinhle u-bonakala* [*ukuthi* ____ *u-zo-xova ujeqe*]
AUG.Zinhle 1S-seem that 1S-FUT-make AUG.1steamed.bread
- b. *uZinhle ku-bonakala* [*ukuthi* ____ *u-zo-xova ujeqe*]
AUG.Zinhle 17S-seem that 1S-FUT-make AUG.1steamed.bread

‘It seems that Zinhle will make steamed bread.’

Halpert (2016)

Spanish

We’ve seen that Brazilian Portuguese and Zulu both have hyperraising constructions, and that the lack of defective intervention effects in hyperraising constructions suggests that these languages utilize a ‘voiding’ strategy in the derivation of these constructions. In this section, we will turn to the case of Italian and Spanish. In a series of papers, Fernández-Salgueiro (2005, 2008, 2011) argues that Italian and Spanish all have a construction that should be analyzed as long A-movement, comparable to hyperraising in Brazilian Portuguese and Zulu.¹³ The construction differs in one way from Brazilian Portuguese: agreement with the hyperraised subject in these constructions is impossible, rather than obligatory, as in Brazilian Portuguese, or optional as in Zulu. In this subsection, we will

¹³ In fact, Fernández-Salgueiro (2011) reports a stronger claim: *all* Romance languages [other than French] have this construction.

review the arguments that this construction is comparable to hyperraising, see that it is not subject to defective intervention, and show that proposals made in Halpert (2016, 2018) allow us to capture these facts straightforwardly, under a hyperraising analysis. For expository purposes, I'll use the term 'hyperraising' in this discussion to refer to the construction under discussion, rather than the term proposed in Fernández-Salgueiro (2005, 2008,?, 2011)—Further-raising.

One argument that this construction involves an instance of (A-)movement is that it preserves idiomatic readings, unlike Ā-movement.

(46) **Idiomatic reading preserved**

- a. *Mala hierba nunca muere.*

bad grass never dies

'The devil looks after his own.'

- b. *Mala hierba parece que nunca muere*

bad grass seems that never dies

'The devil seems to look after his own'

Fernández-Salgueiro (2011)

A second argument that hyperraising in Spanish is A-movement comes from the fact that non-referential elements can undergo hyperraising, as shown in (47a). These elements can't undergo Ā-movement, as we see in (47b).

(47) **Non-referential elements can't be Ā-moved, but can be hyperraised**

- a. *Nada parece que vaya a cambiar España*

nothing seems that goes to change Spain

It seems that nothing is going to change the way Spain is.

- b. **Nada, yo creo que vaya a cambiar España*

nothing I think that goes to change Spain

A third argument comes from the availability of inverse scope in hyperraising constructions. QR is generally assumed to be clause-bound; however, as we see in (48b), inverse scope is available in hyperraising constructions. These facts receive an explanation if there is a lower copy of the hyperraised subject in the embedded clause. Reconstruction of the hyperraised subject into the embedded clause should allow the inverse scope reading.

(48) **Reconstruction for inverse scope is possible**

- a. *Algún problema afecta siempre a toda pareja*
some problem affects always to every couple
'Some problem always affects every couple.' $\exists > \forall, \forall > \exists$
- b. *Algún problema parece que afecta siempre a toda pareja*
some problem seem that affect always to every couple
'Some problem seems to always affect every couple.'

$\exists > \forall, \forall > \exists$ Fernández-Salgueiro (2011)

A final argument that this construction involves an instance of A-movement is that allows *ad sensum* agreement. As we see in (49), an \bar{A} -moved subject may trigger *ad sensum* agreement on the verb—however, a subject derived by A-movement may not.

(49) **\bar{A} -movement allows ad-sensum agreement; A-movement does not**

- a. **El jurado estaban presionados*
the jury were pressured
'The jury felt pressured' Fernández-Sánchez (2015)
- b. *Ese equipo, yo creo que juegan mejor bajo presión.*
that team I think that play.3pl better under pressure
'That team, I think they play better under pressure.' Fernández-Salgueiro (2011)

Interestingly, as we see in (50), hyperraising in Spanish may not trigger *ad sensum* agreement on the verb, consistent with an A-movement analysis.

(50) **Hyperraising does not allow ad-sensum agreement**

- **Ese equipo parece que juegan mejor bajo presión.*
that team seems that play.3pl better under pressure
'It seems that that team plays better under pressure.' Fernández-Salgueiro (2011)

We established in chapter 1 that Spanish is a language with prosodic activity on the right, as we see in (51). Some syntactic diagnostics that suggest this is the case are given in (51).

(51) Syntactic tests for prosodic activity in Spanish

a. No left-edge restriction on pied-pipers:

[*El retrato de quién*] ha dicho Juan que viste _____
 the picture of who has said Juan that you

‘Who has John said that you saw the picture of?’

b. Allows adverbs between verb and object:

Juan habla a menudo italiano

J. speaks often Italian

‘John speaks Italian often.’

Richards (2016, 2017a)

c. Left headed compounds

pez espada

‘swordfish’; fish + sword

d. *Juan compró qué*

J. bought what

‘What did Juan buy?’

Reglero (2004)

If this analysis of Spanish is on the right track, then we should expect raising in Spanish to be subject to defective intervention, and, as shown in (52a), it is. Likewise, if hyperraising in Spanish is like hyperraising in Brazilian Portuguese and Zulu, it should allow hyperraising across experiencers. As shown in (52b), it does.

(52) a. * *Juan me parece a mí llegar tarde*

J. to.me seems to me to.arrive late

b. *Juan me parece a mí que llegará tarde*

J. to.me seems to me that arrive.FUT late

‘It seems to me that Juan will arrive late.’

Fernández-Sánchez (2015)

We can be certain that (52b) is indeed an instance of hyperraising by the presence of scopal ambiguities in comparable cases, where there is an additional quantificational element in the lower clause. As we have seen before, quantificational subjects in Spanish hyperraising constructions may reconstruct into the lower clause, allowing for scopal ambiguities to arise when there is another quantificational element in the lower clause. As we see in (53), similar ambiguities arise in cases where a quantificational element undergoes hyperraising across an experiencer. This mitigates against a parse of (53) in which the subject of the embedded clause is a null pronominal, with *alguna lesión* being left-dislocated.

- (53) (*Dado que la temporada es muy larga*), *alguna lesión me parece a mí que because the season is very long, some injury me seems to me that afectará a todo futbolista affects to every football.player*

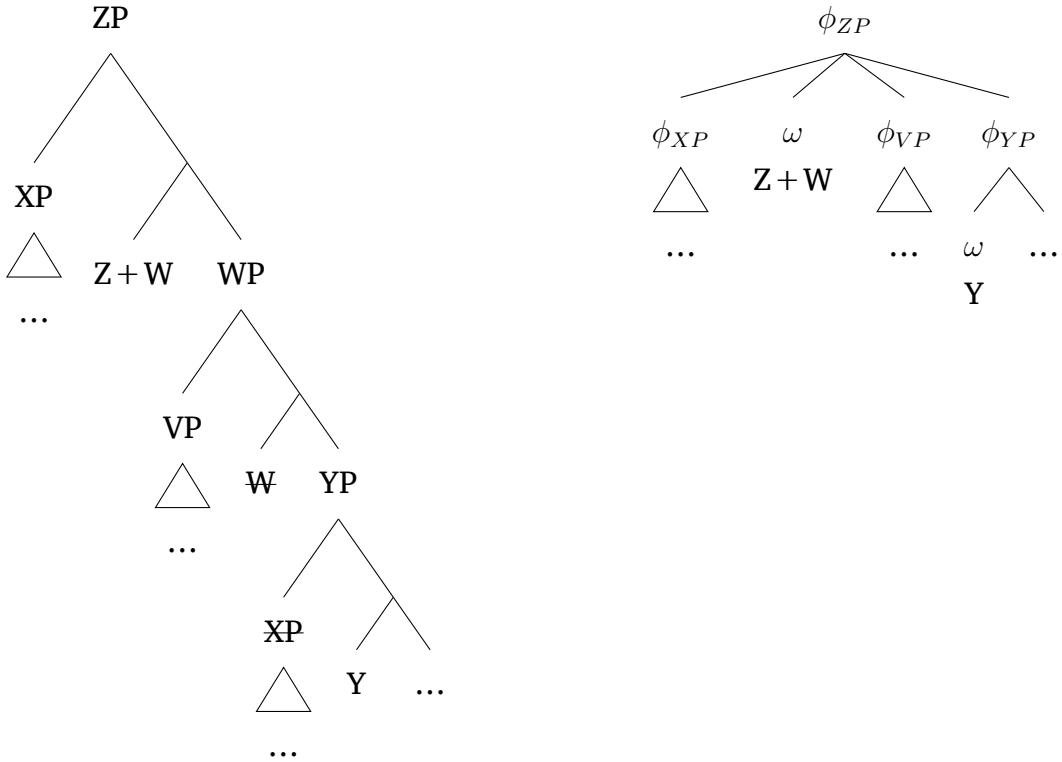
‘Some injury seems to me to impinge on every football player’ $\exists > \forall, \forall > \exists, G.$
Fernandez-Salgueiro (p.c.)

We can understand Spanish’s hyperraising construction as one comparable to Zulu. In Zulu, following Halpert (2016, 2018), T agrees with both the embedded clause and its subject. The language then has an option with respect to which set of features it expones as: if it chooses the features of the embedded clause, class 17, or ‘default’ agreement arises; if it chooses the features of the subject then the features of the hyperraised subject and subject marker match. Spanish can be seen as a Zulu-like language that only has the first option—this leads to the consistent lack of concord between the subject agreement morpheme and ϕ -features of the subject in Spanish hyperraising constructions.

2.3 Another puzzle: \bar{A} -movement across a subject

So far, this chapter involved a further investigation of movement operations on structures like (54) in left-headed, right-active languages, building on the results of chapter 1. We saw that the introduction of a phase boundary between the launch site and landing site of movement allowed this sort of movement to occur, even though such movement *within* a phase, as in (54), is predicted to be ungrammatical.

(54)



This was shown to be a consequence of Contiguity Preservation, formulated in chapter 1, and repeated here in (55). Movement of XP in left-headed, right-active languages because such raising violates (55) when XP is an Agree relationship with Y and Z, and all are contained in the same phase—there is no way to Group ω_Y , ω_{Z+W} , and ϕ_{XP} while excluding ϕ_{VP} from the structure created by Grouping. Movement of XP to this position breaks the Contiguity relationship between Y and XP in the same phase it was created.

- (55) **Contiguity Preservation** A goal G must satisfy Contiguity for a probe P with which it agrees in every spellout domain that contains¹⁴ P and G .

If this analysis is on the right track, we should expect *any* instance of movement across an element that maps to ϕ to cause a problem for Contiguity when there is at least one probe which has agreed with the mover to the right of the element moved across—at least for left-headed, right-active languages. If the ban in (56) does in fact hold more generally, what should we take as evidence for it?

¹⁴Where ‘contains’ means: the ϕ corresponding to a spell-out domain dominates P and G , but doesn’t dominate a ϕ corresponding to any other spell-out domain that also dominates P and G .

(56) General ban on intra-phrasal movement in left-headed, right-active languages

$*[phase \dots XP \text{P1} \dots (\dots)_\phi \dots \text{P2} __]$

The crucial signature of the ban in (56) is exemplified by the contrast in (57). In (57a), we see that raising of a subject across an element that will map to a ϕ —here, the experiencer à *Marie*—leads to ungrammaticality. In (57b), we see that moving the experiencer out of the way repairs the problem.

- (57) a. $*Jean \text{ semble } \ddot{\text{a}} \text{ Marie } \text{avoir } du \text{ talent}$

J. seems to Mary to.have of talent

‘Jean seems to Marie to have talent’

- b. $A \text{ qui } est-ce que Jean \text{ semble avoir } du \text{ talent?}$

to who is-it that J. seems to.have of talent

‘To whom does Jean seem to have talent?’

McGinnis (1998a)

In this section, I will suggest that the ungrammaticality of examples like (58) constitutes evidence for this ban—and that the examples in (59), involving inversion of the verb and subject, can be seen as a “repair” to the problem raised for Contiguity in these cases, on par with movement of an experiencer in defective intervention configurations. The basic idea is that the Contiguity relationship between a *wh*-object and the verbal complex must be maintained; inversion of the subject becomes obligatory so that this can happen.

- (58) $*[phase \dots WH \text{ C} \dots (\dots)_\phi \dots v __]$

- a. $*Che \text{ cosa Maria } ha \text{ detto?}$

what Maria has said

‘What has Maria said?’

Italian,

Rizzi (1996)

- b. $*Mbatya \text{ dza } vakadzi \text{ va-kason-era } mwenga$

10clothes 10REL 2women 2AGR-sewed-APL 1bride

‘Clothes which the women sewed for the bride’

Harford and Demuth (1999), Shona

- (59) a. *Che cosa ha detto Maria?*
 what has said Maria

‘What has Maria said?’

Rizzi (1996), Italian

- b. *Mbatya dza va-kason-era vakadzi mwenga*
 10clothes 10REL 2AGR-sewed-APL 2women 1bride

‘Clothes which the women sewed for the bride’

Harford and Demuth (1999), Shona

First, we will examine obligatory subject inversion in Romance and Modern Greek, and develop a theory of why this sort of inversion would be obligatory in left-active, right-active languages. Then, we will examine cross-linguistic variation in the Bantu languages. We will see that some Bantu languages have inversion of the sort in (59) in \bar{A} -movement constructions, whereas others do not. The ones that have inversion of the sort in (59) will be shown to move their verbs to T, as in Romance. Those that do not will be shown to have T lowering to V, and, as a result, have some other means of satisfying Contiguity between v and the fronted object, namely, by Spelling-out the lower copy of the object as a marker in the verbal complex.

The discussion in this section relies heavily on a specific formulation of phases, which I will lay out here. A phase consists of three domains, as schematized in (60): the phase head P, its complement, the *spell-out realm*, and the specifier of the phase, or *edge*.¹⁵ Contiguity Preservation requires Contiguity relationships created in a Spell-out realm to be maintained within that domain. Movement of an element to the edge of a phase allows Contiguity relationships within the Spell-out realm to be safely broken.

- (60) [[...]_{edge} P [...]_{S.O.R.}]_{phase}

This raises a more general question: what is the status of P, the phase head, for Contiguity Preservation? Clearly, we will need phase heads like v to ‘count’ for the evaluation of Contiguity within the spell-out realm it delimits, in order to preserve the analysis of allowable configurations of verb, adverb, and object first set out in Richards (2016).¹⁶ However, for the analysis we pursue in this section, we will not want phase heads to actually be considered part of the spell-out realm they delimit, but rather, part of the

¹⁵ I use the term *spell-out realm* to avoid re-use of the term *spell-out domain* from Fox and Pesetsky (2005), which corresponds the maximal projection headed by a phase head.

¹⁶ A similar assumption will be necessary for the relationship between C and *wh*-phrases like that to be explored in chapter 3.

‘next spell-out realm up’. So, for a configuration like that in (61), Contiguity relationships between P_1 and other elements in S.O.R.-2 [but not S.O.R.-1] must be preserved.

- (61) $[...[...]_{edge} P_2 [...[P_1 [...]_{S.O.R.-1}]]_{S.O.R.-2}]$

Phase heads therefore have a sort of dual status—they may trigger movement and Grouping operations within the spell-out realm they delimit, but are themselves properly considered part of the next highest spell-out realm.

2.3.1 Inversion in Romance & Modern Greek

The theory developed in this thesis proposes that Agree relationships are subject to a prosodic locality requirement, and that one way this requirement might be satisfied is through overt movement, either of the probe or of the goal. An example of the syntactic effect of this in English is shown in (62). In (62a), we see that the *wh*-phrase and question complementizer cannot be separated by any ϕ , such as the ϕ corresponding to the subject—the *wh*-phrase fails to satisfy Contiguity in (62a). Movement of the *wh*-phrase to the left of the complementizer, as in (62b), results in a ϕ that dominates both the complementizer and *wh*-phrase, and in which no other ϕ occur between the *wh*-phrase and the edge of the ϕ dominating it and its complementizer.

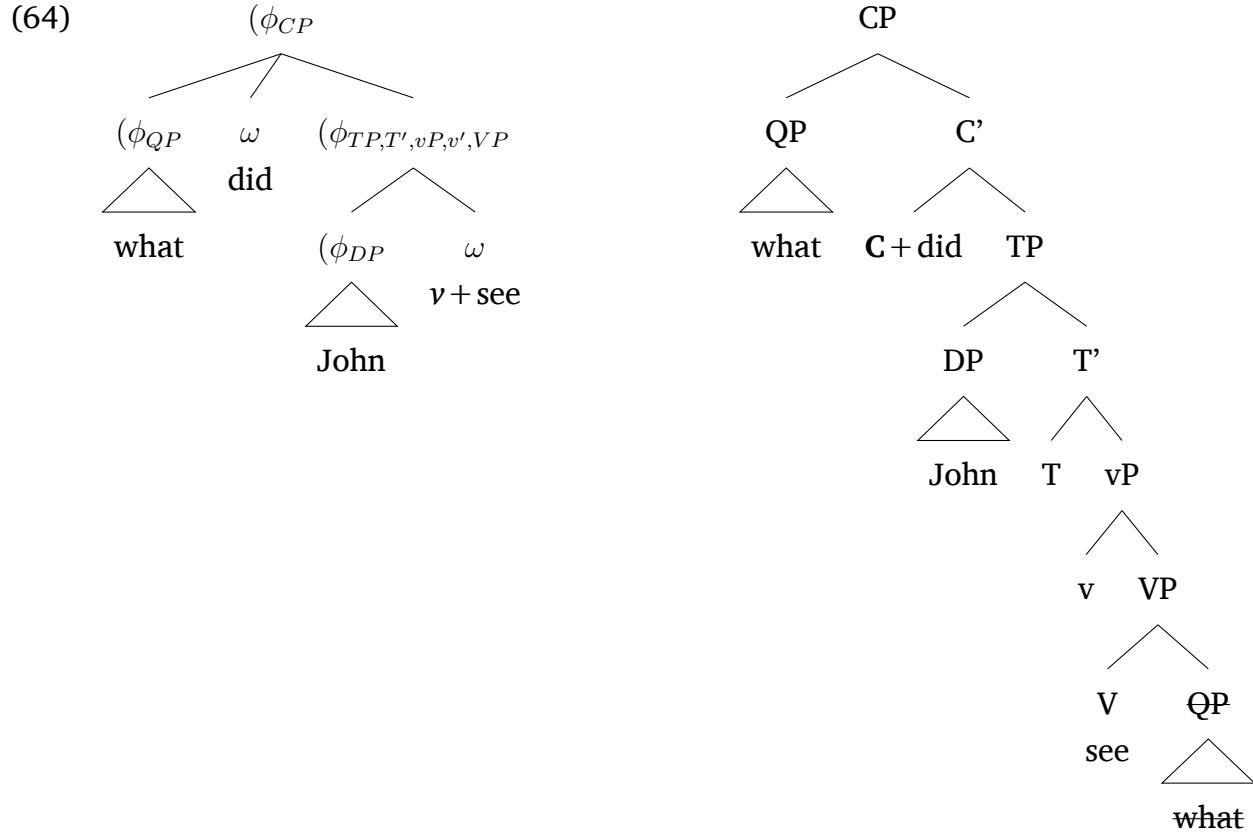
- (62) a. * Did Asouk cook what?
b. What did Asouk cook?

A sentence like (62b) will have a syntactic structure as in (64a), and a prosodic structure like that in (64b), given the Match Theoretic approach to the syntax-prosody mapping we have assumed in this thesis. Recall that the definition of Contiguity we are working with, repeated in (63), requires a goal to satisfy Contiguity for a probe in the first ϕ dominating that probe.

(63) Contiguity *in toto*

- Contiguity:*
A Goal must be *contiguity prominent* within a ϕ that dominates a probe that Agrees with it.
- Contiguity prominent:*
 G is *contiguity prominent* within ϕ_1 if no other ϕ lies between G and the prosodically active edge of ϕ_1 , and ϕ_1 dominates G .

Note, in (64), that ϕ_{QP} still satisfies Contiguity for $v + see$ — ϕ_{QP} is Contiguity-prominent in ϕ_{CP} , which dominates both *did* and $v + see$. ϕ_{QP} is Contiguity-prominent in ϕ_{CP} because it is at the left edge of ϕ_{CP} . Leftward movement, at least in left-headed, left-active languages, will generally be Contiguity Preserving.



Let us now take the case of Italian, a left-headed, right-active language. We will begin with looking at cases involving movement of *wh*-objects, since they are the most reliable triggers of inversion in left-headed, right-active languages. In Italian, movement of a *wh*-phrase object to [spec,CP] should cause no problem for Contiguity. We predict that movement of the *wh*-phrase to [spec,CP] should be able to break the Contiguity relationships that the *wh*-phrase takes place in. This might lead us to expect sentences like (65) to be grammatical—contrary to fact.

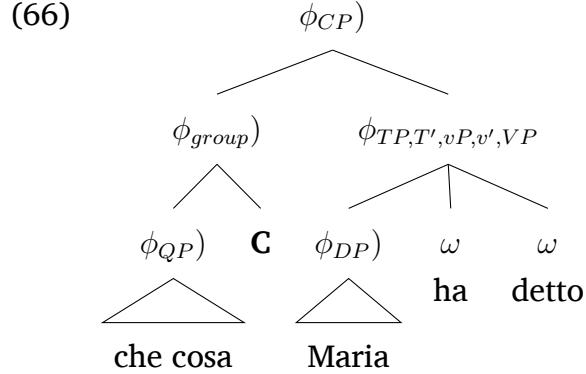
- (65) *Che cosa Maria ha detto?*
what Maria has said

‘What has Maria said?’

Rizzi (1996)

Consider the prosodic structure we expect for a sentence like (65), if the *wh*-phrase moves to [spec,CP]—here I give a representation in which Grouping has applied after movement,

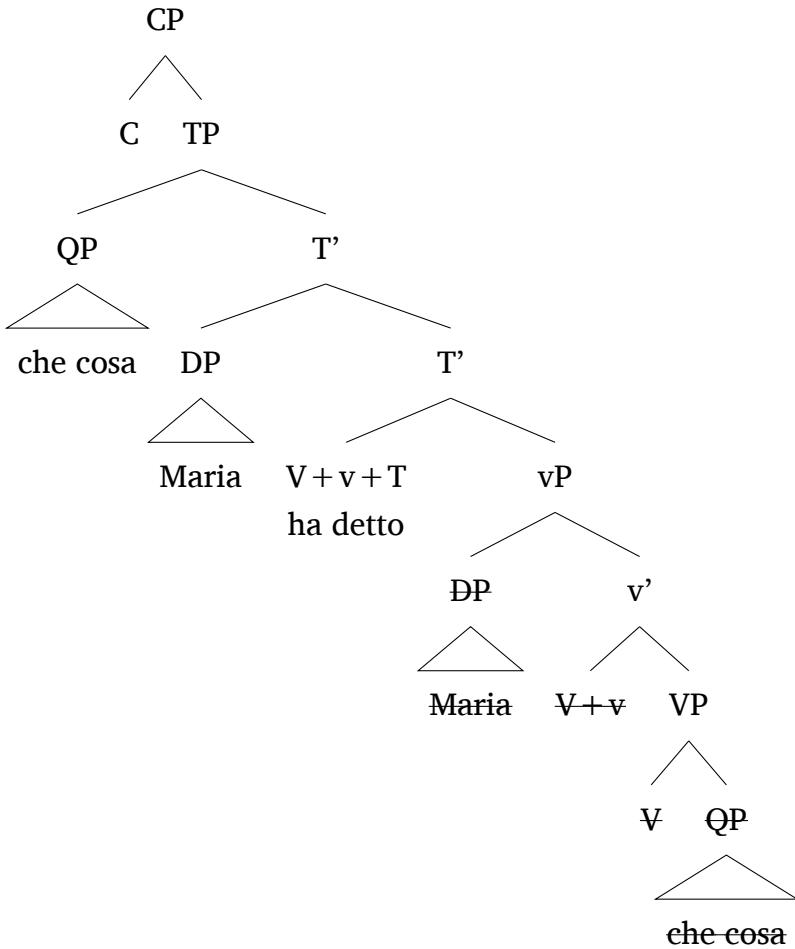
to create a ϕ in which the fronted *wh*-phrase satisfies Contiguity for C. The *wh*-phrase in (66) need not maintain Contiguity with the v , since v and [spec,CP] are separated by a phase boundary.¹⁷



Now consider an alternative derivation—one in which the *wh*-phrase moves to [spec,TP], rather than [spec,TP].

¹⁷ Alternatively, it could be the case that [spec,CP] is *not* separated from v by a phase boundary, at least in matrix clauses. We will see some evidence in chapter 3 that this is on the right track for Japanese.

(67)



I give in (68a) the prosodic structure corresponding to (67) before Grouping has applied, and the structure in (68b) after Grouping has applied. Recall once more our informal definition of Grouping.¹⁸

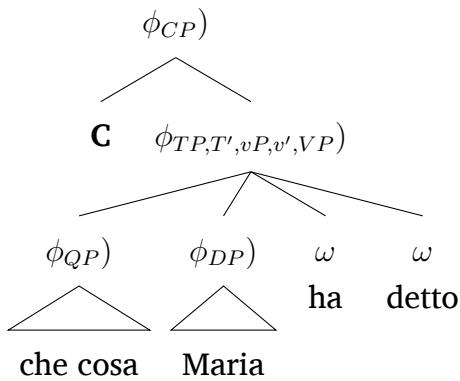
(68) Grouping

Create a ϕ dominating a probe and its Goal.

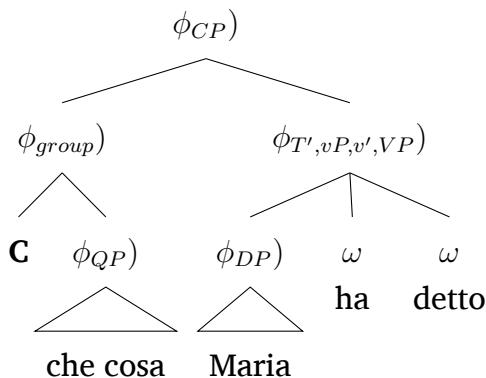
We should expect this structure to be ungrammatical, given Contiguity Preservation. In (69a), the *wh*-phrase fails to satisfy Contiguity for both *v* and *C*, which it has been probed by. In (69b), the *wh*-phrase has been Grouped with *C*, allowing it to satisfy Contiguity for *C*, but it still fails to satisfy Contiguity for *v*, since there is no prosodic constituent dominating both the *wh*-phrase and *v* in which the *wh*-phrase is Contiguity-prominent.

¹⁸ As in chapter 1, the ‘bushy’ structures in (69) cannot be generated by Grouping, since the strict definition can only create binary branching structures. The effect is the same, however: even though Grouping can take place to put the verb and complementizer in the same ϕ as the *wh*-object, the *wh*-object will not be Contiguity-prominent in that ϕ , because of the presence of the subject.

(69) a.

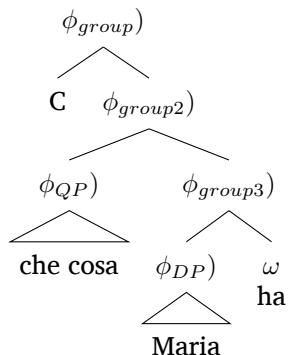


b.



I would like to suggest that such a derivation—one in which the fronted *wh*-phrase lands *below* [spec,CP], as in (69)—is preferred, at least in left-headed, right-active languages.¹⁹ Similar proposals about the landing site of Ā-movement have been made for a variety of

(i.)



¹⁹ We might of course wonder why this holds only of right-active languages. One possibility is that this is a more general preference. If this is the case, some other factor might prevent movement from targeting this position in languages like English. One possibility is that movement to this position is blocked in English as a result of T-to-C movement and Contiguity Preservation. Movement of a *wh*-object to a position immediately to the right of C, which T has moved to, would place a phonological phrase between T and the subject, which it has Agreed with. As a result, movement to this position would be ruled out in English, since this would result in a violation of Contiguity Preservation.

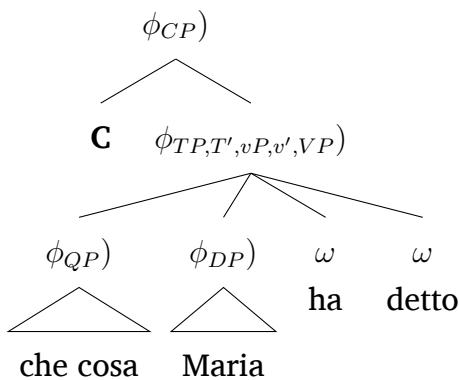
languages, including Italian, in Diesing (1990); Goodall (1991); Borer (1995); Richards (1997); Barbosa (2001, a.o.).²⁰

(70) \bar{A} -movement conjecture

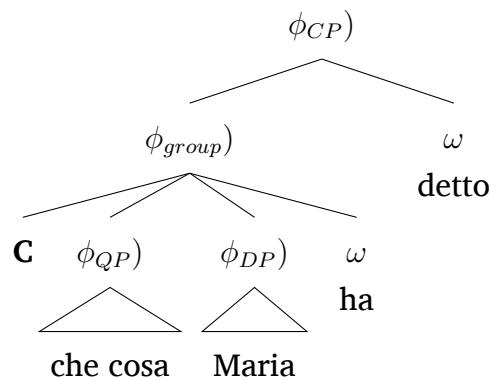
In left-headed, right-active languages, \bar{A} -movement targets [spec,TP] instead of [spec,CP].

Consider once more the prosodic structure in (71), in which the *wh*-phrase has moved to [spec,TP]. The *wh*-phrase is in the same Spell-out realm as v , which has also Agreed with it. The Contiguity relationship between v and the *wh*-phrase must therefore be preserved. In (71), however, the relationship cannot be preserved. Grouping C, ϕ_{QP} , and v —as in (71b)—will create a structure that also contains ϕ_{DP} , which will prevent ϕ_{QP} from being Contiguity-prominent. Movement across a subject is therefore blocked, in left-headed, right-active languages.

(71) a.



b.



In sentences where the subject appears post-verbally, repeated in (72), the problem does not emerge. The fronted *wh*-phrase, C and v may be Grouped together, preserving the Contiguity relationship between C and v , as shown in (72b). In (72b), the *wh*-phrase is Contiguity-prominent in ϕ_{group} , which contains the *wh*-phrase, and the probes which have Agreed with it.

- (i) a. * Did what John bake ____?
 b. * Did fortunately John bake the cake?

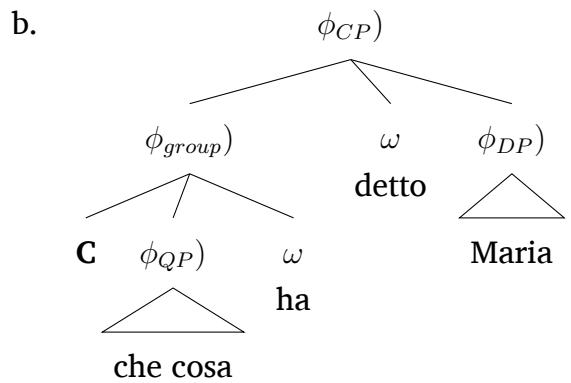
(i-a) would be out for the same reason that (i-b) would be out. If this analysis proves correct, we should expect there to be left-active languages that allow movement to a position immediately below their complementizer. These would either be languages that have T to C movement, but lack Agree between T and the subject; or they would be languages that lack T to C movement, but have Agree between T and the subject. I must leave further investigation of these possibilities a task for future research.

²⁰ If the analysis presented in this section is on the right track, the landing site of \bar{A} -movement should correlate with prosodic activity. The presence of Romance-like inversion or Bantu-like obligatory resumption (to be analyzed later in this chapter) in cases of \bar{A} -movement could therefore serve as a syntactic diagnostic for prosodic activity.

- (72) a. *Che cosa ha detto Maria?*
 what has said Maria

‘What has Maria said?’

Rizzi (1996)



We now have a theory of why *wh*-objects reliably trigger inversion in Italian [and, as we will see shortly, other related languages]. We might now wonder if the theory in question extends to adjuncts—I believe here it is worth diverting from the main thread of argumentation to discuss this question. Since inversion is triggered to maintain a Contiguity relationship between the verb and object in these cases, the presence of inversion triggered by a fronted *wh*-adjunct would suggest that the adjunct too is in an Agree relationship with *v*. Bakovic (1998) notes that this appears to vary from dialect to dialect—in some dialects of Spanish, only some adjuncts trigger inversion, but not others; or arguments trigger inversion to the total exclusion of adjuncts. I will not attempt to account for all the patterns displayed there, but will here sketch what such an account could look like.

Inversion, under this theory, reflects a need to preserve a Contiguity relationship between *v* and the *wh*-element in question. If the *wh*-phrase has not been targeted for Agree by *v*, then no such need should arise. In languages or dialects where some adjuncts behave differently than others with respect to inversion, this would suggest that the adjuncts which trigger inversion have been targeted for Agree by *v*, and that the adjuncts that do not trigger inversion have not—comparable to the account of *why* laid out here.

Bakovic (1998) notes two things of interest which suggest that such a theory might be on the right track: there is an implicational hierarchy among *wh*-elements in terms of what triggers inversion, and this implicational hierarchy appears to correlate along where in the clausal spine the *wh*-phrase is initially Merged. Elements that start out ‘low’ in the tree—such as argument and location adjuncts—are more likely to trigger inversion, and in fact *must* trigger inversion if a ‘higher’ element, such as a manner adjunct, is also to trigger inversion. This would be showing us that verb height seems to correlate with inversion. Languages with lower verbal complexes would end up positioning *v* so that it would be unable to Agree with adjuncts, whereas languages with higher verbal complexes would position *v* so that it would be able to Agree with some, or even all, adjuncts, causing them to trigger inversion for the same reason that arguments do.

Returning to the main thread of discussion: if this account is on the right track, then we should expect adverbs to be banned from appearing between the *wh*-phrase and verbal complex, for the same reason that subjects are banned from this position. As we see in (73), this is the case. This is similar to what we saw in chapter 1 in our discussion of the problem associated with raising across experiencers. Anything which maps to a ϕ should be banned from appearing between a probe and a goal in a right-active language when the goal is to the left of the probe. Any phonological phrase will be an intervener—be it subject or otherwise.

(73) **Adverbs cannot appear between *wh*-phrase and subject**

- * *A chi domani daranno il premio Nobel?*
to whom tomorrow they.will.give the Nobel.prize

'Who will they give the Nobel prize to tomorrow?'

Barbosa (2000)

The account proposed here is not specific to Italian: it should extend generally to other Romance languages such as French, Catalan, and European Portuguese, which display a similar obligatoriness of inversion in matrix *wh*-question contexts.

- (74) a. * *Qui en Joan veu*
who J. see

- b. *Qui veu en Joan*
who see J.

'Who does Joan see?'

Ordóñez (1998), Catalan

- (75) a. * *O que Joana comeu*
what J. ate

- b. *O que comeu Joana*
what ate J.

'What did Joana eat?'

Mioto and Lobo (2016), European Portuguese

- (76) a. * *Que Pierre a achete*
what P. has bought

- b. *Que a achete Pierre*
what has bought P.

'What has Pierre bought?'

Zubizarreta (2001), French

The account also extends to Modern Greek, which, as we saw in Chapter 1, is also a left-headed, right active language.

- (77) a. * *Pjon i marina thimithike?*
who.ACC the Marina.NOM remembered.3SG

‘Who did Marina remember?’

- b. *Pjon idhe o petros?*
whom.ACC saw.3SG the Peter.NOM

‘Who did Peter see?’

Kotzoglou (2006)

One advantage of the account proposed here is that it correctly accounts for the fact that high adverbs, such as *why*, do not trigger inversion, in contrast to argumental *wh*-phrases that originate in the lower clause. Recall that the crucial relationship to make inversion obligatory is the Contiguity relationship between *v* and the fronted *wh*-phrase. Following Ko (2005), I assume that elements like *why* are merged directly to [spec,CP] of their relevant clause—as a result, they never enter into an Agree relationship with *v*. As a result, the subject may appear in a preverbal position, since there is no Contiguity relationship for it to disrupt.

(78) High adjuncts do not trigger inversion

- a. *Perche Gianni parla?*

why G. sing

‘Why did Gianni sing?’

Rizzi (2006), Italian

- b. *Pourquoi Jean a parlé?*

why Jean has spoken

‘Why did Jean talk?’

Stepanov and Tsai (2008), French

- c. *¿Por qué Isabel no te llama?*

For what Isabel not CL-you call-3SG

‘Why doesn’t Isabel call you?’

Gallego (2006), Spanish

- d. *(Yanisi den kseri) yiati i Maria voithise ton idhioi*

J. neg know why M. helped he himself

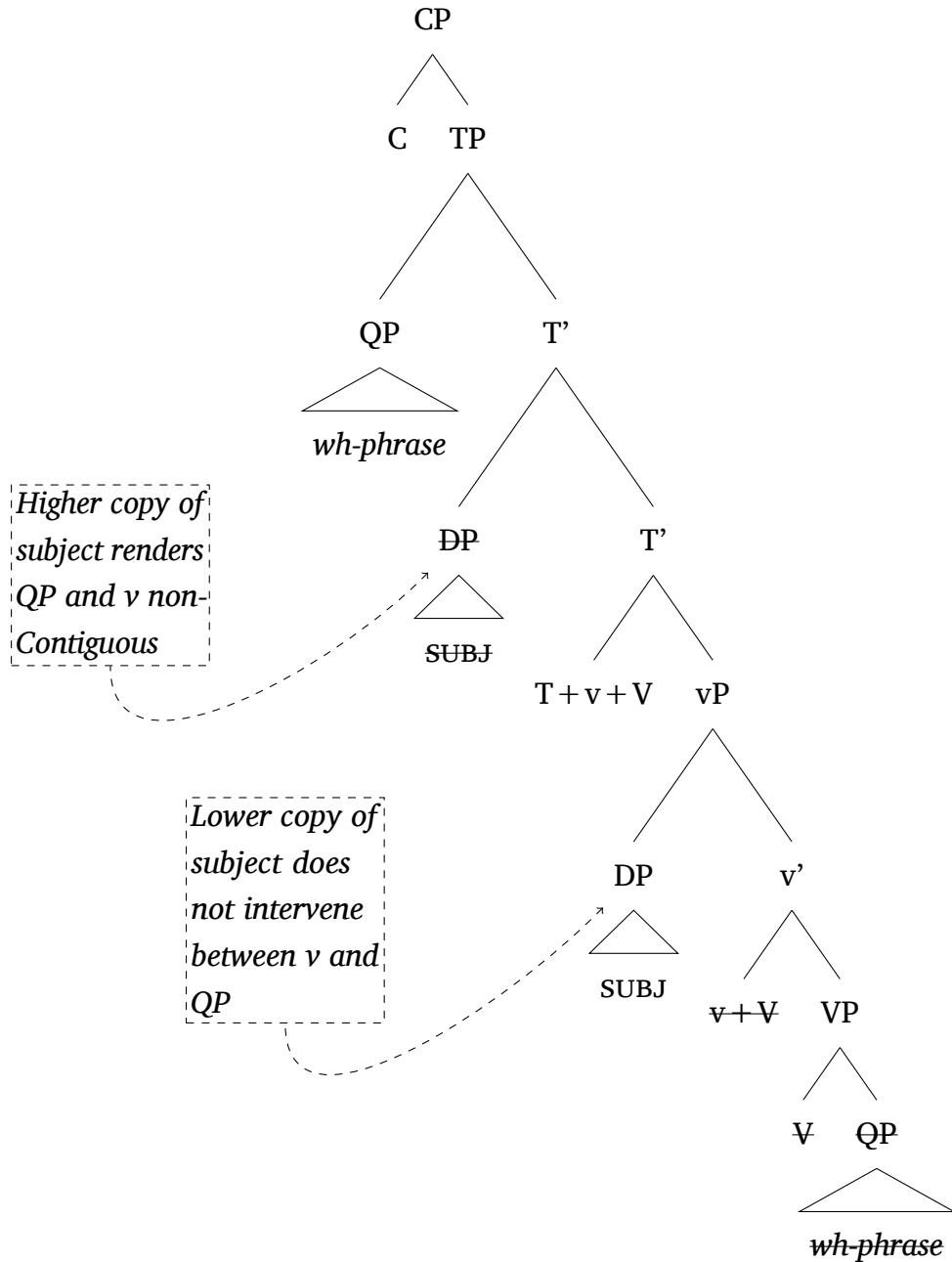
(John doesn’t know) why Mary helped him

Varlokosta and Hornstein (1993),

Modern Greek

So far, in this section, I have shown that subject inversion in left-headed, right-active Romance languages is motivated for Contiguity-theoretic needs. Pronouncing the subject to the right of the verbal complex allows v and a fronted *wh*-phrase to be Grouped, creating a structure in which the Contiguity relationship between v and the *wh*-phrase is maintained. We might now wonder: what is the process that allows the subject to be pronounced to the right of the verbal complex? I would like to suggest that the process involves the pronunciation of a lower copy of the verb, in [spec,vP], as schematized in (79). This copy does not linearly intervene between the *wh*-phrase and verbal complex, and, as a result, the *wh*-phrase and v may be Grouped, resulting in a derivation that is Contiguity Preserving.

(79)



An interesting outcome of this proposal is that it derives a difference between subject-AUX inversion in languages like English, and subject-verb inversion in the Romance languages. As we see in (80), the subject in an auxiliary inversion construction in English appears to be in its canonical position—here, the subject may appear between the inverted auxiliary and lower verb. In contrast, as we see in (81), the subject in a Romance inversion context may not appear in a comparable position. It must appear in [spec,vP], below the auxiliary-verbal complex as a whole.

(80) **Subject appears in between auxiliary and main verb**

- a. What has John eaten?
- b. # What has eaten John?

(81) **Subject appears after auxiliary and main verb**

- a. *Che cosa ha detto Maria*
what has said M.

- b. * *Che cosa ha Maria detto*
what has said M.

‘What has Maria said?’

Rizzi (1982)

- c. *Que ha leído Juan*
what has read J.

- d. * *Que ha Juan leído*
what has J. read

‘What has Juan read?’

Barbosa (2001)

In this section, I have noted that, in left-headed, right-active languages, movement of any element in an Agree relationship with the verbal complex across another element should generally be bad, if the element that is moved across maps to ϕ , and if this movement does not place the mover outside of the phase it originated in—in such cases, the same problem for Contiguity Preservation arises as in the case of raising across experiencers. I showed that this allows us to account for subject-verb inversion in a number of Romance languages as well as Modern Greek, given the caveat that *wh*-movement in such languages lands in a position lower than [spec,CP]. What we have seen here is evidence that intervention effects ultimately have a phonological source. Contiguity must be maintained between a *wh*-object and the verbal complex; the presence of a preverbal subject prevents this from happening, so *wh*-movement across a preverbal subject is ruled out—for the same reason that raising across an experiencer was ruled out in Chapter 1 for the very same language. Right-active languages generally ban the presence of a phonological phrase between a goal and its probe when the goal is to the left of the probe; what we see here is one more instance of movement to such a position being blocked.

2.3.1.1 Weight effects in the preverbal domain

Under the account proposed in this section, *wh*-movement triggers obligatory inversion of the subject so that a Contiguity relationship between *v* and the *wh*-phrase can be preserved. Recall now our definition of Contiguity, which requires a probe and goal to be in the same ϕ , and for no other ϕ boundary to lie between the goal and prosodically active edge of ϕ .

- (82) a. *Contiguity*

Goals must be *Contiguity prominent* within a ϕ that dominates a probe that Agrees with them. A goal *satisfies Contiguity* for a probe in all ϕ in which this condition is met.

- b. *Contiguity prominent*:

G is *contiguity prominent* within ϕ_1 if no other ϕ lies between G and the prosodically active ϕ boundary of ϕ_1 .

We might therefore expect elements to appear between the verb and fronted *wh*-phrase if they were phonologically weak in some way—that is to say, if they do not map to ϕ . Recall from chapter 1 our discussion of fronted and clitic experiencers—neither of these elements mapped from the syntax to ϕ , but have a syntactic status otherwise comparable to experiencers that do map to ϕ . We saw that these experiencers did not map to ϕ , and thus, as we expect, do not cause the intervention effect to arise. We should thus expect the prosodic status of a preverbal element to be the factor which determines whether or not it will prevent a fronted *wh*-object from preserving its Contiguity relationship with the verbal complex. If it does not map to a ϕ , it should be permitted, in principle, to appear between a fronted *wh*-object and the verbal complex.

Certain dialects of Caribbean Spanish appear to pattern along these lines. As we see in (83), non-pronominal subjects must undergo inversion in Caribbean Spanish.

(83) Inversion is obligatory with non-pronominal subjects

- a. * *¿Qué José quiere?*

what José wants

- b. *¿Qué quiere José?*

what wants José

‘What does José want?’

Ordóñez and Olarrea (2006)

Certain pronominal subjects, however, need not undergo inversion—and in fact, cannot—as we see in (84).

(84) Inversion is optional with pronominal subjects

- a. *¿Qué tú trajiste a la fiesta?*
what you bring to the party
'What did you bring to the party?'
- b. **¿Qué quieres tú comprar?*
what want you to.buy
'What do you want to buy?'

Ordóñez and Olarrea (2006)

Likewise, “small” adverbs may appear between the *wh*-phrase and verb, but “large” adverbs may not.

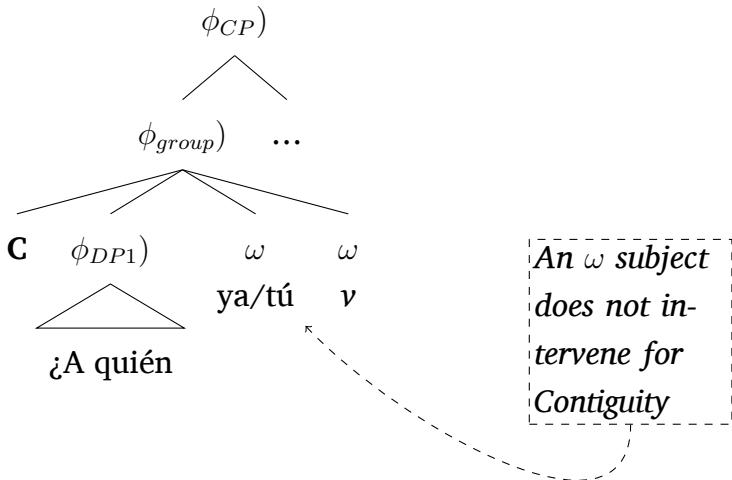
(85) Light adverbs may appear between the *wh*-phrase and verb

- a. *¿A quién ya has besado?*
who already have kissed
'who have you already kissed?'
- b. **¿A quién siempre has besado?*
who already have kissed
'who have you already kissed?'

Ordóñez and Olarrea (2006)

The account proposed in this section allows us to make sense of this sort of contrast. Recall that inversion is mandated, in right-active languages, so that a fronted *wh*-phrase may maintain Contiguity with *v*. The presence of a non-inverted subject would preclude Grouping of C, the *wh*-phrase, and *v*, resulting in the derivation not being Contiguity Preserving. However, if a non-inverted subject mapped to ω , rather than ϕ , we should expect it to be tolerated. I suggest that this is exactly what happens in Caribbean Spanish—preverbal pronominals and light adverbs map to ω , rather than ϕ . Grouping, in these cases, can produce a structure that contains C, the *wh*-phrase, and *v*, and in which the *wh*-phrase is Contiguity-prominent, as in (86).

(86)



2.3.1.2 Languages that don't invert—Brazilian Portuguese

We have seen before that leftward movement of intervening elements might be motivated to satisfy the Contiguity-theoretic needs of other elements.²¹ Raising, for instance, was motivated by a need to get the raising verb and infinitival head it selects sufficiently close—movement of the subject allows this to happen. Likewise, we saw that Ā-movement of an experiencer or adverb allows a subject to undergo raising. In this section, we have seen that subject-verb inversion in a number of right-active languages appears to be motivated for similar reasons: movement of the *wh*-phrase across a preverbal subject is ruled out, because such movement would break the Contiguity relationship between *v* and the *wh*-phrase; placing the subject in a post-verbal position ameliorates the problem.

In left-headed, right active languages, Ā-movement should be able to target [spec,TP], as a result of Shortest Move—movement to [spec,CP] would be a longer move than movement to [spec,TP]. This raises the question of when the choice to invert is made.

(87) a. Inversion as avoidance:

Inversion is normally a free choice, made ‘early’ in the derivation. Contiguity Preservation rules out derivations that fail to avoid the problem.

b. Inversion as repair:

Inversion is a choice made ‘late’ in the derivation. Contiguity Preservation motivates the choice to invert.

²¹ We will see other instances of this in chapters 3 and 4.

These hypotheses lead to different expectations about possible variation in left-headed, right-active languages. The former leads us to expect there to be left-headed, right-active languages that do not allow inversion to occur—such languages would be obliged to use some sort of strategy other than inversion, to insure that derivations in which an object fronts over a subject are Contiguity Preserving. The latter leads us to expect all left-headed, right-active languages to allow inversion in non-subject matrix *wh*-questions—inversion would always be motivated for Contiguity Theoretic reasons.

Brazilian Portuguese provides a test grounds to decide between these two hypotheses. As we see in (88), Brazilian Portuguese, unlike other Romance languages, does not generally allow subject inversion.²²

(88) VS restricted in Brazilian Portuguese

**Cantam os pássaros/muitos pássaros.*
sing the birds/many birds

'There sing the birds/many birds.'

Kato (2000)

Furthermore, as we see in (89), such inversion is not possible in Brazilian Portuguese even in interrogative contexts.

(89) a. *O que o Paulo comprou?*

What P. bought

'What did Paulo buy?'

b. **O que comprou o Paulo*

what bought P.

This suggests that interrogative-triggered inversion in left-headed, right-active languages is an avoidance strategy, rather than a repair strategy—in some languages, like Brazilian

²² Brazilian Portuguese does allow subject inversion with unaccusatives, as we see in (88).

(i.) *Chegou o Ivo.*
Arrived Ivo

'Ivo arrived'

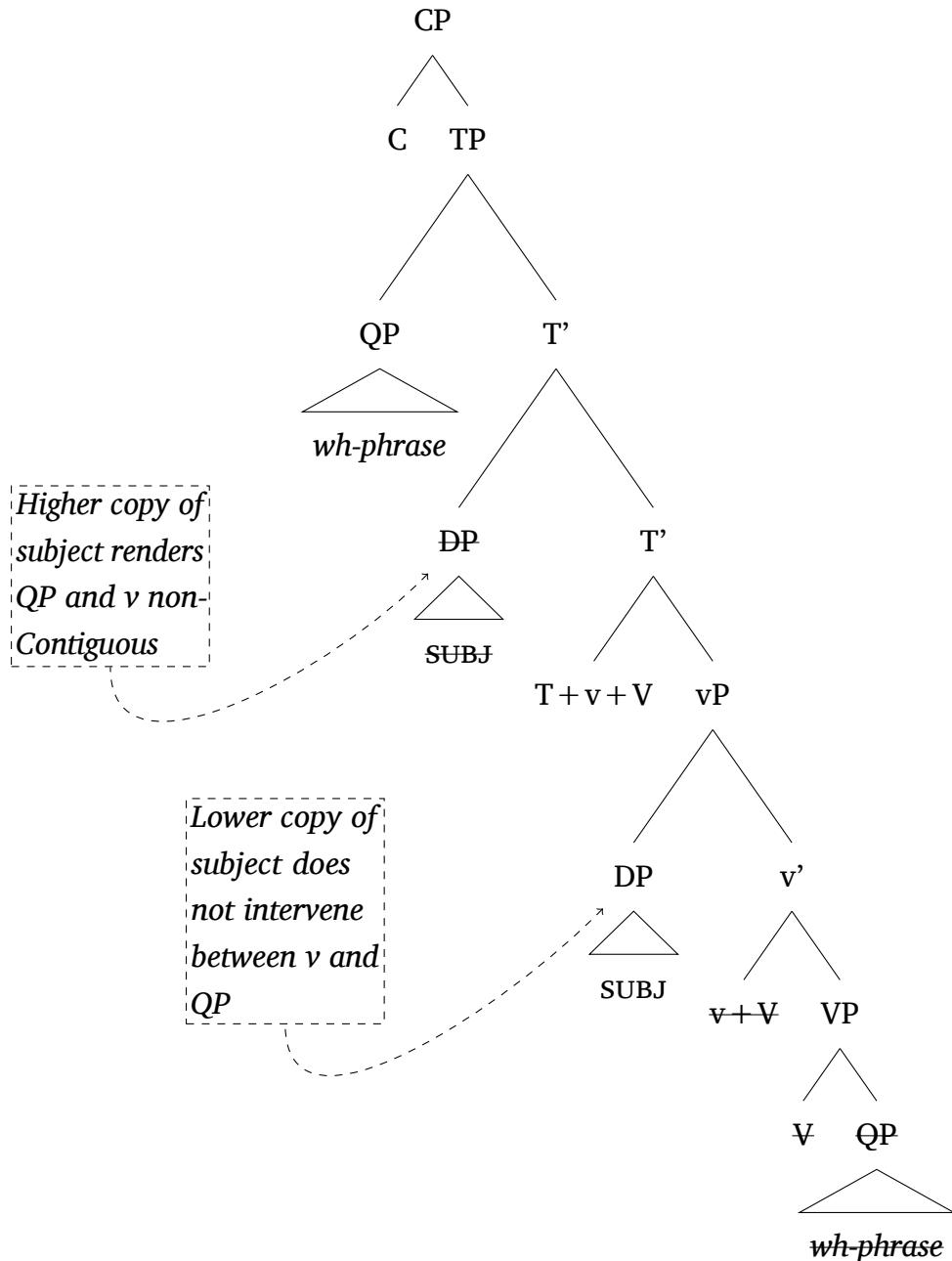
Silva (2001)

Under the theory of inversion developed in this section—in which the rightward position of the subject reflects the choice of a lower copy of the subject for pronunciation—we might expect this to be the case. Inversion with unaccusatives is allowed in Brazilian Portuguese because the subject starts out in a position different from that of unergatives and transitive subjects. Crucially, this position is lower than the pronunciation site of the verbal complex.

Portuguese, some other strategy must be used to avoid a derivation that is not Contiguity Preserving.

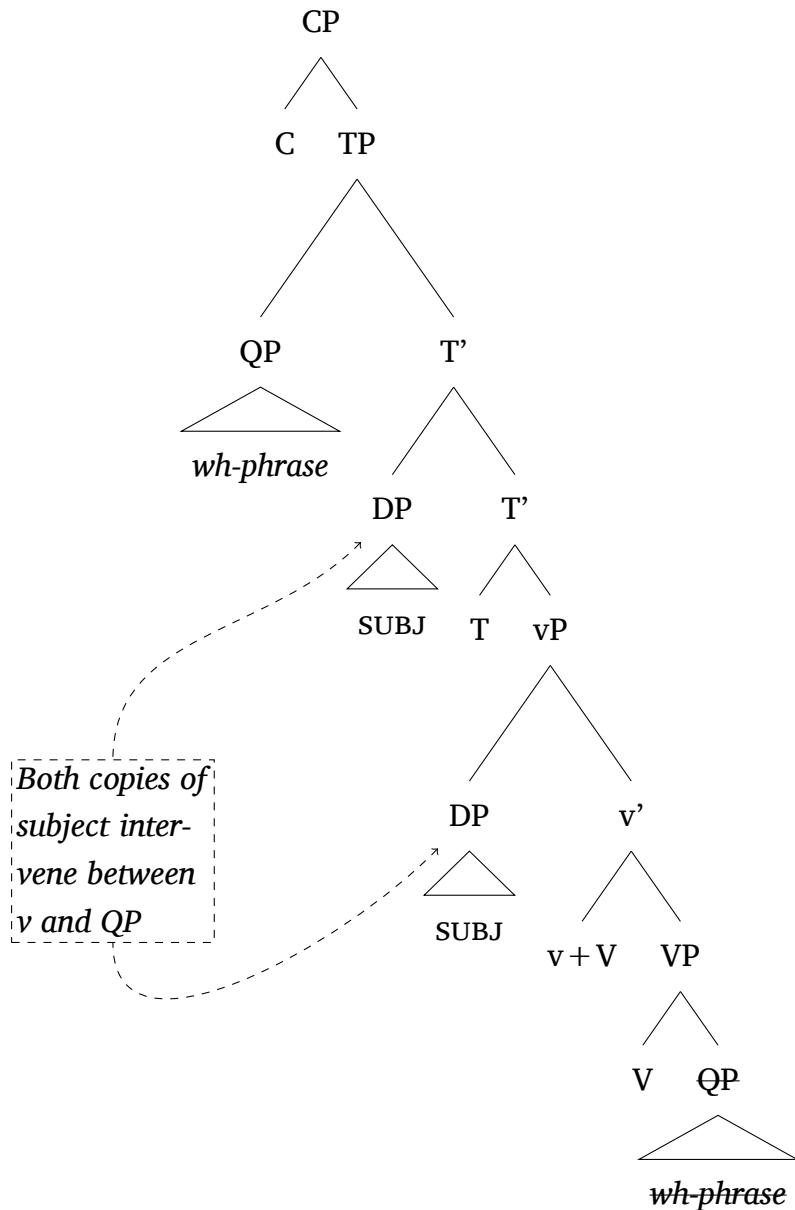
Why would Brazilian Portuguese differ from the other Romance languages in this regard? Recall our analysis of subject-verb inversion in left-headed, right active languages. I suggested that this sort of inversion involves spelling out a low copy of the subject—at least as low as the copy in [spec,vP], in the case of predicates with external arguments, as schematized in (90).

(90)



It has been argued at length [Schifano (2018) and references therein] that the verb in Brazilian Portuguese is quite low. In the terms we are using in this chapter, this would mean that the verb in Brazilian Portuguese raises no higher than *v*. This would explain why inversion would not be available in Brazilian Portuguese: pronunciation of either copy will result in a derivation that is not Contiguity Preserving, since both copies will be pronounced between the *wh*-phrase and *v*, and will both prevent Grouping of the two to create a structure in which the *wh*-phrase is Contiguity-prominent, as we see in (91).

(91)



Given all this, then, are we to make of (92a)?

- (92) *O que o Paulo comprou?*

What P. bought

'What did Paulo buy?'

I would like to suggest—following Kato (2013)—that such constructions involve a sort of cleft construction, rather than direct movement of the *wh*-phrase to a position in the left periphery. As we see in (93), the complementizer *que* may [optionally] appear immediately to the right of fronted *wh*-phrases.

- (93) *O quê (que) o Diogo comprou?*

the what that the-Diogo bought

'What did Diogo buy?'

This follows the logic of ‘avoidance’ rather than ‘repair’. In languages in which the pronunciation of a lower copy will not repair the problem posed by movement of *wh*-phrase to [spec,TP], it will simply not be possible to do such movement—rather, some other strategy must be used to create the dependency.²³ Under a view in which subject inversion is treated as a ‘repair’, we might expect some other operation—such as postponing of the subject—to take place.

The analysis proposed raises an interesting question about the derivation of apparent \bar{A} -chains in Brazilian Portuguese more generally. To derive a sentence like that in (93), it cannot be the case that the *wh*-element—or more specifically, the operator inside the concealed cleft—has undergone movement. Such movement would be forced to target [spec,TP], which should result in the derivation not being Contiguity preserving.

One possibility is that \bar{A} -chains in Brazilian do not involve a movement chain, but rather involve a null resumptive pronoun which appears in object position.²⁴ This would make Brazilian Portuguese like a number of Bantu languages with low verbs which we will investigate later in this chapter—Bantu languages with low verbs utilize a resumption strategy to create their \bar{A} -chains. Another possibility is that Brazilian Portuguese allows movement to [spec,CP] rather than to [spec,TP], since derivations which involve movement to [spec,TP] inevitably lead to a derivation which is not Contiguity Preserving. If this

²³ We will see in the discussion of inversion in Bantu languages which follows that a number of Bantu languages follow the same logic as Brazilian Portuguese.

²⁴ We will want phonologically null elements to be able to participate in Contiguity relationships. The fact that interrogative C is null in French, for instance, does not mean that Agree relationships between it and *wh*-phrases are not governed by Contiguity. Likewise, if the account of certain EPP effects presented in Chapter 1 of Richards (2016) is on the right track, then phonologically null pronominals appear to be ‘visible’ at this level of representation, at least in Finnish.

analysis is on the right track, then the derivation would have to be ‘smart’ enough to know that movement to [spec,TP] would never converge—suggesting that whatever results in the \bar{A} -movement Conjecture is contingent on the language having some way of avoiding the problem associated with movement to [spec,TP].

2.3.1.3 Conflicting minimality accounts

A number of accounts of subject inversion in Romance and Modern Greek propose that the ungrammaticality of the lack of inversion can be attributed to a minimality violation [Anagnostopoulou (1994); Fontana (1994); Zubizarreta (2001); Kotzoglou (2006)]. Under this approach, the preverbal subject position is an \bar{A} -position; movement of the *wh*-phrase across something in that position results in a violation of Relativized Minimality, schematized below.

- (94) [____ [[SUBJ]_{[\bar{A}] ...[...[XP]_{[\bar{A}] ...]]_{TP}]_{CP}}}

Such accounts run into an interesting problem when we consider also defective intervention effects like those discussed in the previous chapter. A number of accounts of these effects propose that the defective intervention effect is ruled out because movement of the subject across an experiencer is a violation of Relativized Minimality—the experiencer is an A-position closer to subject position, schematized in (95).

- (95) [____ [[EXP]_[A] ...[...[SUBJ]_[A] ...]]_{VP}]_{TP}

The two accounts appear to be incompatible: if the subject position is an \bar{A} -position—suggested by accounts that attribute subject inversion as a strategy for dealing with a potential minimality problem—then raising across an A-position as in (95) should pose no problem, since it would constitute an instance of \bar{A} -movement across an A-position. Conversely, if the subject position is an A-position—suggested by accounts that attribute the defective intervention effect to a minimality violation—then *wh*-movement across the subject position should pose no problem, since such movement would also constitute an instance of \bar{A} -movement across an A-position.

2.3.1.4 Interactions between raising and \bar{A} -movement

In chapter 1, I developed a theory of the defective intervention effect in raising. Left-headed, right-active languages like Italian do not allow raising across experiencers, as in (96), because there is no way to preserve the Contiguity relationship between the embedded verbal complex and raised subject. To do so, Grouping would have to create

a ϕ which dominates the subject, matrix verb, and embedded verb—but such a ϕ will always necessarily dominate the experiencer as well. As a result, the subject will not be Contiguity-prominent in that ϕ . Raising irrevocably destroys this relationship between the subject and embedded verbal complex, in violation of Contiguity Preservation.

(96) **Raising across an experiencer violates Contiguity Preservation**

**Gianni sembra a Piero [____ fare il suo dovere]*
G. seems to P. to.do the his duty

‘Gianni seems to Piero to do his duty.’

Italian, Boeckx (2008)

In chapter 1, we saw also that certain types of \bar{A} -movement, like topicalization, appear to ameliorate the defective intervention effect: in these cases, the subject and both verbs may be Grouped, preserving Contiguity between the subject and both verbal complexes.

(97) **Topicalization fixes the problem**

A Piero, Gianni sembra [____ fare il suo dovere]
to P. G. seems to.do the his duty

‘To Piero, Gianni seems to do his duty.’

Italian, Boeckx (2008)

We have just seen that *wh*-movement across a subject in languages like Italian is subject to a similar requirement: the subject cannot appear in between the *wh*-phrase and matrix verb, since Contiguity between *v* and the *wh*-phrase must be maintained. This accounts for the obligatoriness of subject inversion in languages like Italian when a non-subject undergoes *wh*-movement.

This leads us to expect there to be a difference between topicalization on the one hand and *wh*-movement on the other in terms of whether or not they ameliorate the defective intervention effect.²⁵ As we see in (99), this expectation is indeed born out:

²⁵ It is worth noting here that McGinnis (1998b) reports that *wh*-movement in French ameliorates the defective intervention effect, shown in (i.). However, note that the example in (i) involves clefting of the *wh*-phrase. We therefore do not expect the Contiguity relationship between the *wh*-phrase and matrix *v* to be required to be preserved, since there is a phase boundary between the *wh*-phrase and matrix *v*.

(98) *A qui est-ce que Jean semble ____ avoir du talent*
to whom is it that J. seems to have

‘To whom does John seem to have talent?’

McGinnis (1998b)

(99) ***Wh*-movement does not fix the problem**

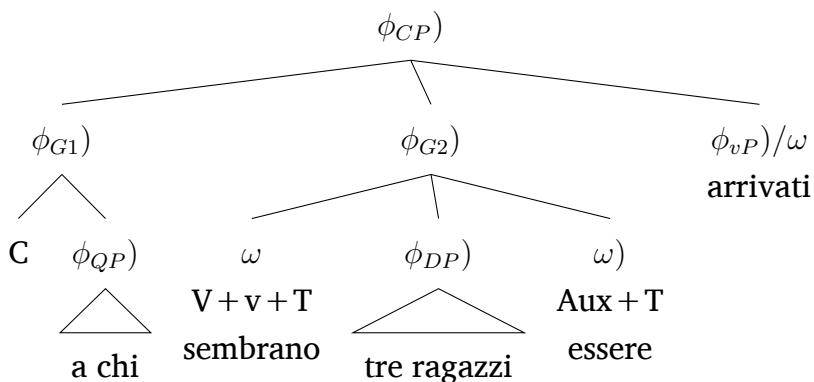
*A chi sembrano tre ragazzi ____ essere arrivati?
 to who seem three boys to.be arrived

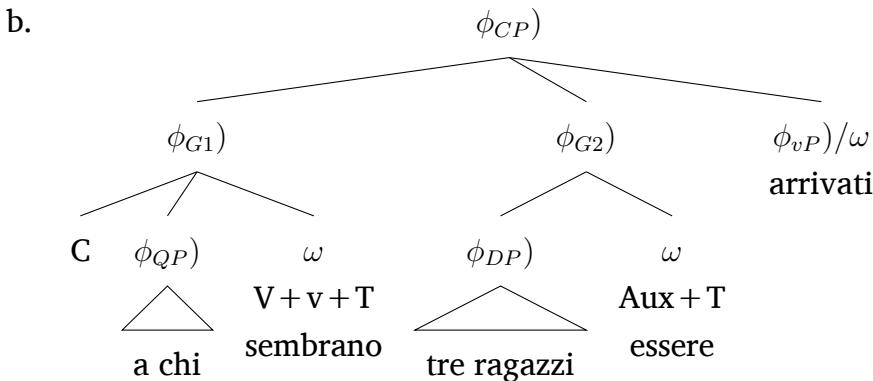
‘To whom do three boys seem to have arrived?’

Italian, S. Zompí (p.c.)

Let us now unpack why (99) should be bad. In (99), there are two sets of Contiguity relationships established in the same phase which must be preserved: the set of relationships between the subject, matrix T, and embedded T, and the set of relationships between the *wh*-experiencer, C, and matrix v. Given the word order in (99), there is no way to preserve both of these sets of relationships at the same time. Consider the two structures below: in the structure in (100a), Grouping has applied so that the Contiguity relationships between the subject, matrix T, and embedded T are preserved: there is a phonological phrase, here, ϕ_{G2} , that dominates the subject and both matrix and embedded T, in which the subject is Contiguity prominent. However, in (100a), the Contiguity relationship between ϕ_{QP} and the matrix verbal complex has been broken: there is no phonological phrase that dominates C, the *wh*-phrase, and the matrix verbal complex in which ϕ_{QP} is Contiguity-prominent. Now consider (100b). In (100b), Grouping has applied so that there is a phonological phrase that dominates C, the *wh*-phrase, and the matrix verbal complex in which ϕ_{QP} is Contiguity-prominent, namely, ϕ_{G1} . However, in (100b), the Contiguity relationship between the subject and matrix T has been broken in the same phase that it was created. In (100b), there is no phonological phrase that dominates the subject, matrix T, and embedded T.

(100) a.





In other words: the theories of raising and subject inversion I have presented so far interact in an interesting way. They lead us to expect \bar{A} -movement that does not trigger inversion to ameliorate the defective intervention effect, whereas \bar{A} -movement that does trigger inversion should not ameliorate the defective intervention effect. This expectation is borne out.

Interestingly, sentences like (99) with a different word order are acceptable, as we see in (101). If the subject appears after both the matrix verb and the embedded verb, then *wh*-movement of the experiencer may take place.

(101) ***Wh*-movement of an experiencer requires a sentence final subject**

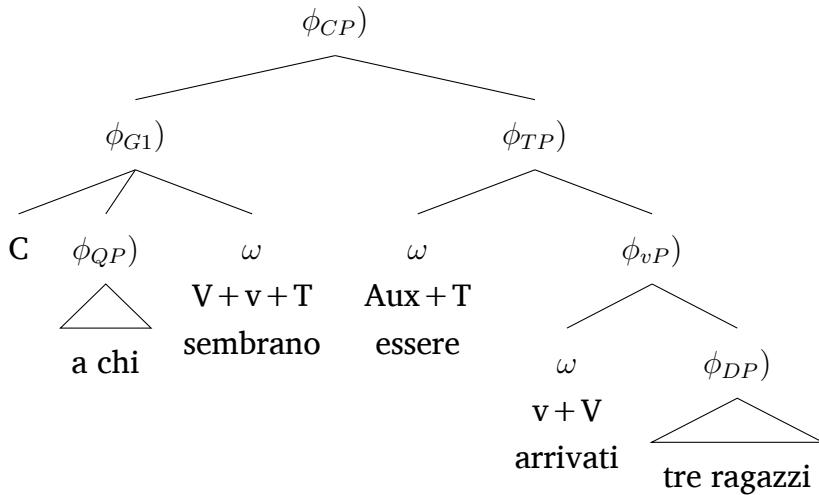
A chi sembrano ___ essere arrivati tre ragazzi?
to who seem ____ to.be arrived three boys

'To whom do three boys seem to have arrived?'

Italian, S. Zompí (p.c.)

Why should this be the case? Consider a prosodic structure for (101), shown in (102)—I assume here that the post-verbal position of the subject in (101) reflects the choice of a lower pronunciation site, in the embedded clause. In (102), the *wh*-phrase satisfies Contiguity for C and matrix v: it is Contiguity-prominent in ϕ_{G1} , which dominates it, C, and the matrix verbal complex, which includes T. Likewise, the subject satisfies Contiguity for matrix and embedded T: it is Contiguity-prominent in ϕ_{CP} , which dominates it, the matrix verbal complex, and the embedded verbal complex.

(102)



If this line of analysis is on the right track, it leads us to expect that *wh*-movement of any element in the case of raising will require the subject of the clause to appear after both the raising verb and verb of the embedded clause. As we see in (103), where the object of the embedded clause has been extracted, this expectation is borne out.

(103) Raised subjects must appear after both the raising and embedded verb

- a. * *Che cosa sembrano tre ragazzi portare* _____
 what seem three boys to.carry

Intended: ‘What do three boys seem to carry?’

- b. *Che cosa sembrano portare tre ragazzi* _____
 what seem to.carry three boys

Intended: ‘What do three boys seem to carry?’

The reason for this as the reason that *wh*-movement of the experiencer requires the subject to invert after both the raising verb and embedded verb: the *wh*-phrase here must satisfy Contiguity not only for seem, but for both embedded and matrix *v*, which, in the theory I am developing, enter into an Agree relationship with any element that undergoes *wh*-movement.

It is worth here discussing a particularity of the theory developed here. If the data involving raising and *wh*-movement with inversion are to be accounted for, it is necessary to make the assumption that *v* may enter into Agree with a *wh*-element, even when it is not by hypothesis a phase head, as in the case of raising verbs or unaccusatives. In fact, it is crucial that *v* not be a phase head in the raising cases—were it a phase head, we would not expect the Contiguity relationship between a raised subject and embedded,

non-finite T to generally have to be preserved. This means that the ‘is a phase head’ property and the ‘Agrees for \bar{A} -features’ property must be dissociated if the account is to go through. This falls in line with recent work by Baier (2018) on the phenomenon of *anti-agreement*—cases where elements undergoing \bar{A} -movement do not display canonical agreement morphology. The account developed there proposes that anti-agreement is a morphological phenomenon, triggered in some languages by the presence of both \bar{A} -features and ϕ -features on a particular head; in at least some cases it is crucial that this head be something like T, which is not generally assumed to be a phase head.

What we have seen so far is that, in languages like Italian, *wh*-movement triggers inversion, and that, in cases involving raising, this causes the subject to appear post-verbally, as possible. Now, Italian is subject to a particular restriction: post-verbal subjects are impossible if there is an overt object. We see this in (104).

(104) *VSO in Italian

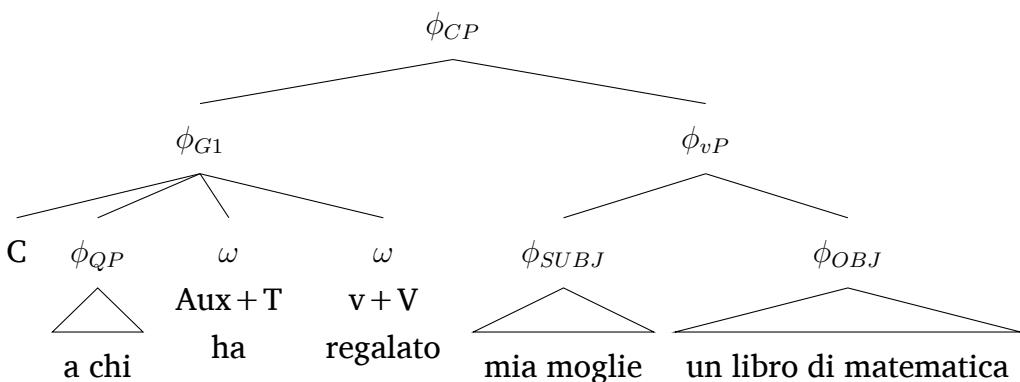
?? *A chi ha regalato mia moglie un libro di matematica*
 to whom has given my wife a book of math

‘Who has my wife given a book of math to?’

S. Zompí (p.c.)

Why should this be the case? Consider a prosodic structure like that in (105), corresponding to (104). In (105), there is no phonological phrase in which the subject is Contiguity-prominent: the only phrase that dominates T and the subject is ϕ_{CP} , but the subject is not Contiguity-prominent in ϕ_{CP} .

(105)



It is important that Grouping cannot apply to rescue the structure in (105). This would suggest, somewhat indirectly, that Italian is a ‘limited Grouping language’, of the sort discussed in chapter 4. There, we will see that there are languages which allow *wh*-in-situ just in cases where the *wh*-phrase ‘coincidentally’ appears in a position where it satisfies

Contiguity. This restriction on post-verbal subjects in Italian is comparable: they are allowed just in cases where the post-verbal subject satisfies Contiguity for T without manipulation of the prosodic structure.

One way of circumventing this requirement is by clefting the *wh*-phrase—i.e. by introducing a phase boundary between the *wh*-phrase and *v* in the clause containing a raising verb.

(106) **Clefting fixes the problem**

A chi è che mia moglie ha regalato un libro di matematica
to whom is that my wife has given a book of math

‘Who has my wife given a book of math to?’

S. Zompí (p.c.)

Recall from before that *wh*-movement of experiencers required the subject to be pronounced in a low position, as we see again in (107). Note of course that the verb in the embedded non-finite clause is intransitive.

(107) ***Wh*-movement of an experiencer requires a sentence final subject**

A chi sembrano ____ essere arrivati tre ragazzi?
to who seem to.be arrived three boys

‘To whom do three boys seem to have arrived?’

Italian, S. Zompí (p.c.)

Given this, and the *VSO restriction described above, we expect the grammaticality of *wh*-fronted experiencers with subject inversion to the right of the embedded verb to be impossible in cases where the embedded verb is transitive. As we see in (108), this expectation too is born out: a *wh*-experiencer is impossible if it would violate the *VSO restriction.

(108) ***Wh*-movement of an experiencer runs afoul of the *VSO condition**

**A chi sembrano meritare i ragazzi un premio*
to whom seem.3pl to.deserve the boys a prize

Intended: ‘To whom do the boys seem to deserve a prize?’ *Italian, S. Zompí (p.c.)*

Clefting of an *wh*-experiencer, comparable to the case we saw before involving a ditransitive, removes the need for inversion, and is allowed even in cases where the embedded verb is transitive.

(109) A clefted experiencer is fine

A chi è che i ragazzi sembrano meritare un premio
to whom is that the boys seem.3pl to.deserve a prize

Intended: ‘To whom do the boys seem to deserve a prize?’ *Italian, S. Zompí (p.c.)*

This brings back to mind the difference between Brazilian Portuguese on the one hand and Italian, Spanish, and other Romance languages on the other. I suggested that Brazilian Portuguese lacks subject-verb inversion in *wh*-movement cases because there is no copy of the subject to the right of the verb which could be chosen for pronunciation, as a result of the verb in Brazilian Portuguese being very low. As a result, Brazilian Portuguese is forced to utilize a clefting strategy, since there is no way to preserve Contiguity for the *wh*-phrase and V in a monoclausal example. What we see here is that Italian behaves similarly to Brazilian Portuguese—in that it is forced to utilize a clefting strategy—in certain cases, namely those cases where there is no position after the verb for the subject to invert to. In the section to follow, we will see that this strategy of avoidance through clefting is found in other languages where inversion of the subject is possible.

More generally, this theory leads us to expect that *any* element which v Agrees with as a result of successive cyclic Ā-extraction out of a lower clause should obligatorily trigger inversion. Data involving long-distance reason adjunct extraction provide a particularly interesting argument for this. Recall that reason adjuncts like Spanish *por qué* do not trigger obligatory inversion of the subject as we see in (110). I suggested that this is because these adjuncts are merged high, above v. As a result, they do not enter into an Agree relationship with v, and therefore Contiguity between the adjunct and verbal complex need not be preserved—in the case of (110b), where the subject appears postverbally, this simply reflects the fact that this word order is normally available in Spanish.

(110) Reason adjunct extraction does not trigger obligatory inversion

- a. *¿Por qué Luis Miguel trabaja tanto?*

why L. M. work much

‘Why does Luis Miguel work so much?’

- b. *¿Por qué trabaja tanto Luis Miguel?*

why L. M. work much

‘Why does Luis Miguel work so much?’

Olarrea (1998)

However, were these adjuncts to enter into an Agree relationship with v, we should expect them to trigger obligatory inversion in the same way that any structurally low argument does. And this does indeed happen in cases of long-distance extraction, as we see in (111). (111a) is ambiguous, in the sense that there are two possible answers: one where the reason adjunct is associated with the embedded verb, and one where the reason adjunct is associated with the matrix verb. As reported by Olarrea (1998), an acceptable answer of the former sort would be along the lines of "*Juan did not come to the party because he was sick*", whereas an acceptable answer of the latter sort would along the lines of "*Pedro believes this because he was not there.*" However, (111b) lacks this ambiguity: only the "Pedro believes..." sort of answer is acceptable in such a context.

- (111) a. *¿Por qué cree Pedro que Juan no vino a la fiesta?*
why believe P. that J. NEG go to the party
- b. *¿Por qué Pedro cree que Juan no vino a la fiesta?*
why believe P. that J. NEG go to the party

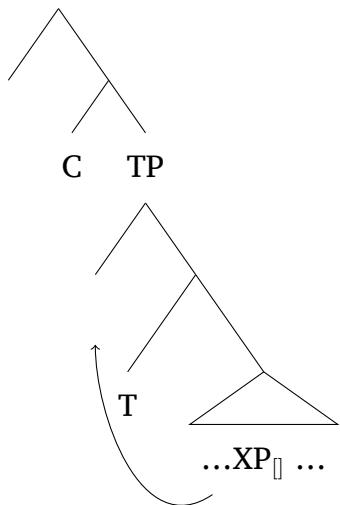
'Why does Pedro believe that Juan didn't come to the party?' Olarrea (1998)

We can understand this difference in possible interpretations as the result of a difference in the origin site of the reason adjunct. If the "Juan did not..." reading involves a structure in which the adjunct is merged high in the left periphery of the embedded clause, we should expect this reading to correlate with the presence of obligatory inversion. Since the reason adjunct originates below v of the matrix clause, matrix v will find and Agree with the reason adjunct in the same way it Agrees with a *wh*-adjunct. As a result, Contiguity between the reason adjunct and v must be maintained in the higher clause—resulting in obligatory subject-verb inversion, and ruling out this interpretation for the sentence in (111b). In contrast, if the "Pedro believes..." reading involves Merge of the reason adjunct high in the left periphery of the matrix clause, we expect subject-verb inversion to be optional, allowing only this interpretation with (111b).

2.3.2 Inversion in Bantu

So far in this section, I have proposed that subject inversion in \bar{A} -movement contexts in a number of left-headed, right-active languages is motivated by a need to preserve a Contiguity relationship between the element that undergoes \bar{A} -movement and v. As schematized in (112), \bar{A} -movement in these languages that is motivated by features in C must target [spec,TP], not [spec,CP], given the conjecture in (113).

(112) CP



(113) **\bar{A} -movement conjecture**

In left-headed, right-active languages, \bar{A} -movement targets [spec,TP] instead of [spec,CP].

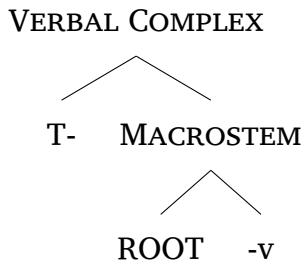
In this section, we will see that the account proposed for Romance extends straightforwardly to a number of inversion constructions in Bantu languages. In Bantu languages with high verbs—for our purposes, which have V-to-T movement— \bar{A} -movement of objects to [spec,TP] may take place, in accordance with the conjecture in (113), since pronunciation of the subject in [spec,vP] will allow v and the fronted object to remain Contiguous after movement has taken place. In Bantu languages with low verbs—for our purposes, which do not have V-to-T movement— \bar{A} -movement of objects is not possible: a strategy involving resumption must be used.

Before we begin our discussion of inversion in Bantu \bar{A} -constructions, it will be useful to examine in some detail morphological facts about the Bantu verbal complex, and how it might be derived. The Bantu verb is generally split into two domains²⁶: one, smaller domain, the macrostem which consists of the verbal stem, followed by a number of suffixes²⁷; the second consists of a larger domain, composed of the smaller domain, and is preceded by a number of suffixes. Generally, the affixes in the small domain, or macro-stem have to do with valency and aspect, whereas the prefixes in the large domain have to do with agreement and tense. This is schematized in (114).

²⁶ I simplify somewhat for expository purposes.

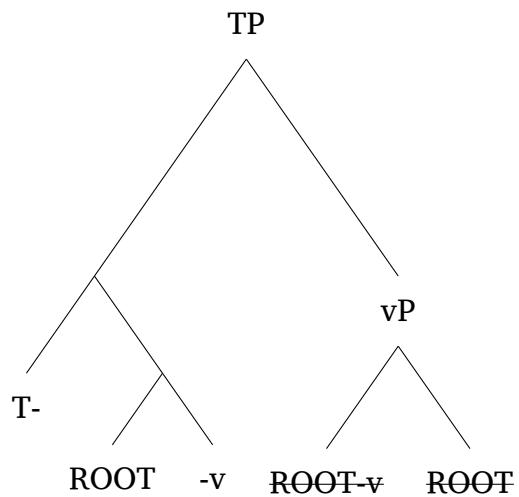
²⁷The OM prefix is generally considered to be part of the smaller domain.

(114) **The Bantu verbal complex**



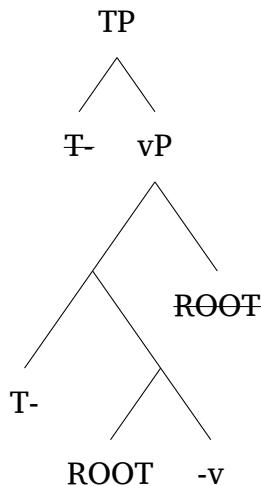
There are a variety of ways that we might derive the complex head in (114). One way would be to posit successive head movement to T, following Harford and Demuth (1999), as we see in (115). Under this approach, there would be no difference in the mechanism used to unify prefixes and suffixes with the verb—both would be derived through head movement.

(115) **Option 1: head raising**



Another way we could derive the structure would be to posit lowering of T to the verbal complex, following Henderson (2006a); Pietraszko (2018). Under this approach, there would be a difference between the mechanisms used to unify suffixes and prefixes with the verb. Suffixes would trigger head movement to them, whereas prefixes would undergo lowering.

(116) Option 2: T-lowering



In this section, I will argue that both are possible: head raising and affix lowering are both options that languages use to construct verbal complexes, and that this choice ends up having ramifications for movement operations.

Much of the argumentation supporting analyses like (116) over analyses like (115) comes from phonological facts. We will examine one of these arguments, having to do with the distribution of secondary stress in Swahili, presented in Pietraszko (2018). Pietraszko, citing Barrett-Keach (1986), establishes that primary word stress is generally penultimate in Swahili.

- (117) a. *Zi-andík-e*
OP-write-Imp

‘Write them!’

- b. *Vi-ondó-e vyombo*
OP-clear.away-Imp dishes

‘Clear away the dishes! ’

Barrett-Keach (1986)

Interestingly, as we see in (118), secondary stress appears in the verbal complex in cases where there are a number of prefixes on the verb.²⁸

- (118) *Nì-na-ku=pénda*
SP-Pres-OP-love
‘I love you.’

Barrett-Keach (1986)

²⁸ Recall that the OM is not a prefix in the larger domain.

Furthermore, as noted by Henderson (2003) and shown in (119), the placement of secondary stress within the prefixal field appears to be variable, depending on how many prefixes are attached. In (118), we see that secondary stress appears on the first syllable of the word, whereas in (119) it appears on the second syllable of the word.

- (119) *Ha-wà-ta-sóma kitabu*

NEG-3pl-FUT-read book

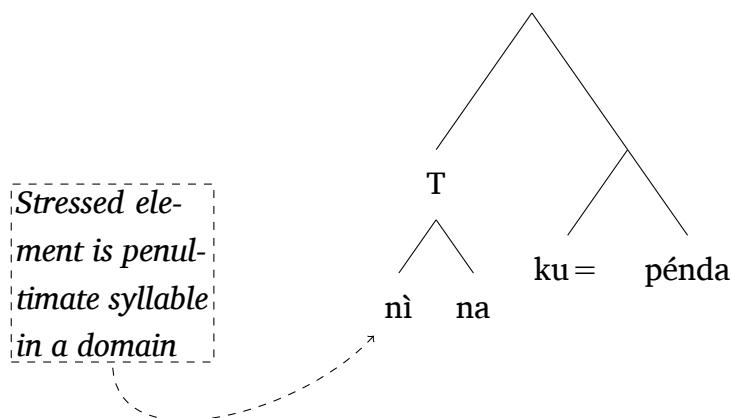
'They will not read a book.'

Henderson (2003)

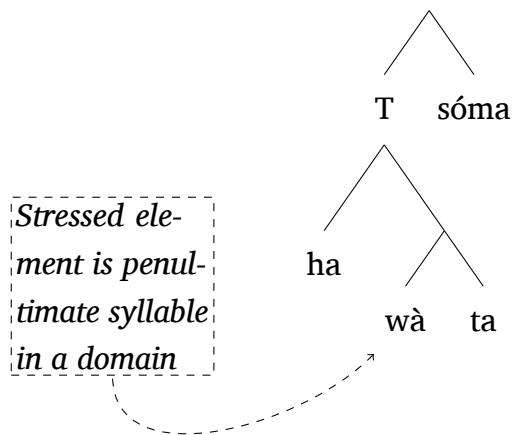
The two theories of head-raising and T-lowering make different predictions about the constituency of the Swahili verbal complex. If lowering is correct, then elements originating in T will be in a domain separate from that of the verbal complex, as we see in (120). Interestingly, the element which receives secondary stress is always the penultimate syllable in some domain. The lowering analysis leads us to expect the distribution of secondary stress in the verbal complex—stress in Swahili is generally assigned to the penult in a given domain; here, the verbal complex consists of two domains. Stress is assigned in both domains—primary stress is assigned the penultimate syllable in the rightmost domain, and secondary stress is assigned to the penultimate syllable in the leftmost domain. This accounts for the variable placement of secondary stress that we see in (118-119). In (118), secondary stress is word initial, because the word initial affix contains the penultimate syllable in the first domain, as we see in (120a). In (119), secondary stress is not word initial, because the word initial affix does not contain the penultimate syllable in the first domain, as we see in (120b).

(120) Lowering analysis predicts stress assignment

a.



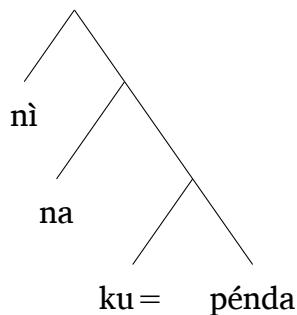
b.



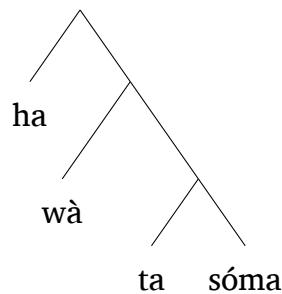
In contrast, however, the raising analysis does not allow us to predict the distribution of secondary stress in the Swahili verbal complex. As we see in (121), there is no particular structural configuration that the secondary stress bearing elements have in common.

(121) Raising analysis does not allow us to predict stress

a.

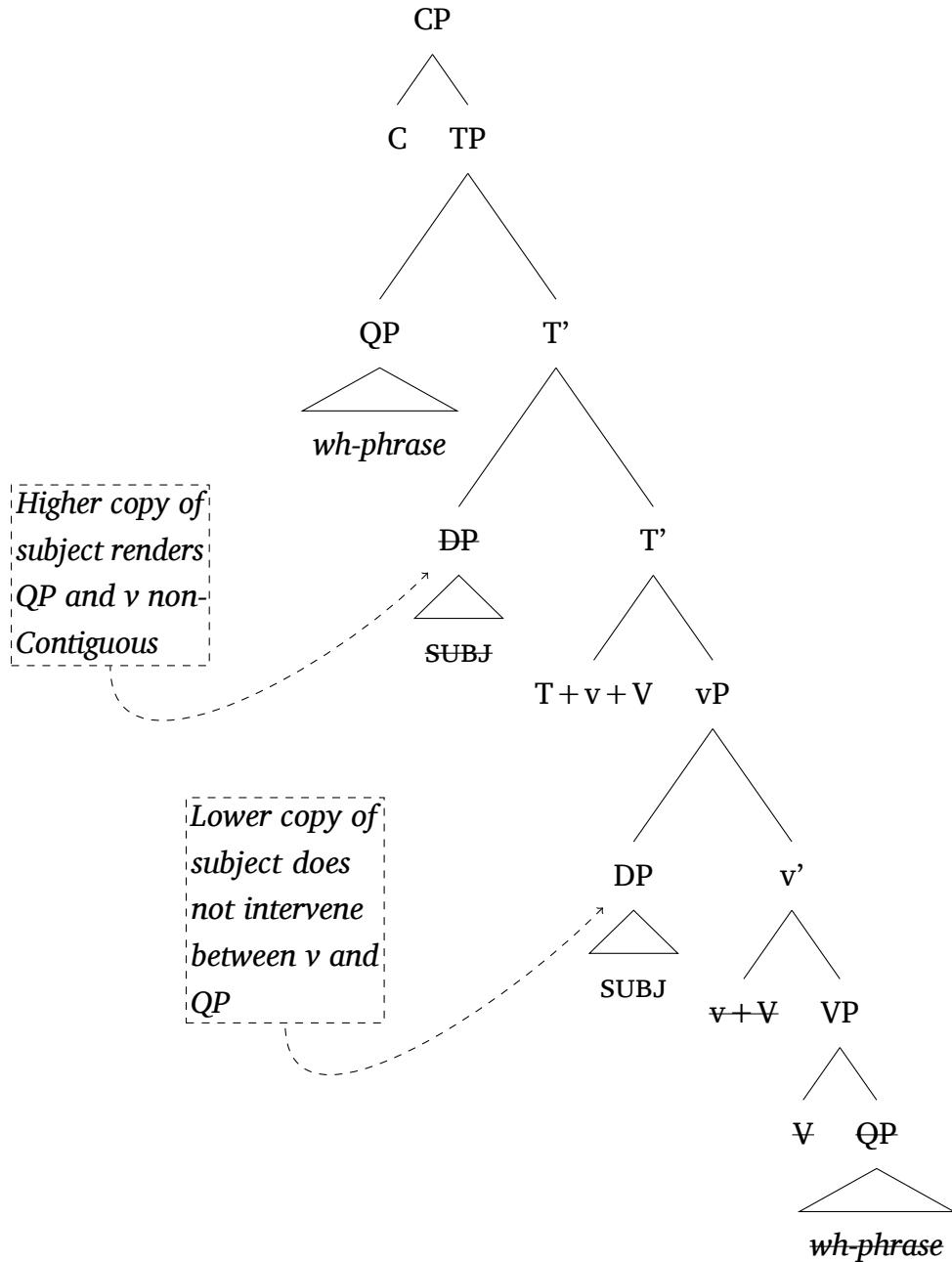


b.



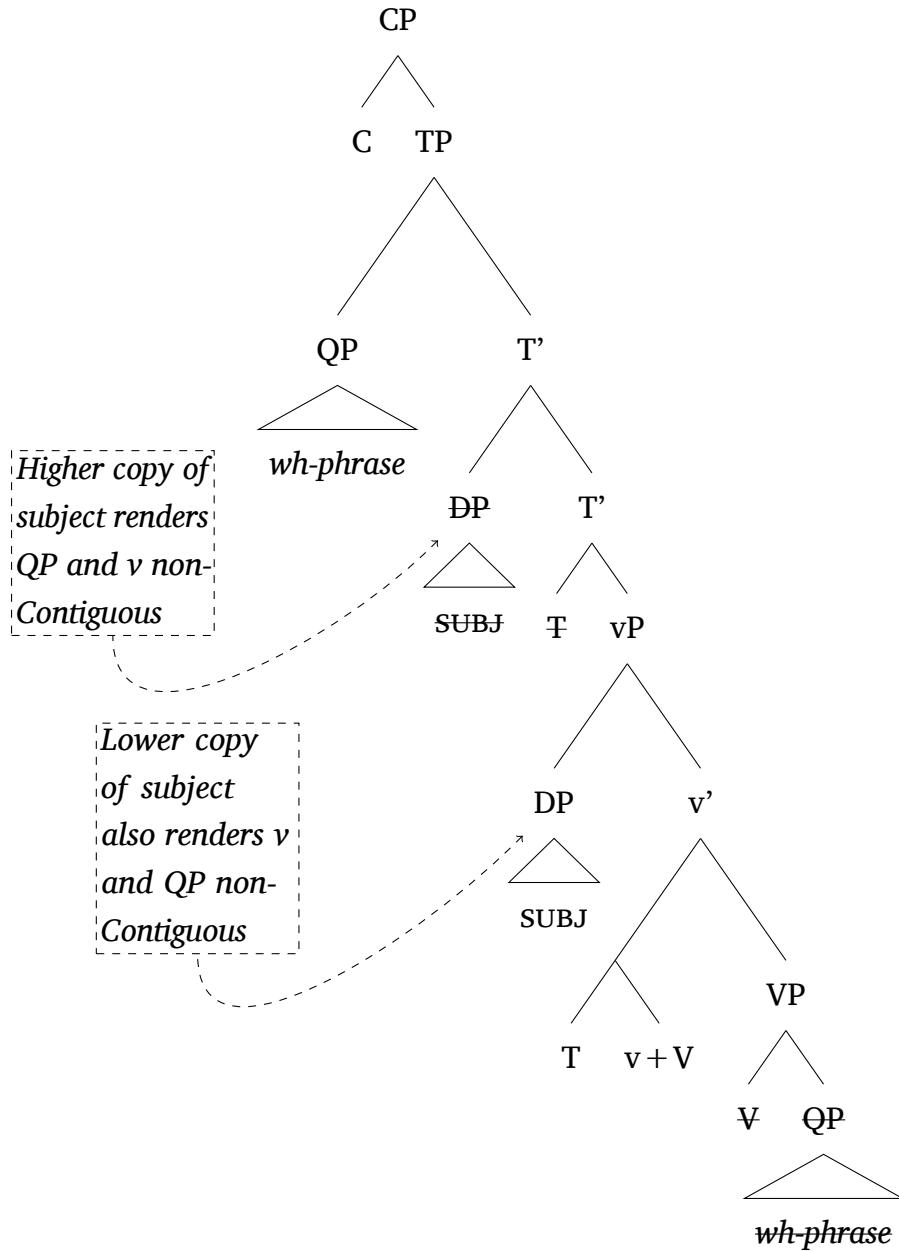
It is now worth considering these two proposals about Bantu verbs alongside the proposal made about subject-verb inversion in Romance languages in the previous section. There, we saw that Ā-movement in left-headed, right-active languages target [spec,TP]. As a result, the subject must be pronounced in [spec,vP], so that the *wh*-phrase and verbal complex may remain Contiguous, as schematized in (122).

(122)



Consider now a structure comparable to (122), in which the verb has *not* moved to T—as was proposed for Brazilian Portuguese. In such languages, pronunciation of a lower copy will not fix the problem posed for Contiguity, since that copy will also be pronounced in between the *wh*-phrase and verbal complex.

(123)



If both the analysis of inversion in Romance languages proposed in this chapter and the suggestion that some Bantu languages lower T to v + V are on the right track, then we are lead to an interesting expectation. Bantu languages that raise v + V to T will have subject inversion, whereas Bantu languages that lower T to v + V will lack subject inversion, and be forced to utilize an alternative strategy in \bar{A} -movement constructions in order to preserve the Contiguity relationship between the *wh*-phrase and v. In the following subsections, we will see that this expectation is borne out.

2.3.3 Avoiding the problem in [some] Bantu relative clauses

The languages we will examine in this subsection are Swahili, Kinande, and Zulu, three languages which appear to derive their verbal complex through lowering of T to v + V, rather than by raising v + V to T. We will see that these languages consistently lack subject-verb inversion in non-subject relative clause constructions. We will furthermore see that this is a result of the languages avoiding the insoluble challenge to Contiguity that arises in Ā-movement constructions in left-headed, right-active languages in which T lowers to v + V. Such languages avoid object movement altogether—instead, they consistently employ a non-movement strategy, involving the introduction of a resumptive pronominal at the apparent gap site.

2.3.3.1 Swahili

We have already examined the Swahili case—there, we saw evidence from secondary stress assignment in the verbal complex that supports an analysis in which the verbal complex is derived by lowering of T to v + V. If this analysis is on the right track, and Swahili is indeed a left-headed, right active language, then we expect the derivation of Swahili non-subject relative clauses to involve some process other than movement to [spec,TP]. Note also that Swahili passes a number of syntactic diagnostics that suggest it is a left-headed, right-active language. As we see in (124), Swahili allows *wh*-in-situ.

- (124) *Mtoto a-li-piga nini*
1.child 1AGR-PST-beat what

What did the child beat?

Muriungi, Mutegi, and Karuri (2014)

Adverbs in Swahili may appear between the verb and object, but not between the subject and the verb. The presence of an adverb between the verb and object will not alter Contiguity relationships between the verb and object; but the presence of an adverb between the verb and subject will prevent the subject from being Grouped with the verb.

- (125) a. *Juma a-li-maliz-a kabisa kazi*
J. 1AGR-PST-finish-FV completely 9.work

‘Juma finished the work completely’

- b. **Juma kabisa a-li-maliz-a kazi*
J. completely 1AGR-PST-finish-FV 9.work

‘Juma finished the work completely’

Ngonyani (1998)

In addition, Swahili compound nouns are left-headed, which we have seen is a general property of left-headed languages with prosodic activity on the right.

- (126) *dereva teksi*
driver taxi

‘taxi driver’

Tokizaki (2010)

These facts suggest that Swahili is indeed a left-headed, right-active language in which T lowers to v + V. Consider now the Swahili non-subject relative clauses in (127). Note, in (127b), that these sentences may have a preverbal subject. Note also that the presence of an object marker, which cross-references the noun class of the fronted object, is obligatory—normally, object marking of inanimates is optional in Swahili.

- (127) a. *kitabu ambacho wa-li-ki-soma*
7.book AMBA 2AGR-TNS-7OM-read

‘the book that they read.’

Keach (1980)

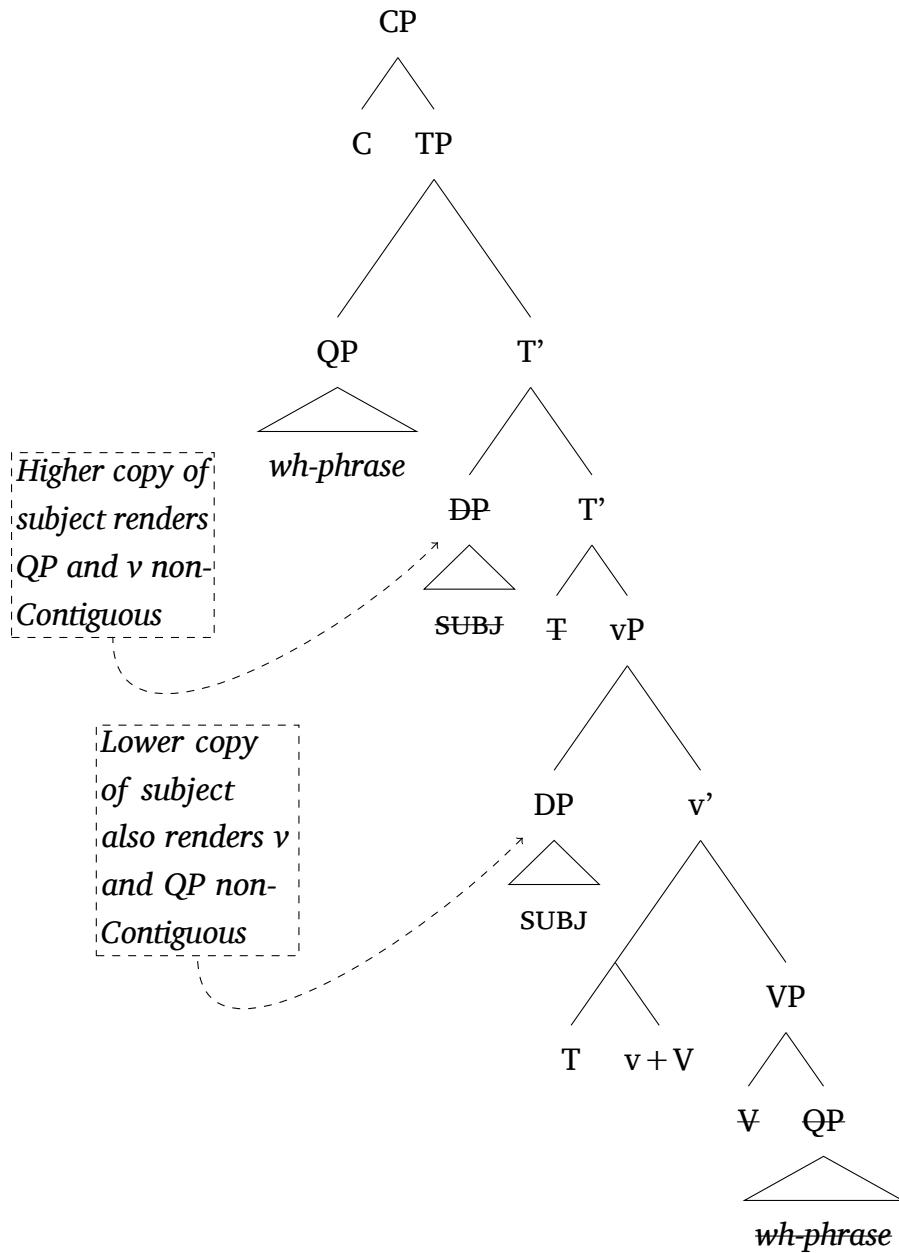
- b. *Kitabu ambacho mtoto a-me-ki-on* *jana*
7book REL7 1child 1AGR-PERF-7OBJ-see yesterday

‘The book which the child saw yesterday’

Demuth and Harford (1999)

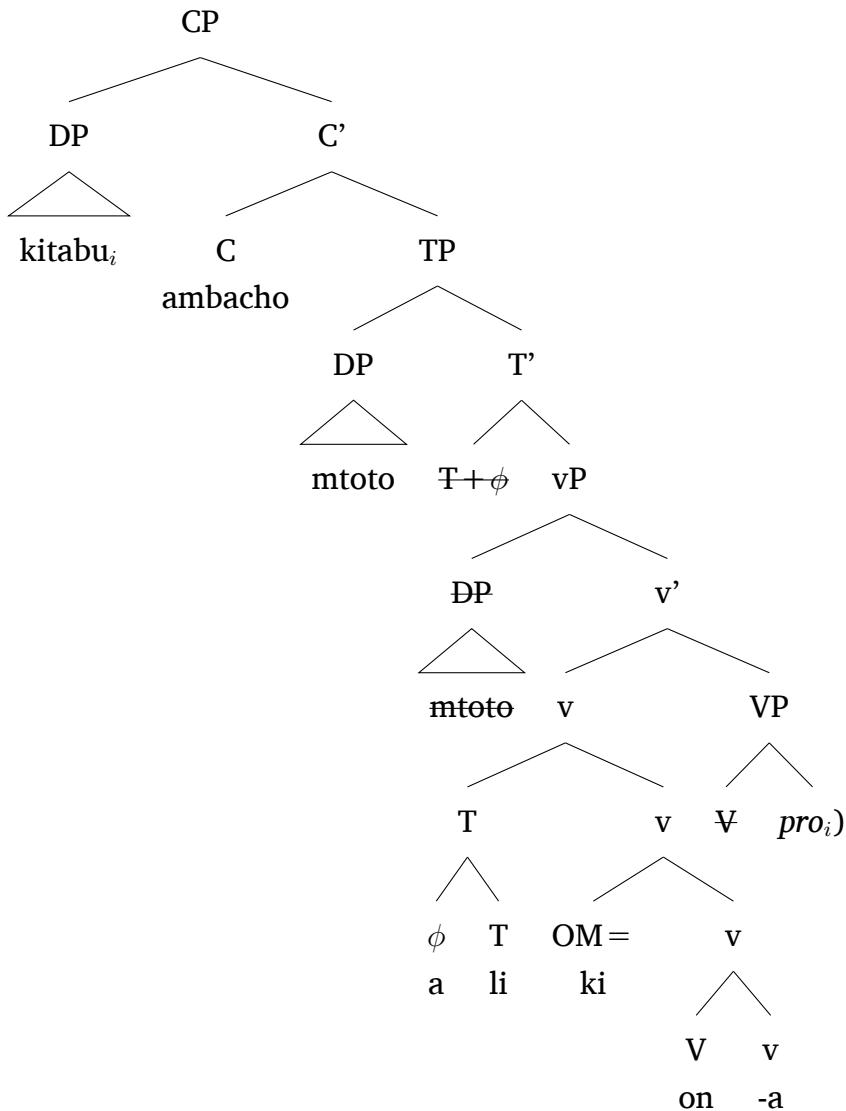
In Swahili, Ā-movement of the object to [spec,TP] should be forced by Shortest Move; however, as we see in (128), such movement would create an irreparable problem for Contiguity—there is no position for the subject to be pronounced in that will allow the verbal complex and fronted element to be Grouped, thereby allowing the subject to maintain its Contiguity relationship with v.

(128)



I would like to suggest that object relative clauses in Swahili are not derived through Ā-movement, but rather that the head of the relative clause is base generated at the edge of the relative clause, and is linked to its position inside the relative clause by a resumptive pronoun—which I suggest is the [obligatory] OM we see in (127).

(129)



Evidence for this over a view in which v Agrees with an element that undergoes successive cyclic movement comes from the fact that the OM appears only on the verb in which there is an object gap, as we see in (130). The absence of a reflex of successive cyclic movement can be explained straightforwardly under a view in which the OM reflects the use of a resumption strategy: the link between the resumptive element and head it is coindexed with is not contructed through successive movement operations, leading to a lack of marking of intermediate positions.

(130) OM appears only at the lower gap site

kitabu [ambacho [u-li-(^{}ki)-dhani [kuwa ni-li-*(^{*}ki)-penda pro]]]*
 7.book AMBA 2sg-TNS-think that 1SG-TNS-7OM-like

'the book which you thought I liked'

Keach (2004)

Further evidence supporting this analysis comes from the fact that it is possible to relativize an object out of a relative clause, as we see in (131). If object relativization in Swahili involves resumption, as I propose, then we should expect this relativization not to be sensitive to islands in the way that canonical movement chains are.

(131) **Swahili relative clauses are not island sensitive**

<i>kitabu</i>	[<i>ambacho ni-li-wa-ons</i>	[<i>watoto</i>	[<i>ambao wa-na-ki-penda</i>
7.book	AMBA	1SG-TNS-2OM-see	2.children AMBA 2.SM-TNS-7OM-like
pro]]]			

‘the book which I saw the children who like (it)’

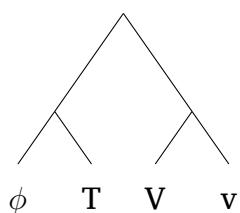
Keach (2004)

Swahili behaves as we expect, given the theory of inversion and T to V + v lowering laid out in this section. It is a language with low verbs, so subject inversion in \bar{A} -movement contexts is blocked for Contiguity-theoretic reasons. As a result, \bar{A} -movement is simply avoided in the language—instead, a strategy of resumption is used to construct \bar{A} -dependencies.

2.3.3.2 Kinande

An argument suggesting that the verbal complex in Kinande involve lowering of T to v + V comes from Black (1995). Black argues that a number of tonal alternations in the Kinande verbal complex can be explained straightforwardly, given a structure like that in (132), in which tense and agreement morphology form a subconstituent. Black’s analysis is consistent with the proposed T to V + v lowering analysis that I have suggested for other Bantu languages in this chapter.

(132)



Black (1995) notes that the right edge of intermediate phonological domains is generally associated with a high tone in Kinande, suggesting that it is a language with prosodic activity on its left. Unfortunately, we cannot run our full battery of syntactic tests for prosodic activity on Kinande. However, as we see in (133), it does allow *wh-in-situ*, suggestive of a language with prosodic activity on the right.

- (133) *Kambale a-alangira ndi*
1.Kambale 1.SM-saw 1.who

‘Who did Kambale see?’

Schneider-Zioga (2007)

If our analysis of Kinande is right—that is to say, if it a left-headed, right-active language with T to V+v lowering—then we expect it to not to employ movement in non-subject Ā-movement contexts. Indeed, as we see in (134), this appears to be correct.

- (134) *E ki hi kyo Kambale a-alangira ____*
What YO 1.Kambale 1.SM-saw
‘What did Kambale see?’

Schneider-Zioga (2009)

Interestingly, in Kinande, there is no obligatory object marking on the verb. What, then, is the resumptive element in the clause in (134)? I would like to suggest *kyo* is the resumptive element in Kinande, following in some respects the analysis put forth in Schneider-Zioga (2009). Schneider-Zioga (2009) notes that *wh*-movement in Kinande does not seem to be sensitive to islands in the way that true gaps are, as we see in (135).

- (135) *omukali ndi yo wasiga [embere Kambale anasi [ko yo ____ wabuga]]*
woman who YO you:left before K knew that YO spoke
‘Which woman did you leave before Kambale knew that she spoke?’

Kinande further supports the analysis put forth in this section. Like Swahili, it is a language with low verbs, so subject inversion in Ā-movement contexts is blocked for Contiguity-theoretic reasons. As a result, Ā-movement is simply avoided in the language—instead, a strategy of resumption is used to construct Ā-dependencies.

2.3.3.3 Zulu

The final Bantu language we will examine is Zulu. Recall from earlier in this chapter that a number of syntactic tests suggest that Zulu is indeed a left-headed, right-active language.

- (136) Syntactic tests suggest that Zulu is a left-headed, right-active language

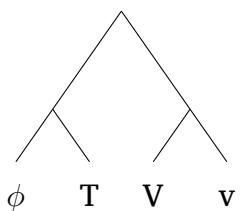
- a. *Ngi-buze [ukuthi uPeter u-thenge-ni]*
1SG-asked that 1a.Peter 1a-bought-what.9

‘I asked what Peter bought’

Sabel and Zeller (2006)

With respect to the Zulu verbal complex, Buell (2005) notes a number of asymmetries between prefixes and suffixes in Zulu: various forms of verbal suppletion only affect the stem and suffixes, to the exclusion of prefixes, and a variety of segmental alternations seem to be triggered in stem-suffix environments, but never in prefix-stem environments. If we assume that these alternations are domain restricted, then this is what we expect if Zulu is a T to V + v language, with a verbal complex structure like that in (137).²⁹ Prefixes, in this structure, form a constituent separate from the verb and suffixes—the prefixes are therefore not in the same domain as the verb and its suffixes, resulting in a lack of the sorts of alternations we have discussed.

(137)



If Zulu is indeed a left-headed, right-active language with T to V + v lowering, then we expect it to use an ‘avoidance’ strategy involving resumptive pronouns to construct \bar{A} -chains. As we see in (138), this expectation is borne out: Zulu has obligatory resumption in \bar{A} -movement contexts.

29

- (138) *Inja e-mfana wa-*(yi)-thenga in-hle*
9dog 9CA-1boy 1SA-9OA-buy 9SA-good

'The dog which the boy bought is good.'

Poulos (1982)

Zulu is like Swahili in that the resumptive pronoun appears only in the lower clause in cases involving long-distance Ā-movement.

- (139) **Resumption visible only at the gap site**

- Y-indoda o-cabanga [ukuthi uBev u-yi-bonile]*
COP-man9 RC2ndSG-think that Bev1a SP1a-Oc9-saw

'It was the man who you think that Bev saw.'

Buell (2005)

Unfortunately, I do not know if resumption in Zulu ameliorates expected island effects. If the type of resumption that Zulu utilizes is similar to that used in Swahili and Kinande, then we should expect it to. If Ā-chains in Zulu do not ameliorate island effects, then this would not be a fatal blow against the analysis of Zulu proposed in this subsubsection. Rather, it would simply mean that the resumptive strategy used in Zulu would be the sort of resumption which is island sensitive—see Asudeh (2007) for more details about how resumptive chains appear to differ in just this way, crosslinguistically.

Before we move on, it is worth noting here that the theory developed in this chapter does not necessarily lead us to expect that all languages with T-lowering will generally lack post-verbal subjects; rather, it leads us to expect languages which have *both* T-lowering and post-verbal subjects to derive the post-verbal subject through some means other than pronunciation of a low copy of the subject. As we see in (140), Zulu does allow agents to follow the verb—but as we have seen in this subsection, Zulu is also a language with T-lowering.

- (140) *Ku-bhal-a a-bafundi i-zincwadi*
SM17-write-FV 2-2.student 10-10.letter

'The students are writing letters.'

Zeller (2012a)

Note, in (140), that the post-verbal subject fails to control verbal agreement. This might suggest that the mechanism through which post-verbal subjects are derived in Zulu does not involve pronunciation of a lower copy of the external argument—whatever this mechanism is, it precludes the post-verbal subject from controlling agreement morphology, and it is also incompatible with forms of Ā-extraction. If this theory is on the right track, we might

hope to find languages that have both V-to-T and this alternative mechanism for deriving post-verbal subjects. Fiorentino, a dialect of Italian, might be such a language. As we see in (141), pre-verbal subjects in Fiorentino control agreement morphology, but post-verbal subjects don't—comparable to Zulu.

(141) Post-verbal subjects don't agree in Zulu and Fiorentino

- a. *La Maria la parla*
the M. she speaks
'Maria speaks'
- b. *gl' è venuto la Maria*
3sg.m be.3sg come.ptcp the M.
'Maria has come'

Brandi and Cordin (1989)

If Fiorentino is a language that has V-to-T movement as well as this alternative mechanism for deriving post-verbal subjects, we expect Fiorentino to display subject-verb inversion in non-subject extraction contexts, and that the post-verbal subject in just these cases should be required to control verbal agreement. As we see in (142), this expectation is borne out.

(142) *Icché ha-ella mangiato la Maria*
what have.3sg.f eat.ptcp the Maria

'What has Maria eaten?'

Suñer (1992)

What the Zulu and Fiorentino facts are telling us, then, is that there might be more than one road to VSO word order.³⁰ One—the option instantiated by Zulu—is incompatible with Ā-movement and prevents the subject from controlling verbal agreement. Another—the option instantiated by the Romance languages investigated in the previous sections—is compatible with Ā-movement and allows the subject to control verbal agreement morphology. What we learn from this theory, then, is not that languages with T-lowering should generally lack post-verbal subjects. Rather, it is that post-verbal subjects in languages with T-lowering do not reflect the pronunciation of a low copy of the subject, but instead indicate the presence of some other mechanism to place the subject after the verb.

³⁰ This dovetails with work done on languages that are canonically considered to be verb-initial. See Carnie, Dooley, and Harley (2005), for instance, for arguments that some V-initial word orders are derived through head movement, whereas others are derived through VP-fronting.

2.3.4 Inversion in [some] Bantu relative clauses

In the previous discussion of Bantu Ā-chains, we saw that a number of Bantu languages appear to avoid fronting non-subjects in Ā-movement constructions, instead using a resumptive strategy to derive the chain. I suggested that this was a result of these languages utilizing T to V + v lowering in the derivation of their verbal complexes, considered alongside the proposal made for inversion in Romance languages [modulo Brazilian Portuguese], which involves the pronunciation of a lower copy, which is linearly to the right of the verbal complex. In languages that make use of T to V + v lowering to derive their verbs, no such copy exists—as a result, the use of some alternative, non-movement strategy becomes obligatory to derive an Ā-chain. In this subsection, we will see that there are Bantu languages that make use of verb-subject inversion—suggesting that some Bantu languages raise V + v to T, comparable to Romance languages.

Dzamba is a language where we see this clearly. As we see in (143), the canonical word order in Dzamba is SVO, as is usually the case for a Bantu language.

- (143) *oPoso a-tom-el-aki oMusa mwenzi loome*
1.Poso 1.Ag-send-App-Impf 1.Musa message today

Poso sent a message to/for Musa today.

Bokamba (1976)

(144) involves object relative clauses.³¹ As we see in (144a), the logical subject must appear after the verb—if it appears in between the verb and fronted subject, the sentence is unacceptable, as shown in (144b).

(144) Subject-verb inversion in Dzamba object relative clauses

- a. *imundondo mu-tom-áki Poso loome mu-bung-i*
5.jug 5AGR-send-PST P. today it-lose-IP
‘The jug which Poso sent today is lost.’
- b. * *i-mu-ndondo Poso mu-tom-áki loome mu-bung-i*
the-jug P. RM-Ag-send-PST today it-lose-IP
‘The jug which Poso sent today is lost.’

Bokamba (1976)

Furthermore, as we see in (145), Dzamba object relatives do not allow resumptive pronouns, suggesting that the fronting of the object indeed involves a movement dependency.

³¹ Note also that verbal agreement morphology crossreferences the fronted argument in these cases. I will set this interesting fact aside for the purposes of this discussion.

(145) **No resumption in Dzamba object relatives**

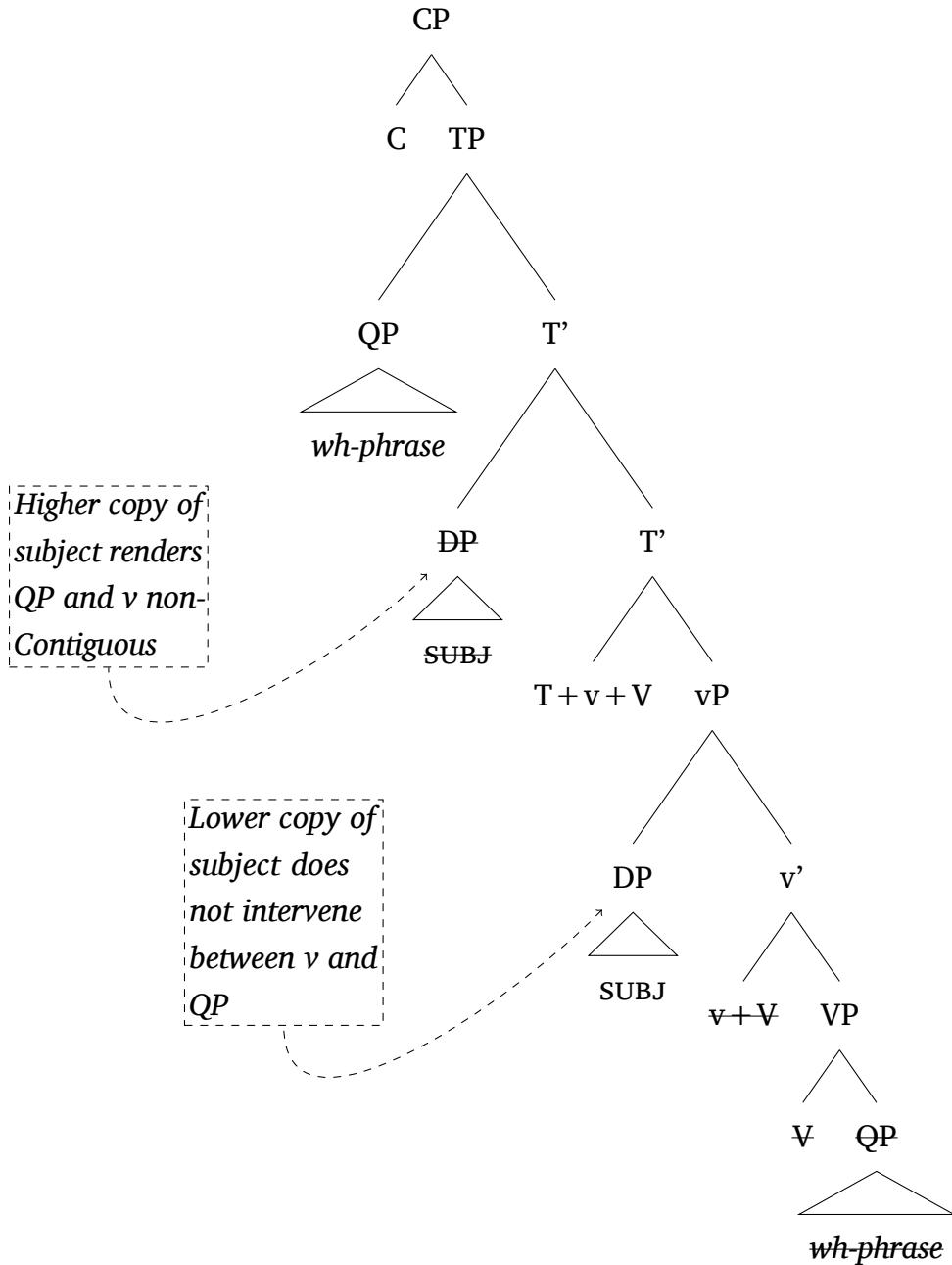
imundondo mu-(^{}mu)-kpa-aki omoto*
5.jug 5AGR-50M-took-PST 1.person

'the jug which the person took'

Bokamba (1976)

In other words, Dzamba is like the Romance languages investigated in the previous section, which move V + v to T. The analysis presented there should extend straightforwardly to Dzamba. The structure of a Dzamba relative clause, then, involves a structure like (146). Inversion of the subject involve pronunciation of a lower copy of the subject, which will appear linearly to the right of the verbal complex, so that the Contiguity relationship between the verbal complex and fronted object may be maintained.

(146)



How can we be sure that $V + v$ moves to T in Dzamba? Dzamba is morphologically unusual in comparison to many other Bantu languages. Tense morphology in many Bantu languages is generally prefixal—consistent with an analysis where T lowers to $V + v$. However, in Bokamba (1976), all cited forms involve *suffixal* tense morphology. The closely related language Lingala displays a similar asymmetry in the locus of tense morphology, in that it is similarly generally suffixing [Mufwene (1978)]. Dzamba [and Lingala] would therefore be comparable to Romance-like languages, which generally have suffixing TAM morphology, derived through movement of $V + v$ to T .

Kilega, as described by Kinyalolo (1991), exhibits subject-verb inversion in Ā-movement contexts, as we see in (147).

(147) **Kilega has subject/verb inversion**

- a. *bábo bíkulu b-á-kas-íl-é mwámí bikí mu-mwílo*
2that 2woman 2SA-A-give-IL-fv 1chief 8what 18-3village
'What did those women give the chief in the village?'
- b. *mwámí bi-á-kas-íl-é bábo bíkulu bikí mu-mwílo*
8what 8SA-A-give-IL-fv 2that 2woman 1chief 18-3village
'What did those women give the chief in the village?' Kinyalolo (1991)

Kinyalolo (1991) provides a number of arguments that the post-verbal subject in Kilega involves movement of the verb to some position above the subject. If this analysis is on the right track, then Kilega is like Dzamba, in that it has V + v to T movement. As a result of this movement, a lower copy of the subject may be chosen for pronunciation, in order to create a derivation which is Contiguity Preserving.

Finally, as described by Van der Wal (2010), Makhuwa also displays obligatory subject verb inversion in relative clauses, as we see in (148). This too would be consistent with an analysis in which the Makhuwa verb raises to T.

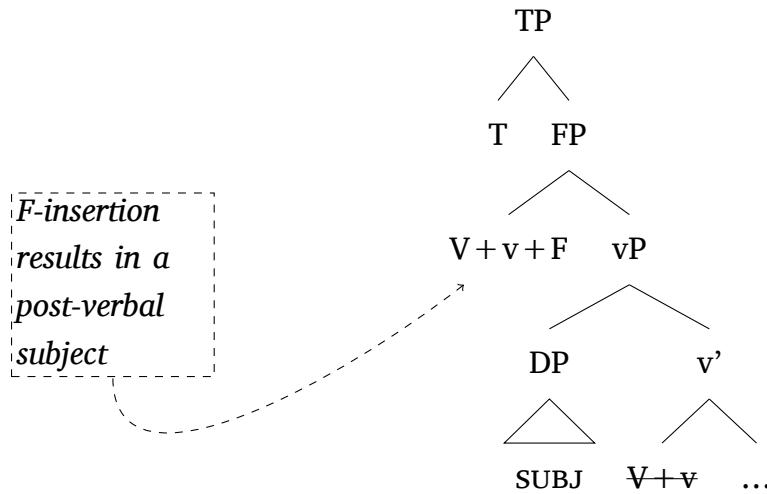
(148) **Subject-verb inversion in Makhuwa relative clauses**

- a. *Hasáání o-tek-alé e-nupá*
1.Hasan 1-build-perf.cj 9-house
'Hasan has built a house.'
- b. *e-núpá e-tek-ale Hasáání (yuulupále)*
9-house 9-build-perf.rel 1.Hasan (9.big.PL)
'The house that Hasan has built (is big).'

Unlike Dzamba, Makhuwa tense morphology is generally prefixal. However, Van der Wal (2010) notes that there is a special, suffixal form of the verb which is used just in non-subject relative clauses. We could view this as another sort of 'avoidance' strategy, albeit a different one than the resumptive strategy that Swahili, Kilega, and Zulu utilize. In Makhuwa, the special form of the verb would involve a structure like that in (149), where an additional functional head, which I will call F, has been introduced into the

structure—this functional head corresponds to the special suffix which appears on the verb in non-subject relatives. Crucially, for this account, $V+v$ moves to F . As a result of this movement, there is a post-verbal copy of the subject, which may be chosen for pronunciations so that Contiguity may be maintained between the fronted object in [spec,TP] and the verbal complex.

(149)



2.3.5 Recap and discussion

This section involved an investigation of obligatory subject-verb inversion in non-subject \bar{A} -constructions in left-headed, right-active languages. I argued that, in such languages, *wh*-movement must target [spec,TP] rather than [spec,CP]. This means that the landing site of the *wh*-phrase is in the same Spell-out realm as its launch site. Such movement, therefore, must preserve the Contiguity relationship between the fronted *wh*-phrase and *v*. In languages that have obligatory $V+v$ to T movement, like most Romance languages, and, as we just saw, some Bantu languages, a lower copy of the subject must be pronounced, so that the derivation is Contiguity Preserving. In languages in which T lowers to $V+v$, like many Bantu languages and, perhaps, Brazilian Portuguese, there is no lower copy of the subject to pronounce. As a result, these languages employ a strategy of avoidance—non-subject \bar{A} -chains, in these languages, must be derived through a resumption strategy, as we saw was the case for Swahili, Kilega, and Zulu.

More generally, we have seen once more that the choice of prosodic activity determines a number of properties about a language. When a language has prosodic activity on the right, it will not tolerate the presence of a phonological phrase between a goal and its probe when the goal is to the left of the probe. Subject inversion in Romance and some

Bantu languages is a result of this—the subject cannot appear in this position, since it would result in there being a phonological phrase between the fronted object and verbal complex. Subject inversion is thus analogous to the defective intervention effect discussed in chapter 1, and indeed, the languages which display the effect examined in chapter 1 are the same languages that display the intervention effects examined in this chapter.

2.4 Recap and conclusion

This chapter involved a more in-depth investigation of movement operations in left-headed, right-active languages, in light of the findings in chapter 1. In chapter 1, we saw that movement of a subject across an element that corresponds to a phonological phrase in the prosodic structure is not allowed, if the launch site and landing site are contained within the same phase—this accounts for the ‘defective intervention effect’ in raising constructions.

The first type of movement operation we investigated was hyperraising. We saw that hyperraising is not subject to the defective intervention effect, even in languages that normally exhibit it in regular raising constructions. Given the results of chapter 1, this suggests that a particular analysis of hyperraising holds—one in which hyperraising involves cross-clausal A-movement, mediated by an Agree relationship with the embedded clause. Since the landing site of movement is in a different phase from the launch site, Contiguity relationships between the moved element and heads in the phase of the launch site may be safely forgotten, allowing hyperraising across adjuncts and experiencers.

The second type of movement operation we investigated was \bar{A} -movement of non-subjects. I suggested that such movement targets [spec,TP] instead of [spec,CP] in left-headed, right-active languages, as a result of a principle preferring shorter moves over longer moves, when possible. As a result, \bar{A} -movement of non-subjects cannot cross a preverbal element that maps to a phonological phrase in left-headed, right-active languages, for the same reason that a subject may not raise across such an element in these languages. I showed that left-headed, right-active languages utilize two different strategies to avoid the problem: if the verb is high, pronunciation of a lower copy of the subject prevents the subject from intervening between the *wh*-phrase and verbal complex; if the verb is low, a resumptive strategy is utilized, so that the \bar{A} -moved element never enters into an Agree relationship with the verbal complex at all.

More generally, what we have seen in this chapter, and the chapter preceding it, is that there is a general restriction on left-headed, right-active languages, which appears to constrain movement: in these languages, as a result of Contiguity, a phonological phrase

may not appear between a probe and a goal when the goal is to the left of the probe. Contiguity Preservation thus prevents movement to such a position. This chapter has explored in particular a particular consequence of this approach: that the presence of a phase boundary between a probe and goal should cause this restriction to vanish. We saw that this expectation was borne out in two cases—cases involving hyperraising across experiencers, and cases involving clefting as opposed to ‘local’ \bar{A} -movement.

Chapter 3

Intervention in *wh*-questions: the Hoji/Beck effect

In this chapter, we will direct our attention at focus intervention effects, or *the Hoji/Beck effect*, in in-situ *wh*-question constructions. The set of facts to be examined in this section can be characterized in the following way: *wh*-objects in these languages are normally allowed in-situ, as in (1a), but are required to move to a position to the left of other elements in the clause, such as NPIs and NPs marked with focus particles, as in (1b).

- (1) a. ...XP...YP_{wh}... b. ...XP_{foc/np_i}...YP_{wh}...

In the first section of this chapter, I will outline a few approaches towards such effects, and detail their successes and failures. I will then note, in the second section, that languages like Basque appear to display a ‘super-strong’ variety of the effect, in that the relative order of focus bearing element and *wh*-phrase do not matter. I argue that the problem in these languages is analogous to the problem that arose in the case of subject-verb inversion in Romance, and use this to motivate a theory rooted in Contiguity and Contiguity Preservation. In the second section of this chapter, I extend the effect to left-headed languages, taking up Japanese and Korean as a case study. We will see that interveners and *wh*-phrases in Japanese and Korean share a common signature: their presence results in a significantly altered prosodic realization spanning the sentence until their scope position, which I take to reflect an Agree relationship with an element in the verbal complex. In the cases of the Hoji/Beck effect, we will see that Grouping to satisfy the needs of an in-situ *wh*-phrase will disrupt Contiguity between an NPI or NP with focus particle and its licensing head, in violation of Contiguity Preservation. Languages vary, depending on headedness and prosodic activity, in terms of whether or not they allow linearly nesting or linearly crossing dependencies, as a result of the theory developed in

this chapter.

The rest of this chapter is dedicated to an exploration of cross-linguistic variation with respect to this effect, and how the proposed theory leads us to expect the variation. Among the types of language, we expect an intervener to have an effect of the prosodic ‘span’ of the sentence between it and the verbal complex, comparable to that of *wh*-phrases, as in Japanese and Korean. This prosodic effect reflects the presence or absence of an Agree relationship with the verbal complex, in much the same way that inflectional verbal morphology might—elements that neither trigger inflectional verbal morphology nor have an effect on the prosody of the sentence are not in an Agree relationship with the verb. Keeping this in mind, we look at Mongolian, a left-active, right-headed SOV language, which is comparable in many respects to Japanese and Korean. In Mongolian, we see that some foci and *wh*-phrases have a prosodic signature comparable to that seen in Japanese and Korean. The set of foci that lack this signature in Mongolian do not cause the Hoji/Beck effect to arise in sentences where they appear to the left of in-situ *wh*-phrases.

Finally, we turn our attention to French and Kikuyu, both right-active, left-headed languages. We see that, in French the set of interveners is comparable to Japanese and Korean, and that *wh*-phrases and interveners have a distinct prosodic signature. Kikuyu behaves differently. The set of interveners common to French and Japanese do not trigger the effect in Kikuyu or Bùlì, and likewise lack any distinctive prosodic signature. In Kikuyu, however, certain elements associated with verum focus and negation have a distinct effect on the prosodic phrasing of a sentence, and cannot co-occur in the same clause as an in-situ *wh*-phrase.

The chapter concludes with a coda, and a discussion of other effects in this realm which might not be captured by the theory I have developed. The coda involves the exploration of Egyptian Arabic. Egyptian Arabic generally lacks prosodic marking of focus, generally lacks the Hoji/Beck effect, but has *wh*-in-situ which behaves akin to Japanese and Korean in its distribution otherwise. I suggest that Egyptian Arabic could be a language which generally lacks prosodic activity—and it therefore will always vacuously satisfy Contiguity, regardless of where its *wh*-phrases are placed. Outside of the coda, the facts to be discussed will include intervention effects in English, and certain interactions between in-situ *wh*-phrases and quantificational elements described in Erlewine and Kotek (2017); Kotek (2017).

3.1 Literature review

This section details a number of approaches towards the contrast in grammaticality between sentences like those in (2-3). In (2-3a), we see that these languages allow *wh*-in-situ, at least in principle. In (2-3b-c), we see that these languages require in-situ *wh*-phrases to be dislocated in certain contexts, such as when they are c-commanded by an NPI.

(2) Intervention effects in Japanese

- a. *John-ga nani-o kat-ta-no?*
J.-NOM what-ACC buy-PST-Q

‘What did John buy?’
- b. * *Dare-mo nani-o kawa-nakatta-no?*
anybody what-ACC buy-NEG.PST-Q
- c. *Nani-o dare-mo ____ kawa-nakatta-no?*
what-ACC anybody buy

‘What didn’t anybody buy?’

(3) Intervention effects in Korean

- a. *John-i mues-ul sach-i-ass-ni?*
J.-NOM what-ACC buy-PST-Q

‘What did John buy?’
- b. * *Amuto mues-ul sach-i-anh-ass-ni?*
anybody what-ACC buy-NEG-PST-Q
- c. *Mues-uli amuto ____ sach-i-anh-ass-ni?*
what-ACC anybody buy-NEG-PST-Q

‘What didn’t anybody buy?’

The first two sets of proposals are similar in that they attribute the effect to a minimality like ban, although they differ in terms of where the ban is located. The first set of proposals, including those proposed in Hoji (1985), Beck (1996), and Pesetsky (2000) place this ban squarely in the syntax, proposing that a minimality condition blocks covert movement across the set of interveners. The second set of proposals, including those proposed in Beck (2006), Cable (2010), and Kotek (2014), place this ban in the semantics, deriving a

minimality-like condition from a Roothean focus semantics. The final set of proposals, such as those made in Tanaka (1997, 2003), propose a restriction on the linear ordering of constituents in long-distance dependencies, which includes *wh*-phrases, focus sensitive NPs, and NPIs.

3.1.1 Syntactic accounts of the effect

Hoji (1985) proposes the ban in (4) to account for a variety of interpretive facts in Japanese sentences with multiple quantifiers. Among these facts are sentences like the one in (2), to my knowledge this is the first time such a contrast is discussed in the literature.¹

(4) **Hoji's ban:**

- *QP_i QP_j t_j t_i
at LF, where each member c-commands the member to its right

For Hoji (1985), sentences like those in (5) are ruled out through the ban in (4). Hoji (1985) assumes that QR is an adjunction operation targeting S, and that *wh*-phrases must move covertly to COMP. As a result, the sentence in (5a) is ungrammatical, as it instantiates an illicit configuration, ruled out by the ban in (4).

- (5) a. * *Daremo-ga nani-o kaimasita ka*
everyone-NOM what-ACC bought Q
(What did everyone buy?)

¹ An earlier possible antecedent in noticing restrictions on the co-occurrence of two or more focus bearing elements in Japanese is Kuroda (1970) [acknowledged in Hoji (1985)], which notes that sentences like (i.) are ineffable.

- (i.) a. *S.S.-dake-o John-sae-ga yonda*
S.S.-only-ACC J.-even-NOM read
b. *S.S.-o-sae John-dake-ga yonda*
S.S.-ACC-even J.-only-NOM read

Schauber (1975) is the first to note a ban on the co-occurrence of foci and *wh*-phrases in an SOV language—Navajo. Note that Navajo is unlike Japanese and Korean, in that it disallows either order of *wh*-phrase and focus.

- (ii.) a. * *háálá tíf’ ga’ nabíílgó’*
who.Q horse emph 3.3.P.throw
b. * *ashkii ga’ ha’át’íílá nabíílgó’*
boy emph what.Q throw

- b. * [_{S'}WH-o_i [_S QP-ga_j [_S t_j [_{VPT}_i ...]]]]]

Beck (1996) proposes a similar ban, based on evidence like that in (6) from German. In multiple questions in German, one of the two *wh*-phrases does not front to the sentence initial position. Comparable to in-situ *wh*-phrases in Korean and Japanese, it cannot appear to the left of certain quantificational elements, including the negative existential *niemand*, shown in (6a). The in-situ *wh*-phrase must be scrambled to the left of the negative existential for such a sentence to be grammatical, as we see in (6b).

(6) Intervention in multiple questions in German

- a. * *Wen hat niemand wo gesehen?*
 whom has nobody where seen
 ‘Where did nobody see whom?’
- b. *Wen hat wo niemand gesehen?*
 whom has where nobody seen
 ‘Where did nobody see whom?’

Beck (1996) proposes the following set of definitions, given in (7), to account for the contrast in (6). Essentially, what the set of constraints in (7) do is define certain domains, out of which covert movement is blocked. Under this view, in (6a), the lower *wh*-phrase is in a QUIB defined by the negative quantifier, but must move in some fashion to a position comparable to that of the fronted *wh*-phrase for the sentence to be interpretable. The only option available to this *wh*-phrase is covert movement, which is ruled out by the MQSC, since covert movement of the *wh*-phrase to its scope position would cross the QUIB defined by the negative existential subject. In contrast, under this approach, the lower *wh*-phrase in (6b) is not in a QUIB defined by the negative quantifier, since it has undergone leftward scrambling, which Beck (1996) argues has both syntactic and phonological effects and therefore occurs in the narrow syntax. As a result, this *wh*-phrase may undergo covert movement to its scope position from the position derived by scrambling, since this covert movement operation will not cross a QUIB.

(7) a. *Quantifier-Induced Barrier (QUIB):*

The first node that dominates a quantifier, its restriction, and its nuclear scope is a Quantifier-Induced Barrier.

b. *Minimal Quantified Structure Constraint (MQSC):*

If an LF trace β is dominated by a QUIB α , then the binder of β must also be

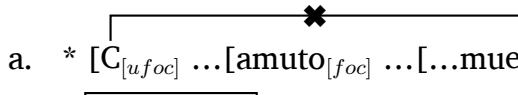
dominated by α .

Beck and Kim (1997) extend the account proposed in Beck (1996) to Korean. Under this view, the contrast in (8) is homologous to the contrast in (6). In Korean, given this approach, the subject in (8a) delimits a QUIB, exactly like the subject in (6b). It is assumed that the in-situ *wh*-phrase must move covertly to [spec,CP], as in the German case. This movement is blocked, since such movement would cross a QUIB. As a result, the sentence in (8a) is ungrammatical. In (8b), at least one instance of the *wh*-phrase is not in the QUIB delimited by the subject. As a result, the *wh*-phrase may move covertly to [spec,CP] from this position, as it such movement will not violate the MQSC.

- (8) a. * *Amuto mues-ul sach-i-anh-ass-ni?*
anybody what-ACC buy-NEG-PST-Q
- b. *Mues-ul amuto _____ sach-i-anh-ass-ni?*
what-ACC anybody buy-NEG-PST-Q
- 'What didn't anybody buy?'

Kim (2006) takes a slightly different approach towards accounting for these effects. Rather than positing a minimality-like ban on covert movement, as other accounts outlined in this subsection do, Kim (2006) accounts for the effect using the MLC proper. It is proposed that *wh*-phrases and interveners bear a [FOC] feature, at least in Korean, and that C probes for [FOC]. Furthermore, the feature on *wh*-phrases is such that it *must* participate in a successful Agree relationship, lest the derivation crash. This contrasts with focus-marked phrases, which bear a [FOC] feature but need not participate in an Agree relationship. Under such an approach, the grammatical sentence in (8a) has a structure like that in (9a), whereas the sentence in (8b) has a structure like that in (9b). Moving the *wh*-phrase to a position c-commanding the focused phrase feeds Agree with C, since the *wh*-phrase *must* enter into an Agree relationship with C, this changes the grammaticality of the sentence.

(9) **MLC blocks Agree with in-situ *wh*-phrase**

- a. *  [C_{ufoc} ... [amuto_{foc} ... [...mues-ul_{foc}] ...]]
- b. [C_{ufoc} ...mues-ul_{foc} [...[amuto_{foc} ...[..._____...] ...]]]

In short, all of the syntactic approaches to this effect have in common the fact that they propose a ban of the sort in (10), in other words, a minimality restriction. While the

exact proposals differ to some extent in terms of *what* property it is that the intervener and *wh*-phrase share—Hoji (1985) and Beck (1996) propose that it is that both are quantificational, whereas Kim (2006) proposes that both are focus-sensitive—all posit that *wh*-phrases and share some property in common, that the *wh*-phrase must enter into some sort of relationship with a position high in the clause, and that the presence of something with a comparable property blocks that relationship.

(10) **Generalized intervention ban**

*[X ...[INT ...[...*wh* ...]]]

3.1.2 Semantic accounts of the effect

Beck (2006) attempts to derive a ban like that in (10) from the semantics. The account presented in Beck (2006) is adopted by Cable (2010) and Kotek (2014), with minor emendations being made for each of their accounts. Beck (2006) posits that the Hoji/Beck effect is caused by semantic malformedness, rather than the violation of a ban on covert movement. For these accounts, the ban in (10) derives from a more general requirement that syntactic structures have a properly defined LF, given in (11).

(11) *Principle of Interpretability:*

An LF must have an ordinary semantic interpretation.

To understand the statement in (11), we will need to say more about what Beck (2006) and those that follow her assume about semantics. Beck (2006) adopts a Roothean approach to focus semantics and interrogatives, following Ramchand (1997), among others. Under such an approach, there are two ‘tiers’ of semantic interpretation—every node normally has both an ordinary denotation and a focus denotation. *Wh*-phrases are unique, in that they have an undefined ordinary denotation, but a defined focus denotation. For Beck (2006), nodes that dominate a *wh*-phrase will have an undefined ordinary denotation if they were created through the normal rules of semantic composition, since, barring syncategorematic rules, any node dominating a node with an undefined ordinary denotation will itself have an undefined ordinary denotation. Rooth’s (1985, 1996) \sim operator, which delivers the correct interpretation for a sentence with a focus-bearing element other than *wh*-phrases, essentially translates the focus denotation of its sister into its ordinary denotation—the focus denotation of the mother of the \sim operator is equivalent to the ordinary denotation of the sister of the \sim operator. This is how Beck (2006) derives the intervention schema that was ultimately stipulative in earlier accounts. A sentence where a *wh*-phrase is in the scope

of the \sim operator will not have a defined ordinary denotation or focus interpretation, which is equated to ungrammaticality—given the principle in (11). A constituent containing a *wh*-phrase does not have a defined ordinary denotation; if such a constituent is the sister of the \sim operator, this will result in the focus denotation also being undefined, making satisfaction of (11) impossible.

This sort of approach has at least two advantages over purely syntactic accounts of the effect. Firstly, it attempts to derive the effects of a stipulative ban on movement from independently needed stipulations needed for focus semantics. Secondly, it makes predictions about the character of interveners crosslinguistically. Under this approach, we expect triggers of the Hoji/Beck effect to be just the set of lexical items that require the \sim operator in order to be interpreted. The predicts that the set of triggers of the Hoji/Beck effect should be crosslinguistically stable, assuming that the computation of focus is crosslinguistically stable. However, as we will see later in the chapter, this approach faces serious empirical challenges. We will see that there are languages that lack the effect altogether, even with “core” trigger, such as *only* or *even*. Similarly, we will see a language, Mongolian, where some elements that associate with \sim trigger the effect whereas others do not; and a language, Kikuyu, where a totally disjoint set of elements trigger the effect but core triggers such as *only* do not.

Erlewine and Kotek (2017); Kotek (2017) propose a slightly different approach, again rooted in the notion of focus alternatives. Kotek and Kotek & Erlewine note that there is a longstanding puzzle in the literature having to do with an interaction between the mechanism used to interpret movement chains and the mechanism of focus alternatives. In short, the problem is that the two mechanisms cannot be ‘mixed’—properly defining the chain interpretation mechanism so that it does not interact perniciously with the mechanism of focus alternatives is the puzzle. Kotek and Kotek & Erlewine suggest that there is no problem, and that furthermore this is the cause of the intervention effect. This provides a clear characterization of what will be an intervener—anything that undergoes movement—as well a clear characterization of what sort of thing will be intervened for—anything which projects focus alternatives. We will see facts from Mongolian that will provide a challenge to this account. In Mongolian, scrambled elements appear to reconstruct obligatorily, but scrambling nevertheless ameliorates the Hoji/Beck effect. This is surprising for this theory—reconstruction of the *wh*-phrase below an intervener, should produce ungrammaticality on par with a structure which lacks scrambling. Towards the end of this chapter, I will discuss this theory and some of the data presented in Erlewine and Kotek (2017), and show how it might dovetail with the theory developed in this chapter.

3.1.3 Linear accounts of the effect

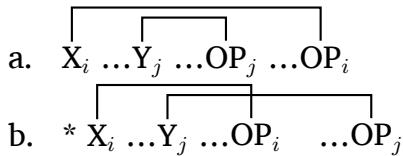
Tanaka (1997, 2003) proposes that the ungrammaticality of sentences such as (12) results from a ban on linearly crossing dependencies.

(12) Intervention in Japanese and Korean

- a. * *Dare-mo nani-o kawa-nakatta-no?*
anybody what-ACC buy-NEG.PST-Q
- b. * *Amuto mues-ul sachianh-ass-ni?*
anybody what-ACC buy-NEG-PST-Q

Tanaka's ban, called the Linear Crossing Constraint, is schematized in (13). Both examples in (12) are ruled out by (13b), as they both involve linearly crossing dependencies. The relationship between the NPI and NEG in the verbal complex correspond to X_i and OP_i , while the *wh*-phrase and question particle correspond to Y_j and OP_j .

(13) Linear Crossing Constraint



Tanaka (1997, 2003) proposes that NPIs and *wh*-phrases undergo covert movement to [spec,NegP] and [spec,CP] respectively. When a *wh*-phrase remains in-situ, as in (14a), this will result in a violation of the Linear Crossing Constraint—the two dependencies are in a configuration like (13b), which is not allowed. However, if the *wh*-phrase undergoes overt movement, as in (14b), no such violation occurs. Overtly rearranging the elements creates a (13a) configuration, which the Linear Crossing Constraint allows.

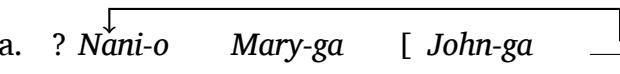
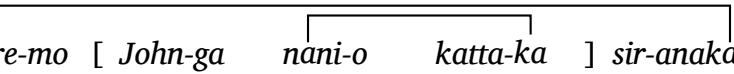
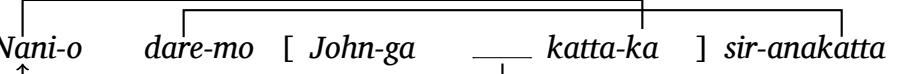
(14) Scrambling fixes Linear Crossing Constraint violation

- a. * *Dare-mo nani-o kawa-nakatta-no?*
anybody what-ACC buy-NEG.PST-Q
- b. *Nani-o dare-mo kawa-nakatta-no?*
what-ACC anybody buy-NEG.PST-Q

One strength of Tanaka's account is that it correctly predicts that long-distance scrambling of *wh*-phrases, which is generally allowed, (15a), will be disallowed when the

movement path crosses an NPI, as schematized in (15b-c). In (15b), although the NPI c-commands the *wh*-phrase, the Linear Crossing Constraint is satisfied, since the position that the NPI moves to covertly is located to the right of the position that the *wh*-phrase covertly moves to, and the *wh*-phrase appears to the right of the NPI. In contrast, in (15c), the *wh*-phrase is moved overtly, to the left of the NPI in the matrix clause. Such scrambling is ungrammatical, as moving the *wh*-phrase to this position results in a violation of the Linear Crossing Constraint, since the position that the NPI takes scope at is to the right of the position that the *wh*-phrase takes scope at, but the *wh*-phrase appears to the left of the NPI.

(15) Long distance scrambling creates a violation of the Linear Crossing Constraint

- a. ?  *Nani-o Mary-ga [John-ga katta-ka] sir-anakatta.*
 what-ACC Mary-NOM John-NOM bought-Q know-NEG.PST
 'Mary didn't know what John bought.'
- b.  *Dare-mo [John-ga nani-o katta-ka] sir-anakatta*
 anybody John-NOM what-ACC bought-Q know-NEG.PST
 'Nobody knew what John bought.'
- c. *  *Nani-o dare-mo [John-ga katta-ka] sir-anakatta*
 what-ACC anybody John-NOM bought-Q know-NEG.PST

I am somewhat sympathetic to this account—indeed, the theory I propose in this chapter will end up deriving something like the Linear Crossing Constraint. However, the account does have its problems. It requires a somewhat radical reconceptualization of the grammar, in which all levels of the derivation may make reference to linear ordering.² The account also falls prey to a critique that applied also to the minimality-based accounts, namely: the theory does not allow us to predict whether or not a given element will be an intervener, or subject to intervention. Moreover, it seems to be worse at this task than either the syntactic or semantic approaches outlined in this section: the former predict that all quantification elements should be potential interveners, whereas the latter predict that all focus sensitive elements should be potential interveners.

² Although see O'Brien (2017) for a recent theory of certain LF islands that also makes this proposal.

Tomioka (2007a,b) proposes that the cause of ungrammaticality of sentences like (12) lies in an interaction between the pragmatics and the prosody. He follows Nagahara (1994), Ishihara (2003), and much further work in Japanese and Korean focus prosody in noting that *wh*-phrases and focus-sensitive items have a prosodic effect in Japanese and Korean, schematized in (16). In Japanese and Korean, the prosodic structure following a foci is altered: prosodic boundaries are either absent [Ishihara (2003), Deguchi and Kitagawa (2002)], or present, but substantially altered by the presence of a foci [Ishihara (2005), Kitagawa (2005)].

(16) Prosodic effect of focus in Japanese and Korean

- a. *Syntax*: [...[...]_{focus}]#
- b. *Phonology*: [...][__{focus}]#

Tomioka (2007a,b) further notes that the set of interveners in Japanese and Korean cannot be topic-marked, dubbing them Anti-Topic Items. A file-card pragmatics like that of Vallduví (1992) is assumed. Under this system, a sentence is partitioned into two sections: a *focus*, consisting of new information, and a *ground*, consisting of old information. It is further proposed that *wh*-phrases must be in the the *focus* of the sentence, whereas the rest of the sentence must be in the *ground*. Non-interveners are able to be located in the ground through topic-marking, but anti-topic items are unable to use this strategy. Tomioka (2007a,b) proposes that an alternative strategy must be employed in such contexts: they must be deaccented. Scrambling of the *wh*-phrase to the left of the anti-topic item places it in a position in which it is deaccented, resulting in a pragmatically acceptable utterance.

One advantage of Tomioka's account is that, when considered alongside certain facts about information structure in Japanese, it leads us to expect that placement of the intervention configuration inside an embedded clause results in the effect either vanishing or being significantly weakened, as demonstrated in (17). This is surprising for accounts that make reference to the command relationships between the intervener and *wh*-phrase as the relevant factor with respect to the effect. Tomioka notes that the subjects of embedded clauses cannot generally be topic-marked, and conjectures that this reflects an informational-structural difference between matrix subjects and embedded subjects, specifically: embedded subjects need not be placed in a prosodically reduced position to be interpreted as part of the ground. If the embedded subject is an anti-topic item, which for Tomioka is the cause of the Hoji/Beck effect, it may therefore be interpreted as part of the ground without the need for prosodic reduction or topic marking.

(17) Embedding weakens Hoji/Beck effect

- a. ? *Kimi-wa [daremo nani-o yom-ana-katta-to] omotteiru-no*
you-TOP anyone what-ACC read-NEG-PST-C think-Q
'What do you think that no one read?'
- b. ? *Ne-nun [amuto mues-ul ilkci-anh-ass-ta-ko] sayngkakha-ni*
you-TOP anyone what-ACC read-NEG-PST-dec-C think-Q

3.1.4 Summing up and open problems

In this section, we have seen a variety of accounts of the requisite movement of *wh*-phrases in contexts like that in (18) in languages like Japanese and Korean.

- (18) a. * *Amuto mues-ul sach-i-anh-ass-ni?*
anybody what-ACC buy-NEG-PST-Q
- b. *Mues-ul amuto _____ sach-i-anh-ass-ni?*
what-ACC anybody buy-NEG-PST-Q
- 'What didn't anybody buy?'

Some accounts, such as those of Hoji (1985) and Beck (1996), propose a ban on covert movement of *wh*-phrases across certain elements; Beck (2006) attempts to derive a ban on comparable configurations from reasonable assumptions about the semantics of questions. We have seen in the third subsection of this section that such accounts are empirically inadequate: the ungrammaticality of sentences like (19a) and the grammaticality of sentences like (19b) are not straightforwardly accounted for under such approaches. In (19a), the relevant configuration, where the intervener c-commands the *wh*-phrase, and the question complementizer c-commands the intervener, should not exist at LF, yet the sentence is unexpectedly ungrammatical. In (19b), the relevant configuration exists, but the sentence is unexpectedly grammatical—albeit still marked.

(19) Problems for structural accounts

- a. * *Nani-o dare-mo [John-ga _____ katta-ka] sir-anakatta*
what-ACC anybody John-NOM bought-Q know-NEG.PST

- b. ? *Kimi-wa [daremo nani-o yom-ana-katta-to] omotteiru-no*
 you-TOP anyone what-ACC read-NEG-PST-C think-Q
 ‘What do you think that no one read?’

Interestingly, the facts in (19) are equally problematic for the accounts that make reference to linear order. (19a) is unexpected for Tomioka (2007a,b)—in (19a) there should be no particular reason that placement of an NPI inside the region of the sentence in which deaccenting takes place should be ungrammatical. Similarly, (19b) is unexpected for Tanaka (1997, 2003), as it clearly instantiates a violation of the Linear Crossing Constraint.³ In other words: all of the accounts that we have seen so far are empirically inadequate to some extent.

There is another problem with all of the accounts presented in this section, which is that they fail to make good cross-linguistic predictions. In other words, they fall prey to the same underlying pathology of minimality restrictions, which is that they fail to be predictive about what will be an intervener in a given language, and what will not. Eilam (2008) notes that Amharic consistently fails to display Hoji/Beck effects, despite being an SOV language with *wh-in-situ* with properties comparable to Japanese and Korean, as demonstrated in (20-21). While I demonstrate these facts using the focus particle, Eilam (2008) notes that this holds quite generally—NPIs and universal quantifiers are alike in this regard.

(20) Amharic *wh-in-situ* is comparable to Japanese and Korean *wh-in-situ*

- a. *haile ast amari-w la-man y a-s at't- a-w-ən m as'haf*
 Haile teacher-sc def to-who REL-give.sc per-3sc ms-DEF-ACC book
an abb ab- a?
 read.PER-3MS

“Who is the person x such that Haile read the book that the teacher gave to x?”

³ Tanaka (1997) reports comparable sentences to be degraded, as in (i).

- (i.) ?* [Tanaka’s judgement]
Taroo-ga [Hanako-sika dono-hon-o yoma-nai-ka] siritagatteiru (koto)
 T.-NOM H.-FOC which book-ACC read Neg
 ‘Taroo wants to know which book only Hanako read.’

(21) Amharic lacks Hoji/Beck effects

- a. *haile bəčča mən an abb ab- a?*
Haile only what read.sc per-3sc ms
'What did only Haile read?'
- b. *haile d agmo mən an abb ab- a?*
Haile also what read.sc per-3sc ms
'What did also Haile read?'
- c. *haile-mm ənkwan mən an abb ab- a?*
Haile-FOC even what read.sc per-3sc ms
'What did even Haile read?'

Eilam (2008)

Similarly, as noted by Soltan (2012), Egyptian Arabic while being an SVO language, has *wh*-in-situ with Japanese/Korean-like properties, but fails to display the effect.

(22) Obligatory wh-in-situ; Egyptian Arabic

- a. *?inta soft miin ?imbaarih*
you saw.2SG.M who yesterday
'Who did you see yesterday?'
- b. ** miin ?inta soft ?imbaarih*
who you saw.sc 2sg.M yesterday
'Who did you see yesterday?'

Soltan (2012)

(23) Egyptian Arabic *wh*-in-situ is comparable to Japanese and Korean *wh*-in-situ

- a. *?inta ?aabilt ?il-bint illi ?itgawwizit miin*
you met.sc 2sg.M the-girl that married.3sgfem who
“Who_i did you meet the girl that got married to him_i? ”
- b. *?inta soft ?ahmad wi miin fi ?il-haflah*
you saw.sc 2sg.M Ahmad and who at the-party
“Who_i did you see Ahmad and him_i at the party?”

Soltan (2012)

(24) Egyptian Arabic consistently lacks Hoji/Beck effects

- a. *mahammad bas ha-yi?aabil miin?*
Mohammad only FUT-meet.3SGM who
“Who will only Mohammed meet?”
- b. *mahammad barDUh ha-yi?aabil miin?*
Mohammad also FU-meet.3SGM who
“Who will also Mohammed meet?”

Soltan (2012)

Likewise, as noted by Zentz (2016), Bantu languages appear to differ significantly in this respect. All of these languages allow *wh*-in-situ, but whether or not a given modifier triggers the effect appears to be subject to significant cross-linguistic variation.

(25) Crosslinguistic variability with respect to intervention in the Bantu languages

- a. * *Kîra a-gwîmi a-gwatanî-îr-a ûû n-a-ij-ir-e?*
even 1-hunter 1.SM-agree-PFV-FV who NI-1.SM-steal-PFV-FV
‘Who did every hunter agree stole?’
- b. * *Kinya a-gwîmi ba-gwatanî-îr-a ûû n-a-ij-ir-e?*
even 2-hunter 2.SM-agree-PFV-FV who NI-1.SM-steal-PFV-FV
‘Who did even the hunters agree stole?’

Kîtharaka

(26) a. *Buli muu-ndu a-a-som-a si(ina)?*

every 1-person 1.SM-PST-buy-FV what

What did everyone read?

- b. ?? *Ata Wafula a-a-som-a naanu?*
even 1.Wafula 1.SM-PST-call-FV who

‘Who did even Wafula call?’

Lubukusu

(27) a. *Mw-ana w-ese a-no-farir-a Ø-ani?*

1-child 1-every 1.SM-TA-like-FV 1a-who

‘Who(m) does every child like?’

- b. *Chero Ø-Tendai aka-vereng-a Ø-bhuku ri-pi*
 even 1a-Tendai 1a.SM.TA-read-FV 5-book 5-which

‘Which book did even Tendai read?’

Shona, Zentz (2016)

And, as noted by Kandybowicz and Torrence (2017), Krachi, a Guang language spoken in Central Eastern Ghana, displays the intervention effect with negation, but not with focus sensitive particles or universal quantifiers, as shown in (28a-d).

- (28) a. **ɔ-kyi* *wv ε-n-dika* *nε?*
 CL-woman the PST-NEG-cook what
 ‘What didn’t the woman cook?’
- b. *ɔ-kyi* *wv doo yi ɔ-mɔ* *nε?*
 CL-woman the only FOC PST.SUBJ.FOC-kill what
 ‘What did only the woman slaughter?’
- c. *ɔ-kyi* *wv kɔraa ε-mɔ* *nε?*
 CL-woman the even PST-kill what
 ‘What did even the woman slaughter?’
- d. *ɔ-kyi* *biaa ε-dika* *nε?*
 CL-woman every PST-cook what
 ‘What did every woman cook?’

Additionally, as we see in (29), a modal-like particle also triggers the effect in Krachi.

- (29) **ɔ-kyi* *wv fuŋki kε-mɔ* *nε?*
 CL-woman the might FUT-kill what
 ‘What might the woman slaughter?’

The desiderata of the chapter are this: to develop an account of the effect in question that is not only empirically adequate, but which can correctly predict what will “count” as an intervener from independently observable properties of the language, and which can account for the ameliorating effect of clausal embedding on the effect under investigation. In the following sections, I will lay out such an account, which makes crucial reference to Contiguity Preservation. We will first see that the location of prosodic activity appears to determine the strength of the effect—languages which have prosodic activity on the

right do not allow focus bearing elements and *wh*-phrases to cooccur in the same clause, regardless of their relative ordering. We will then see, that a number of these effects in left-active languages, such as Japanese, can be seen as conflicts between Grouping as a means of satisfying Contiguity, and a requirement that Contiguity relationships be preserved in the same phase that they are satisfied. Furthermore, we will see that the hallmark of the application of Grouping—namely, a difference in the prosodic realization of a span of the sentence following certain lexical items—will allow us to predict whether or not a given item in a language will count as an intervener. We will see also that the addition of a clause boundary between the trigger of the problematic Grouping relationship and the Contiguity relationship it severs ameliorates the effect, comparable to the ameliorating effect of hyperraising on raising across experiencers in left-headed, right-active languages.

3.2 ‘Strong’ Hoji/Beck effects in right-headed, right-active languages

In this section, we will examine the Hoji/Beck effect in languages with prosodic activity on the right. We will see that languages like Basque, Georgian, and Malayalam are syntactically similar in a number of ways to languages like Japanese, Korean—languages around which theories of the Hoji/Beck effect have generally been developed—in that they are all SOV languages that allow *wh*-in-situ and have relatively free scrambling which alters scope. The languages investigated in this section, however, differ, in that the Hoji/Beck effect appears to be super-strong in comparison to Japanese and Korean: the relative order of focus and *wh*-phrase does not seem to matter. Scrambling of a *wh*-object to the left of a focused subject, for instance, fails to improve the acceptability of the sentence, presenting a puzzle for accounts of the intervention effect that make sole reference to LF malformedness.

I will show that this results from a difference in prosody between the two groups of language: the set of languages examined in this section have prosodic activity on the right, in contrast to Japanese, Korean, and Mongolian, which we will see later in this section have prosodic activity on the left. In right-headed, right-active languages, elements in probe-goal relationships will be required to appear in an immediately preverbal position—recall that, in right-active languages, Contiguity bans the presence of any phonological phrases between a probe and its associated goal if the goal is to the left of the probe. Scrambling of a *wh*-phrase to the left of a focus therefore in these langauges will not improve the acceptability of the sentence, since such scrambling will move the *wh*-phrase from a

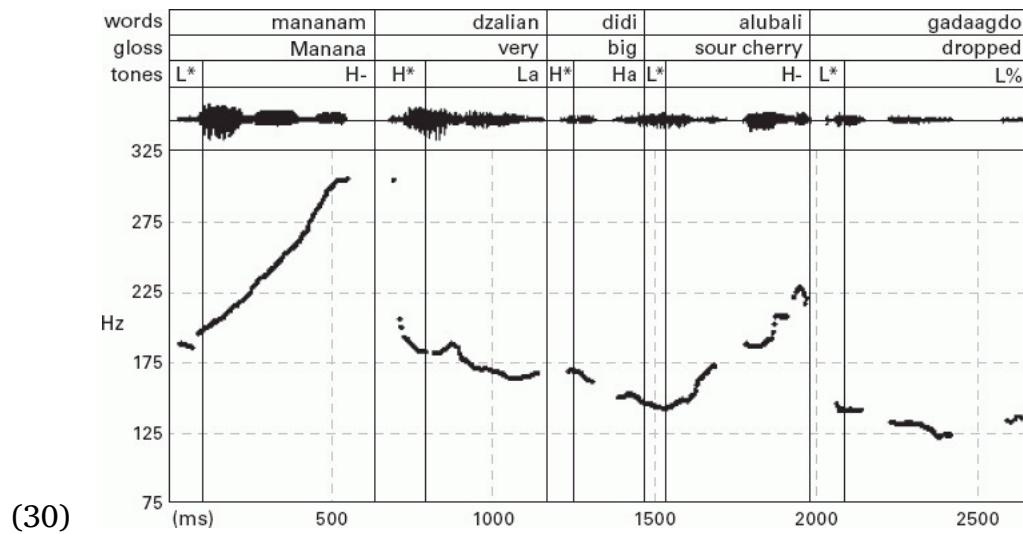
position of Contiguity-prominence to a position where it is not, in violation of Contiguity Preservation. The effect in Basque, Georgian, and Malayalam, then, is analogous to the effect of subject-verb inversion in object *wh*-questions in Romance and Bantu, which were shown in chapter 2 to also be languages with prosodic activity on the right. In both cases, two elements stand in an Agree relationship with a single complex head. Both elements therefore may not appear to the left of that head, regardless of their relative ordering, since the rightmost element will always prevent the leftmost element from satisfying Contiguity.

3.2.1 Basics of Basque, Georgian, and Malayalam

In this subsection, I will give a brief introduction to Basque, Georgian, and Malayalam. We will see that these languages display syntactic and prosodic properties characteristic of languages that have heads on the right and prosodic activity on the right.

3.2.1.1 Georgian

Georgian is a head-final language and is underlyingly SOV with arguments that freely scramble [Borise and Polinsky (2017)]. In this way, it is like Japanese. It differs from Japanese in one crucial way, however: Georgian has prosodically active right edges. As we see in (30), the right edge of each ϕ in a Georgian clause is associated with a boundary tone.



We expect languages that have both heads and prosodic activity on the right to display a restriction on the distribution of goals—the goal must appear more or less adjacent to its probe. As we see in (31), either SOV or OSV word order is allowed in Georgian.

(31) **Georgian has scrambling**

- a. *zarisk'ac-i monadire-s dac'ris*
soldier-NOM hunter-DAT cut
- b. *monadire-s zarisk'ac-i dac'ris*
hunter-DAT soldier-NOM cut

‘The soldier will wound the hunter.’

Skopeteas, Féry, and Asatiani (2009)

However, when the subject is a *wh*-phrase or a focus, as we see in (32-33), the object must scramble to the left of the subject.

(32) **Nothing may appear between the verb and *wh*-phrase/focus**

- a. * *vin p'ur-i iq'ida*
who.ERG bread-NOM bought
‘Who bought bread?’
- b. *p'ur-i vin iq'ida*
bread-NOM who.ERG bought
‘Who bought bread?’

Erschler (2015)

- (33) a. * *mxolod Manana-m maimun-s ak'oca*
only M.-ERG monkey-DAT kiss

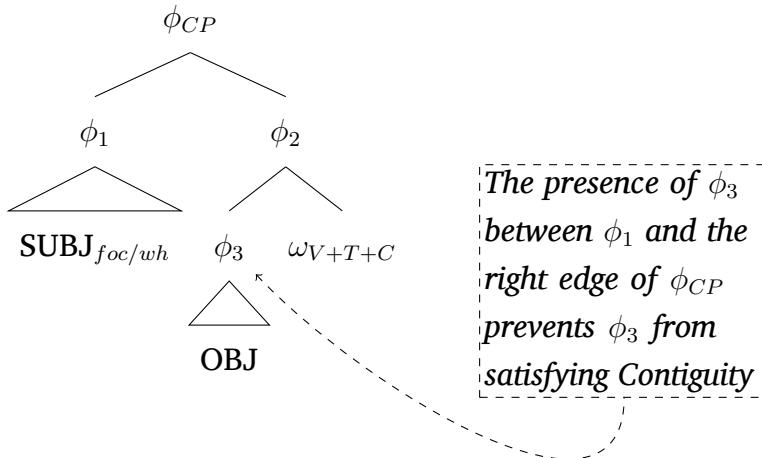
‘Only Manana kissed the monkey.’

- b. *maimun-s mxolod Manana-m ak'oca*
monkey-DAT only M.-ERG kiss

‘Only Manana kissed the monkey.’

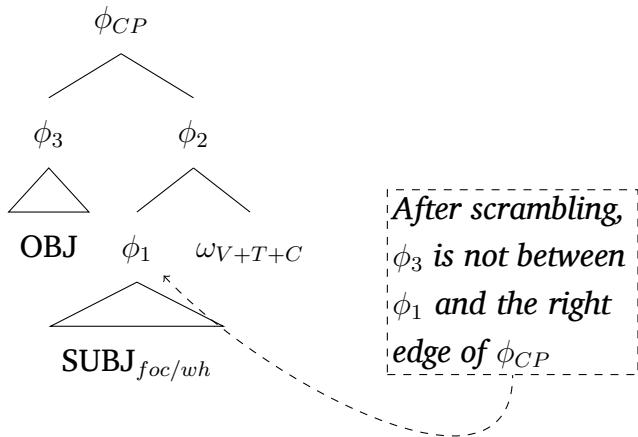
This is expected under the theory we have developed. Consider first a prosodic structure for a sentence in which the object remains to the right of the subject, as in (34). In (34), the subject is not Contiguity-prominent in ϕ_{CP} , since the ϕ corresponding to the object lies between the subject and the right edge of ϕ_{CP} . This is why (33-32a) are ungrammatical.

(34)



Now, consider a prosodic structure for a sentence in which the object scrambles to the left of the subject, as in (35). In (35), the subject is Contiguity-prominent in both ϕ_{CP} and ϕ_2 , since there are no ϕ boundaries that lie between the subject and the right edge of either ϕ_{CP} or ϕ_2 . This accounts generally for the obligatorily preverbal position of *wh*-phrases and focus—the only way that these goals may become Contiguity-prominent in the same ϕ as their probes is by evacuating all other elements that would otherwise lie between the two.

(35)



Movement of the object, in these cases, appears to be altruistic, motivated by the Contiguity needs of the elements that it originates between. The analysis of raising presented in Chapter 1 appealed to a similar sort of altruistic movement—there, movement from the subject position of a non-finite clause was motivated by a need to get the raising verb

sufficiently local to the T head it selects. We will soon see that such movement in the case of *wh*-questions is a general hallmark of right-headed, right-active languages.

3.2.1.2 Basque

Basque is like Georgian in being a canonically SOV language with relatively free word order, derived by scrambling [Arregi (2002), a.o.]. This is shown in (36).

(36) Basque has scrambling

- a. *Jonek Miren ikusi rau*
J.ERG M.ABS seen has
- b. *Miren Jonek ikusi rau*
M.ABS J.ERG seen has

‘Jon saw Miren.’

As noted in Richards (2016), Basque associates boundary tones with the right edge of prosodic constituents, suggesting that it too is a right-headed, right-active language. If this is correct, then we expect Basque to require focus and *wh*-phrases to appear immediately to the left of the verb, for the same reasons outlined previously for Georgian. As we see in (37), this expectation is borne out.

(37) Nothing may appear between the verb and *wh*-phrase/focus

- a. * *Señ-ek Jon ikusi rau*
who-ERG Jon.ABS see.PRF AUX
- b. *Jon señ-ek ikusi rau*
Jon.ABS who-ERG see.PRF AUX

Who saw Jon?

- (38) a. * *Jonek Miren ikusi rau*
J.ERG M.ABS seen has
- b. *Miren Jonek ikusi rau*
M.ABS J.ERG seen has

‘Jon saw Miren.’

Arregi (2002)

3.2.1.3 Malayalam

Malayalam, like Georgian and Basque, is a SOV language with relatively free word order, as we see in (39).

(39) Malayalam has scrambling

- a. *Raaman siita-kkɔoru aana-ye kaaniccu*
R. S.-DAT one.elephant-ACC showed
- b. *aana-ye raaman siita-kkɔoru kaaniccu*
one.elephant-ACC R. S.-DAT showed

‘Raman showed an elephant to Sita.’

Jayaseelan (1999)

Relatively little work has been done on the prosody of Malayalam—I will proceed under the assumption that it too is a language with prosodic activity on the right.⁴ As we see in (40), Malayalam behaves like the other right-headed, right-active languages we have examined with respect to the distribution of *wh*-phrases and focus. Both must occupy an immediately preverbal position, demonstrated in (40).

(40) Nothing may appear between the verb and *wh*-phrase/focus

- a. * *a:ru rajan-e kandu*
who R.-ACC saw
- b. *rajan-e a:ru kandu*
R.-ACC who saw

‘Who saw Rajan?’

Mathew (2015)

- (41) a. * *Raman* *ninn-e aticcu*
R. you-ACC beat
- b. *ninn-e* *Raman* *aticcu*
you-ACC R. beat

‘Ram beat you.’

Kidwai et al. (1999)

⁴ The findings in Féry (2010) are consistent with this analysis. Féry (2013) finds that Malayalam associates a low tone with the left edge of its ϕ and a high tone with the right edge of its ϕ . If this analysis is correct, Malayalam would be like Irish, in that both the left and right edge of ϕ are associated with boundary tones. It would differ from Irish in choosing to regard the right edge as prosodically active.

3.2.2 Intervention and scrambling in Basque, Georgian, and Malayalam

We have seen that right-headed, right-active languages like Basque, Georgian, and Malayalam differ from right-headed, left-active languages like Korean, Japanese, and Mongolian, in that the former require focus and *wh*-phrases to appear in an immediately pre-verbal position. We will now see that these languages differ from Korean, Japanese, and Mongolian in another way. As shown in (42-44a), right-headed, right-active languages do not allow focus bearing elements to appear to the left of *wh*-phrases, as in Korean, Japanese, and Mongolian. As we have seen before, these languages require focus bearing phrases to be in an immediately preverbal position, so that no ϕ lies between the focus bearing phrase and complementizer in the verbal complex. However, as shown in (42-44b), scrambling of the *wh*-phrase to the left of the focus bearing element does not appear to ameliorate the effect, in contrast with Korean, Japanese, and Mongolian. Why should this be the case?

(42) Scrambling does not ameliorate the Hoji/Beck effect in Georgian, Basque, and Malayalam

- a. ?? [*Manana-m-ac* *k'i*]_{foc} [*romeli tojina*]_{wh} *misc-a*
Manana-ERG-also yes(=even) which doll.NOM give-AOR.3SG
švil-eb-s?
child-PL-DAT
- b. * [*romeli tojina*]_{wh} [*Manana-m-ac* *k'i*]_{foc} *misc-a*
which doll.NOM Manana-ERG-also yes(=even) give-AOR.3SG
švil-eb-s?
child-PL-DAT

Intended: ‘Which doll did even Manana give to the children?’ *Borise and Polinsky (2017)*

- (43) a. * *Nork Miren ikusi du antzokian*
who M. see AUX theater-at
- b. * Miren *nork ikusi du antzokian*
M. who see AUX theater-at

Intended: ‘Who saw Miren at the theater’

Reglero (2004)

- (44) a. ?? *a:re Rajan ma:tram kandu?*
 whom Rajan only saw

- b. * *Rajan ma:tram a:re kandu?*
 Rajan only whom saw

Intended: ‘Whom did only Rajan see?’

Mathew (2015)

This is surprising under LF approaches to the Hoji/Beck effect. Scrambling of the *wh*-phrase to the left of the focus should ameliorate the effect in these languages, for the same reason that it would in Korean and Japanese. Furthermore, these languages are not like Mongolian, as scrambling in Georgian [McGinnis (1998b)], Basque [Arregi (2002)], and Malayalam [Mathew (2015)] has interpretive effects, unlike Mongolian. This leaves the facts in (42-44) a puzzle for LF approaches to the Hoji/Beck effect, when taken as a whole.

Furthermore, it cannot be the case that this is a ban on multiple elements in the preverbal position. As (45) shows, Georgian, Basque, and Malayalam readily allow multiple *wh*-phrases to appear in the preverbal position in multiple questions.⁵

(45) **Multiple *wh*-phrases may co-occur**

- a. *vin ras qidulobs*
 who what buys

‘Who is buying what?’

Harris (1981)

- b. *Nork.ERG zer erranen du*
 who.ERG what say.FUT AUX

‘Who will say what?’

Hualde and de Urbina (2003)

- c. *Gibu aaRko ent kodutu*
 G. who what gave

‘Who did Gibu give what?’

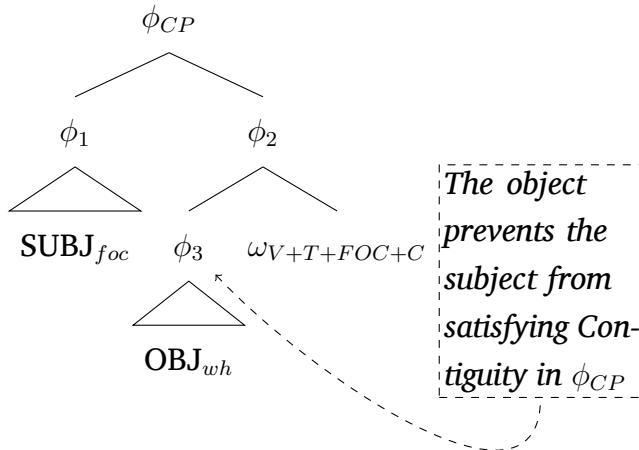
Grebenvova (2011)

Why should this restriction hold? Consider the following two prosodic structures, corresponding to the sentences in (42-44). In (46a), the subject will fail to satisfy Contiguity—the object introduces a ϕ boundary between the subject and right edge of ϕ_{CP} , which causes

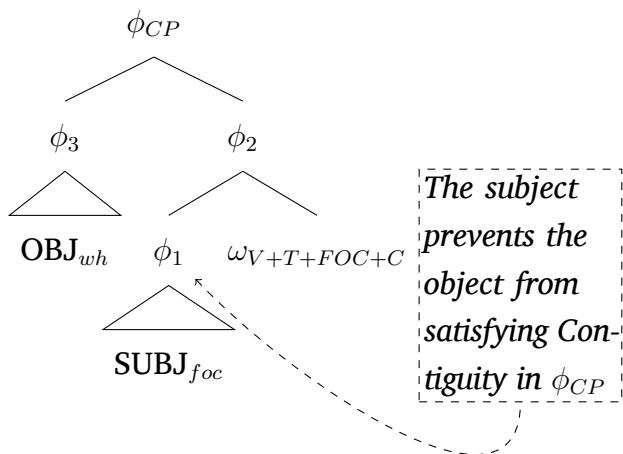
⁵ This, of course, suggests either that not all of the *wh*-phrases in (45) are in Agree relationships with C, or that Contiguity treats Agree relationships between one probe and multiple goals differently than it does Agree relationships between one probe and a singular goal.

the subject to not be Contiguity-prominent in ϕ_{CP} . In (46b), the object has scrambled to the left of the subject, allowing the subject to satisfy Contiguity—however, the subject now prevents the object from being Contiguity-prominent in ϕ_{CP} . As a result of this irresolvable bind, neither linearly nested nor linearly crossing dependencies are allowed in right-headed, right-active languages.

(46) a.



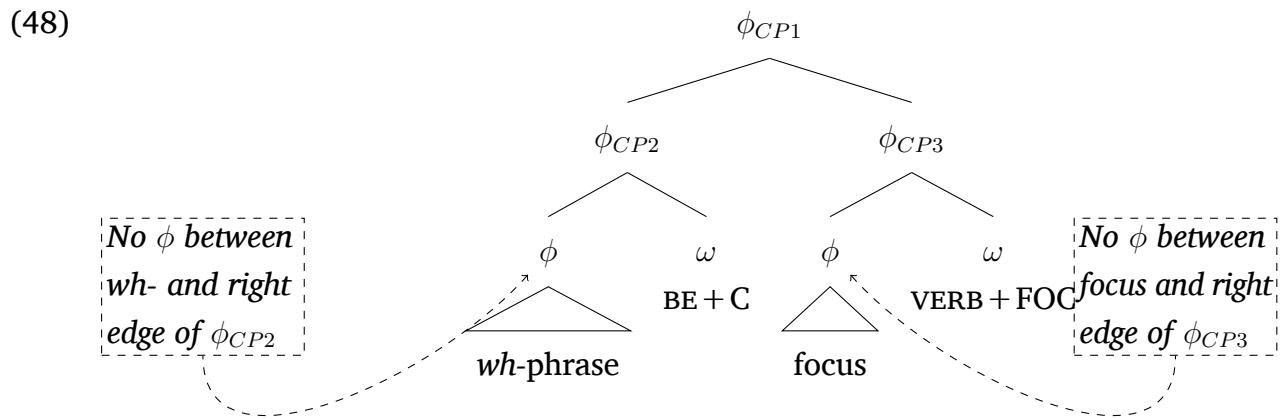
b.



It is, of course, possible to utter a sentence in Georgian, Basque, and Malayalam that contains both a focus and a *wh*-phrase. Clefting makes this possible in Georgian and Malayalam—in such cases, the paths between the goals and their probes are neither nested nor crossing, and the sentences are therefore allowed.

- (47) a. [*Romeli ist'oria aris*] [*romeli-c bič'-ma-c ki' c'aik'itxa*]
 which story.ABS is which-PRT boy-ERG-also even read
 ‘Which story was it that even the boy read?’ *Borise and Polinsky (2017)*
- b. [*a:re a:nū*] [*Anup ma:tram kandathu*]
 who be A. only saw
 ‘Who is it that only Anup saw?’ *Mathew (2015)*

Clefting will result in a prosodic structure like (48), involving two ϕ_{CP} . In each ϕ_{CP} , the *wh*-phrase or focus is Contiguity-prominent.

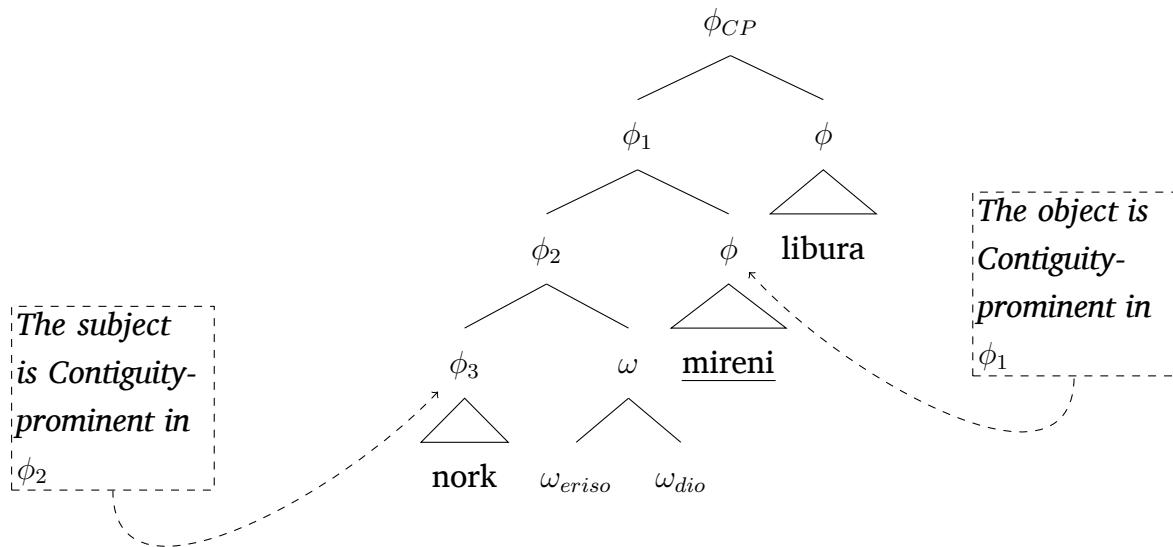


Basque utilizes a different strategy. Rightward movement of the focus, as in (49), will allow both the focus and *wh*-phrase to attain a position of Contiguity-prominence in a ϕ that also contains their goal.

- (49) *nork eriso dio mireni libura*
 who.ERG buy AUX M.DAT book
 Who bought Mary the book? *Hualde and de Urbina (2003)*

This will result in a prosodic structure like (50). In (50), the *wh*-phrase is Contiguity-prominent in a ϕ that contains it and the complementizer, as is the focus bearing argument, *mireni*. The *wh*-phrase satisfies Contiguity for the complementizer in ϕ_3 , and the focus bearing argument is Contiguity-prominent in ϕ_2 .

(50)



3.2.3 Against an account which makes reference solely to stress

Arregi (2002) suggests an account of the preverbal *wh*-position in Basque, which might attempt to extend to cover these cases. There, it is proposed that the presence of the preverbal position for focus and *wh*-phrases in Basque arises from a restriction on the placement of sentential stress in Basque—that it must appear on an element which immediately precedes the verb—along with a requirement that *wh*-phrases and foci must bear sentential stress. Juxtaposing these requirements will require all elements which might appear between a *wh*-phrase or focus and the verb to be dislocated, since their presence in this position would indeed prevent this *wh*-phrase or focus from being assigned sentential stress. We might then try to extend this to the effect examined in this section: here the presence of two elements subject to this restriction would be ruled out, since they could not both be assigned sentential stress.

However, to do so would leave us without an account of Japanese and Korean. These are languages which—as we will see—are able to freely alter their prosody to ensure that *wh*-phrases and focuses may be assigned particular prominence. Were this effect merely about the placement of sentential stress, we should not expect these languages to display the effect at all. While an account which makes reference to the placement of sentential stress could indeed account for the languages examined in this section, it would miss a generalization: these sorts of intervention effects appear in languages that can manipulate their prosody, unlike Basque.

3.2.4 Recap

In this section, we looked at languages that have heads on the right and prosodic activity on the right. These languages end up resembling Japanese and Korean in several ways: they are head-final languages with an unmarked SOV word order, but with free scrambling. We saw that there is an additional syntactic requirement that appears in such languages that is unlike Japanese and Korean: focus and *wh*-phrases must occupy a preverbal position. This is a result of Contiguity: these are right-active languages, and in right-active languages, no phonological phrase may appear between a probe and its goal. As a result, elements which might appear in this position must undergo dislocation, so that Contiguity between these elements and the verbal complex must be satisfied. These languages were shown to be unlike Japanese and Korean, in that the Hoji/Beck effect cannot be repaired through scrambling. This is comparable to the case of subject-verb inversion in Romance and Bantu languages, which we investigated in chapter 2—it is generally the case in right-active languages that, when there are two elements in an Agree relationship with a single verbal complex, both are unable to appear to the left of this verbal complex. One of the elements must appear to the right of the verbal complex—as we saw there in Romance and here in Basque—or one of the elements must be clefted—as we saw there in some Bantu languages and here in Georgian and Malayalam. In the sections to come, I will attempt to extend this approach to Basque, Georgian, and Malayalam to account for the canonical Hoji/Beck effect in languages like Japanese.

3.3 A new theory—evidence from Japanese and Korean

In this section, I will present a theory of the Hoji/Beck effect in Japanese and Korean rooted in Contiguity theory. To do so, I will first introduce and review the set of tools needed to derive this effect—we will need a notion of Contiguity Preservation, as defined in chapters 1 and 2, and a refined definition of Grouping that may apply to prosodic structures to satisfy Contiguity. The basic idea is that Grouping, like overt movement, is subject to Contiguity Preservation. In the case of the Hoji/Beck effect, Grouping to satisfy the needs of the in-situ *wh*-phrase disrupts the Contiguity relationship between the verbal complex and focus bearing subject, comparable to the way that movement of a subject in right-active languages across an experiencer disrupts the Contiguity relationship between the raised subject and embedded verb.

Then we will see that these tools correctly predict the ban on crossing dependencies that characterizes the Hoji/Beck effect in Japanese and Korean. The theory is comparable in a

number of ways to the theory of raising and hyperraising across experiencers developed in chapters 1 and 2. I will then spell out in more detail a theory of focus prosody in these languages, and suggest that the presence of this prosodic signature can be used as a diagnostic to see whether or not an Agree relationship has taken place—in other words, we will see that interveners have a predictable prosodic characteristic. Finally, I show that these theories, considered as a whole, capture a number of facts that proved challenging for other accounts of the Hoji/Beck effect. Among these are the fact that the Hoji/Beck effect is ameliorated when a phrase boundary, introduced by an embedded clause, is placed between the relationship for which Grouping is problematic and the trigger of that Grouping operation. The theory—and characterization of the effect under investigation—is thus similar to the theory developed in Chapters 1 & 2: it ties the presence or absence of the effect to prosodic characteristics of a language, provides a clear prosodic diagnostic for exactly what will count as an intervener, and captures the otherwise mysterious clause-boundedness property of the effect.

3.3.1 Contiguity and Grouping

Right now, we are considering languages like Japanese and Korean, which we analyze as languages with heads on the right and prosodic activity on the left. This means that, in these languages, probes and goals must be dominated by the same ϕ , and there must be no other phonological phrase in that ϕ to the left of the goal. These are languages that allow licensing of focus, NPIs, and *wh*-phrases in-situ, but do not allow nesting dependencies between these phrases and their licensing heads, as outlined in the previous section.

(51) *Contiguity in toto*

a. *Contiguity*:

A Goal must be *contiguity prominent* within a ϕ that dominates a probe that Agrees with it.

b. *Contiguity prominent*:

G is *contiguity prominent* within ϕ_1 if no other ϕ lies between G and the prosodically active edge of ϕ_1 , and ϕ_1 dominates G .

(52) *A heuristic:*

No phrase may appear between a goal and the active edge of the phrase dominating the goal's corresponding probe.

Let us first review how the Match Theoretic approach to the syntax-prosody mapping that we have assumed throughout this thesis delivers a prosodic structure for a simple declarative sentence. The licensing condition for a prosodic structure is given in (53), a modified version of the mechanism presented in Bennett, Elfner, and McCloskey (2016).

(53) **Match Theory**

Given a maximal projection X in a syntactic representation S, where X dominates all and only the set of terminal elements a, b, c, ..., n, there must be in the phonological representation P corresponding to S a ϕ -phrase that includes all and only the phonological exponents of a, b, c, ..., n.

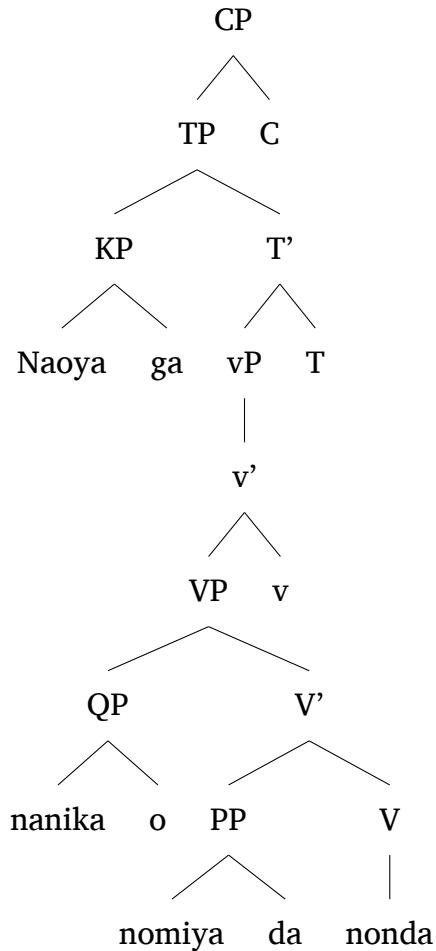
We will first consider the prosody of a Japanese sentence like that in (54a) corresponding to a syntactic structure like (54b).

- (54) a. *Naoya-ga nanika-o nomiya-da nond*
N.-NOM something-ACC bar-DAT drink

Naoya drank something at the bar

Richards (2016)

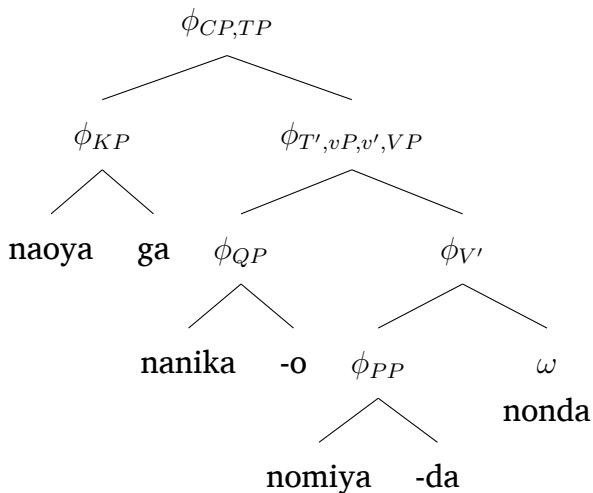
b.



Given the theory of prosodic mapping we assume, the syntactic structure in (54) will map to a prosodic structure like (55).⁶ This prosodic structure is closely comparable to the structure in (54)—each node in (54) corresponds to an independent node in (55) unless the node in (54) is phonologically null, as in the case of C, T, and v; or if such a node would be non-branching, as in the case of T', vP, and v'. In the tree below, I have labeled each ϕ with the syntactic phrases it satisfies Match Theory for—I will continue to do so throughout this section, as it will be useful for the refinement of Contiguity I will propose.

⁶ For the purposes of this chapter, I will assume that there is no requirement for traces to map to any element in the prosodic structure, and omit their representation from syntactic structure to make the mapping from syntax to prosody maximally clear.

(55)



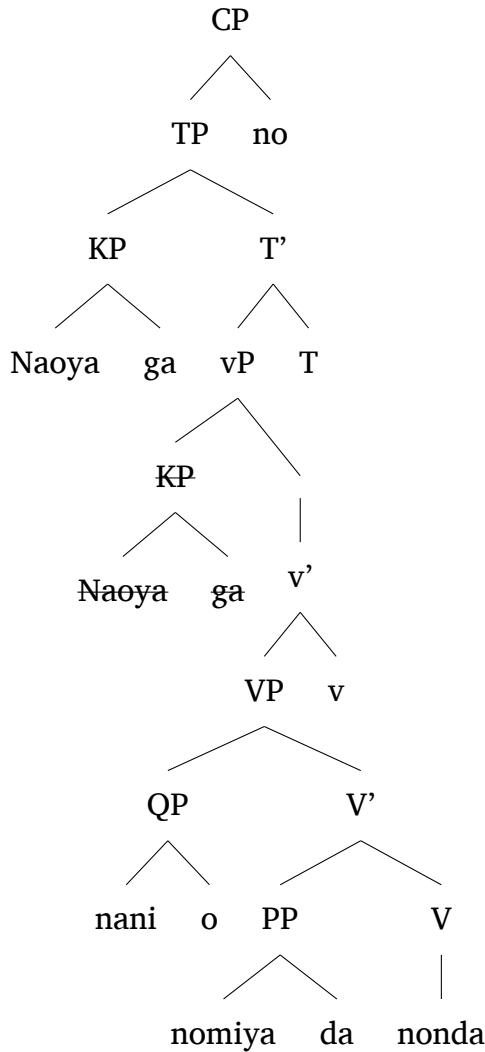
Consider now the prosodic structure of a sentence in Japanese in which a head enters into an Agree relationship with another phrase in the sentence. The sentence we are considering is given in (56). It has a syntactic structure as in (57a), and a prosodic structure like (57b), given the restriction on prosodic mapping we have assumed. Here, the interrogative complementizer *no* has entered into an Agree relationship with *nani-o*.

- (56) *Naoya-ga nani-o nomiya-da nondā no*
 N.-NOM what-ACC bar-DAT drink Q

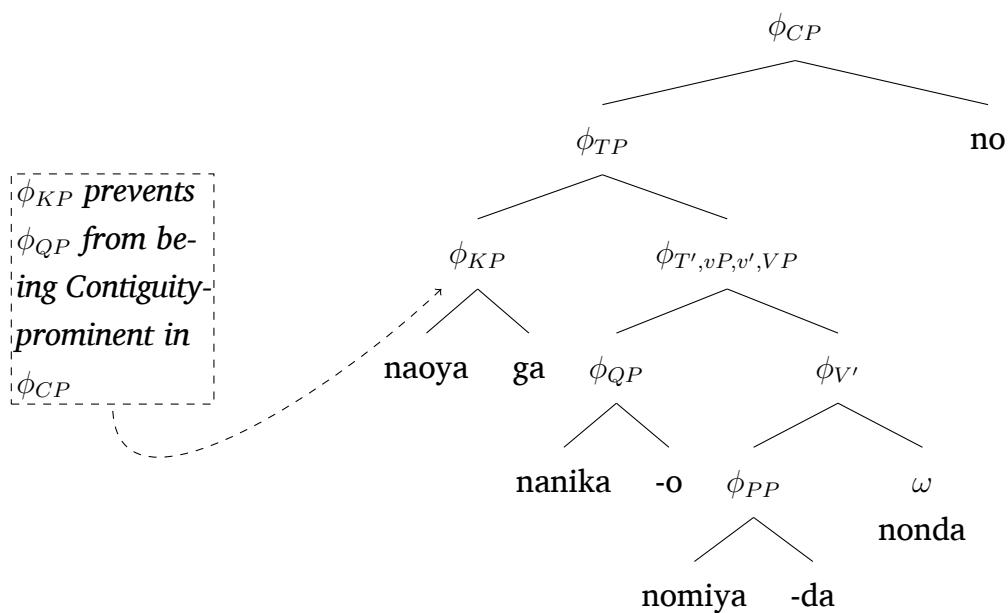
What did Naoya drink at the bar?

Richards (2016)

(57) a.



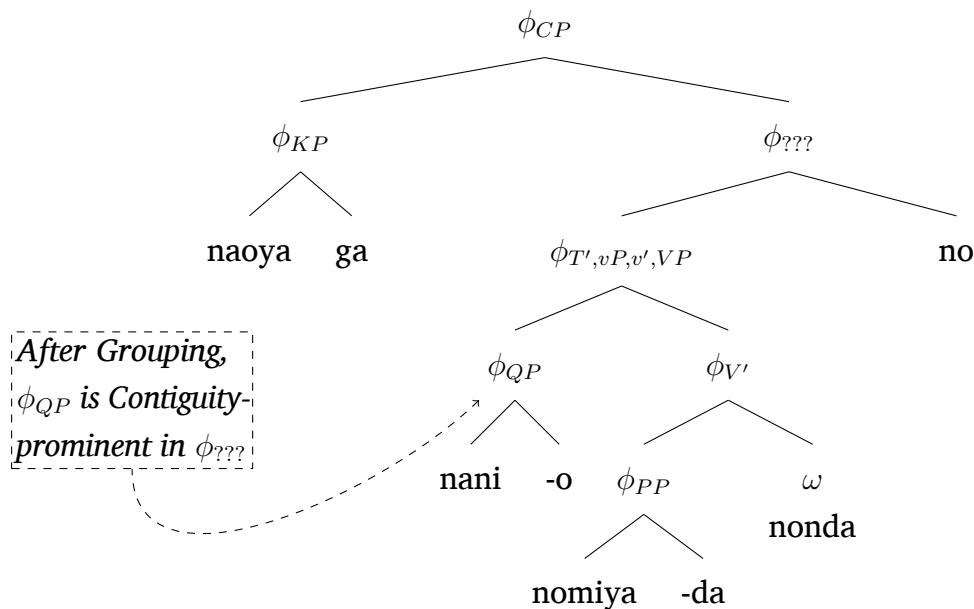
b.



There is a Contiguity-theoretic problem with the prosodic structure in (57). In (57), the *wh*-phrase has entered into an Agree relationship with C, but the prosodic structure in (57) does not satisfy Contiguity. There is no prosodic node that dominates both the complementizer and *wh*-phrase in which the *wh*-phrase is Contiguity-prominent. The only node in (57) that dominates both the complementizer and *wh*-phrase is ϕ_{CP} ; ϕ_{QP} is not Contiguity-prominent in that ϕ because of ϕ_{KP} , since ϕ_{KP} is between ϕ_{QP} and the left edge of ϕ_{CP} .

If we are to maintain Contiguity, then the prosodic structure in (57) cannot be correct; we would instead want a prosodic structure like (58) to correspond to (56). In (58), there is a ϕ that dominates both the complementizer and *wh*-phrase that it Agrees with, and in which the *wh*-phrase is Contiguity prominent—namely, $\phi_{???$. The question, then, is how (58) is to be derived.

(58)



We have seen before that syntactic movement might be motivated to improve the Contiguity-theoretic status of the prosodic structure. In the account of raising presented in chapter 1, for instance, we saw that movement of the subject was motivated so that Contiguity between the raising verb and T that it selects could be satisfied. We have seen before that the prosodic structure might be manipulated, so that Contiguity between a probe and goal might be satisfied. The operations which does this, Grouping, is defined in (59-60). It can be thought of, at least for the purposes that follow, as a sort of movement operation which applies to the prosodic tree, and which does not leave traces.

(59) **Grouping**

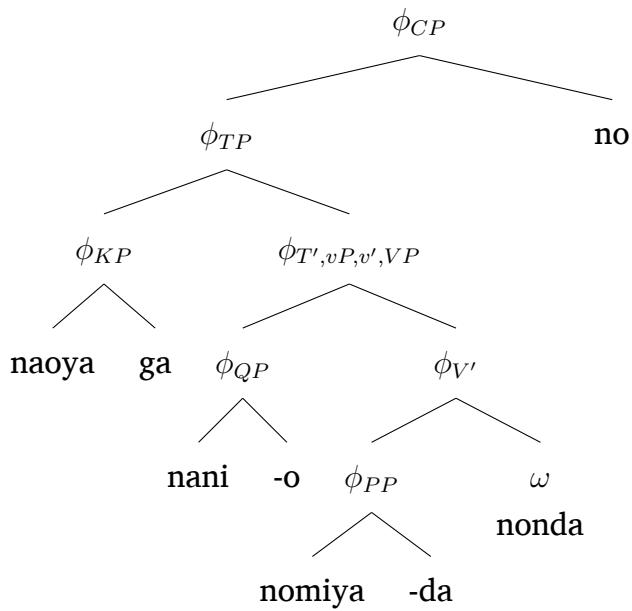
Create a ϕ within which a goal satisfies Contiguity for its probe.

(60) **The Grouping Procedure**

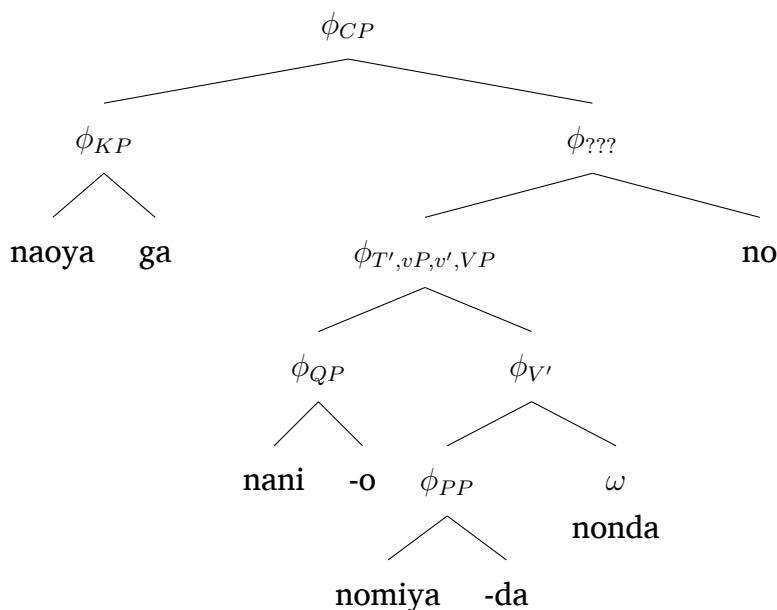
- a. Choose two nodes, N_1, N_2
- b. Create a copy of N_2 ; N_C
- c. Substitute N_1 with either $[N_1 N_C]$ or $[N_C N_1]$
- d. (i.) Substitute the mother of N_2 with N_2 's sister if N_2 has only one sister
(ii.) Substitute the mother of N_2 with a node dominating all of N_2 's sisters if N_2 has more than one sister.
- e. *Restriction:* Grouping cannot alter linear order.

We can get from (61a) to (61b) through an application of the Grouping Procedure. In (61), we choose ϕ_{CP} as N_1 , and ϕ_{KP} as N_2 . First, we substitute ϕ_{CP} with a node dominating ϕ_{CP} and a copy of ϕ_{KP} . Then, we substitute ϕ_{TP} , ϕ_{KP} 's mother, with $\phi_{T',vP,v',VP}$, the sister of ϕ_{KP} . The node immediately dominating $\phi_{T',vP,v',VP}$ and *no*, prior to this step of the procedure, dominated all terminals dominated by CP, and was therefore labeled ϕ_{CP} . However, after step (d) of the procedure has taken place, it is no longer Match Theory compliant in this way—there is no syntactic node that dominates *no* but does not dominate *naoya-ga*—so I have labeled this node $\phi_{??}$. Likewise, after this operation takes place, the new node created at step (c) of the procedure dominates all and only the terminals that CP dominates, so I have labeled this node as ϕ_{CP} . This delivers the structure in (61b). Again, using movement without traces as a metaphor for the application of Grouping in such cases, we can think of the transition from (61a) to (61b) as an instance of a movement operation to improve the Contiguity-theoretic status of the tree—“moving” ϕ_{KP} renders ϕ_{QP} Contiguity-prominent, allowing Contiguity between it and C to be satisfied.

(61) a.



b.

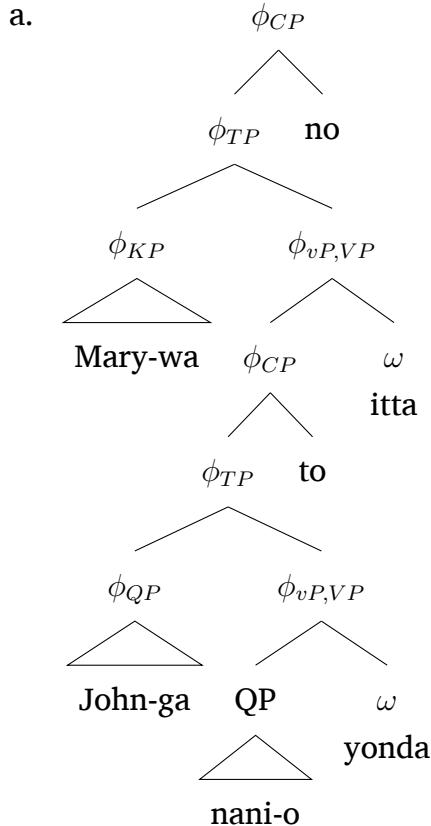


Note that Grouping appears to be able to apply even when the probe and goal are separated by many overt heads, as in (62), and when many elements appear to the left of the *wh*-phrase. Here the probe, *no* and the goal, *nani-o*, are linearly separated by several words: *yonda*, *to*, and *itta-no*. To successfully Group the *wh*-phrase and matrix question complementizer without altering linear order, we will need several applications of the Grouping Procedure to apply. One application will need to target *Mary-wa* and the node immediately dominating *no*; the other will need to target *John-ga* and the node immediately dominating *no*. The application of the Grouping Procedure targeting *Mary-wa*

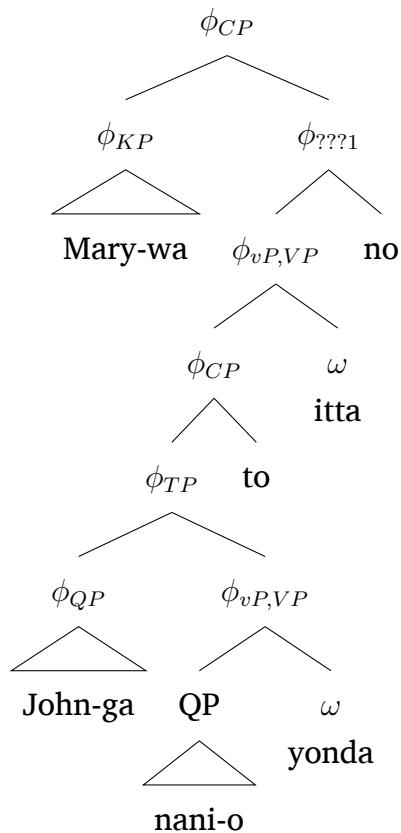
must precede the application of the Grouping Procedure targeting *John-ga*, in order to obey the restriction requiring linear order to be maintained.

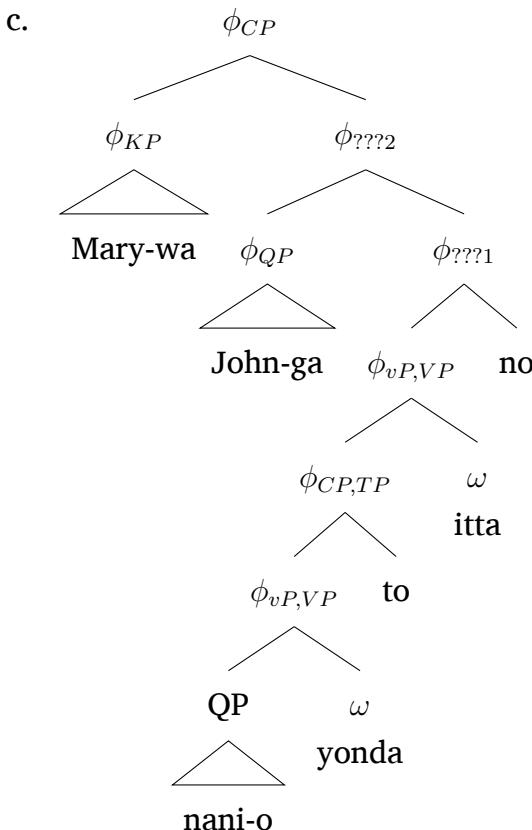
- (62) *Mary-wa [John-ga nani-o yonda to] itta-no*
 M.-TOP John-NOM what-ACC bought that said-Q

‘What did Mary say that John bought?’



b.





Having defined Grouping, and having seen how it works, we will see what happens when one of the nodes manipulated by the Grouping Procedure is a node that is the goal of an Agree relationship, and this manipulation improve the Contiguity-theoretic status of that node. More specifically, we will see that this is not possible, at least in certain circumstances. We will see also that this is a desirable result—it will drive the engine which will power the theory of the Hoji/Beck effect.

3.3.2 A restriction on the application of Grouping

In the previous subsection, I introduced the notion of Grouping—a non-movement mechanism that allows goals to satisfy Contiguity in-situ. One way that we might account for the Hoji/Beck effect, as in (63), would be to posit a restriction on Grouping. Specifically, we will want Grouping to be blocked just in cases where one of the elements moved by Grouping is itself in an independent Agree relationship, given the assumption that the Neg head enters into an Agree relationship with NPIs.

(63) Hoji/Beck effects in Japanese

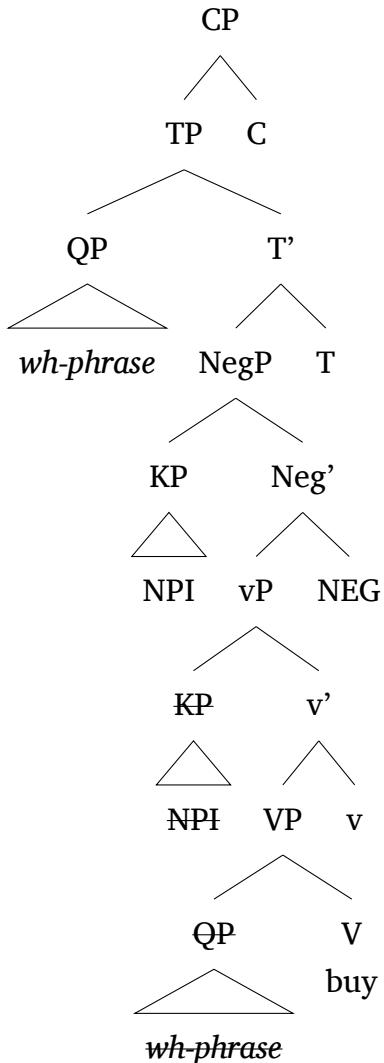
- a. *John-ga nani-o kat-ta-no?*
J.-NOM what-ACC buy-PST-Q
‘What did John buy?’
- b. * *Dare-mo nani-o kawa-nakatta-no?*
anybody what-ACC buy-NEG.PAST-Q
- c. *Nani-o dare-mo ____ kawa-nakatta-no?*
what-ACC anybody buy
‘What didn’t anybody buy?’

(64) **Hoji/Beck effects in Korean**

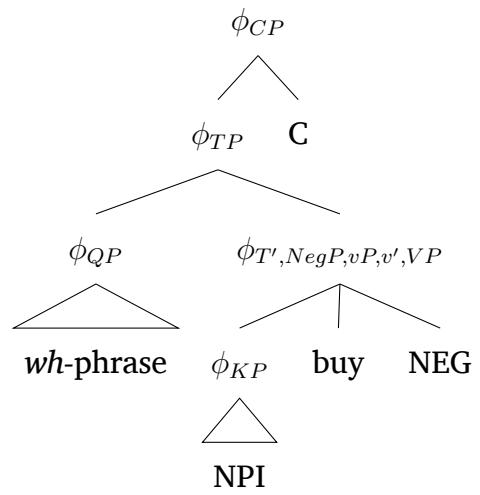
- a. *John-i mues-ul sach-i-ass-ni?*
J.-NOM what-ACC buy-PST-Q
‘What did John buy?’
- b. * *Amuto mues-ul sach-i-anh-ass-ni?*
anybody what-ACC buy-NEG-PST-Q
- c. *Mues-ul amuto ____ sach-i-anh-ass-ni?*
what-ACC anybody buy-NEG-PST-Q
‘What didn’t anybody buy?’

To begin, let us first see how movement of the *wh*-phrase, as in the (c) cases, results in Contiguity being satisfied both for the Agree relationship involving the *wh*-phrase and the Agree relationship involving the NPI. These examples will have a syntactic structure as in (65a)—I follow Miyagawa (2012) in assuming that scrambling in Japanese targets [spec,TP]—and a prosodic structure like (65b). Contiguity is fully satisfied in (65b). In (65b), the NPI and NEG head that Agrees with it are dominated by a ϕ , and the NPI satisfies Contiguity within that ϕ . Likewise, the *wh*-phrase and complementizer that Agrees with it are dominated by ϕ , and the *wh*-phrase is Contiguity-prominent within ϕ .

(65) a.

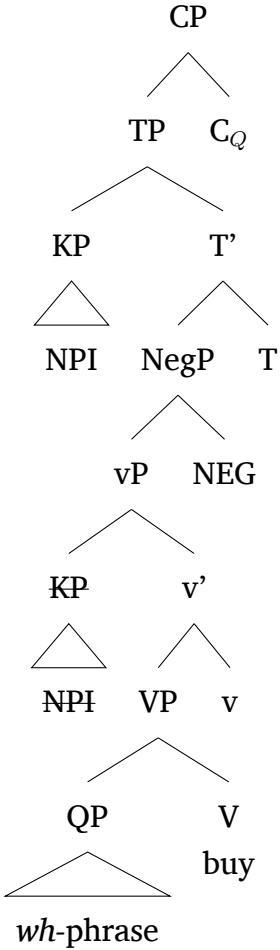


b.

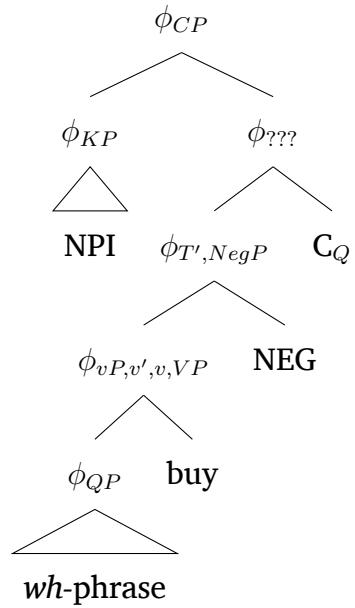


We can now turn to the ungrammatical cases, as in (63-64-b). In these examples, Grouping has applied, in order to satisfy Contiguity between the in-situ *wh*-phrase and complementizer. Such sentences will have a syntactic structure like (66a), and a prosodic structure like (66b). The application of Grouping in (66b) renders the *wh*-phrase Contiguity-prominent in $\phi_{??}$, which dominates the question complementizer, satisfying Contiguity. How might we rule the ungrammatical case out?

(66) a.



b.



In the previous chapters of this thesis, I proposed a restriction on operations that break Contiguity relationships, given in (67), dubbed Contiguity Preservation. This restriction, as it was formulated, is restated in (67).

(67) ***Contiguity Preservation:*****1 of 2**

A goal G must satisfy Contiguity for a probe P with which it agrees in every spellout domain that contains⁷ both P and G .

We can see the Hoji/Beck effect as another instance of Contiguity Preservation blocking an operation that would break a Contiguity relationship formed at an earlier stage of the derivation—here, the blocked operation is Grouping, rather than Merge. (66) is ungrammatical, because the Grouping operation needed to render the *wh*-phrase Contiguity-prominent will violate Contiguity Preservation. To capture this intuition, we will need to reformulate our definition of Contiguity Preservation as follows.

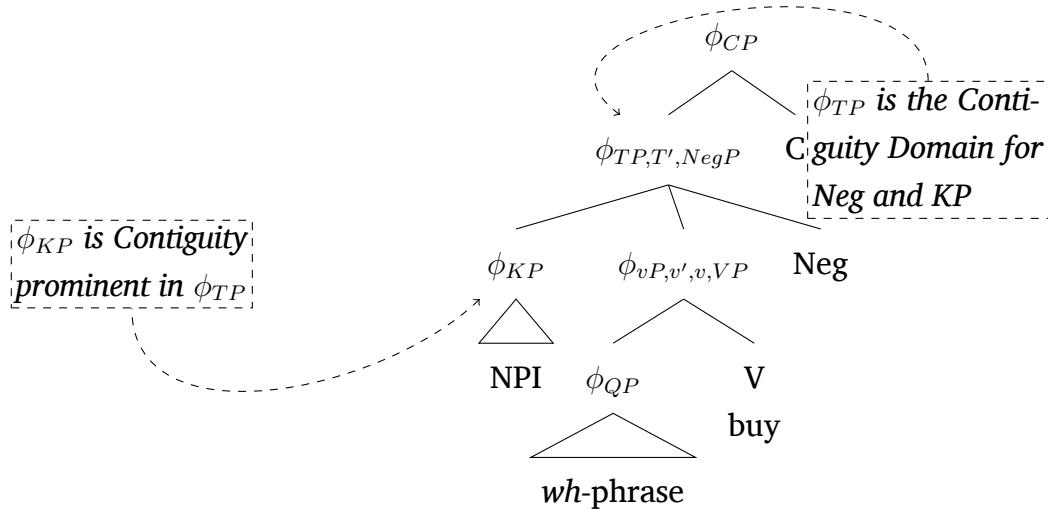
⁷Where ‘contains’ means: the ϕ corresponding to a spell-out domain dominates P and G , but doesn’t dominate a ϕ corresponding to any other spell-out domain that also dominates P and G .

- a. A Contiguity Domain D for a probe-goal pair $\langle P, G \rangle$ must be preserved in every spellout domain that contains both P and G .
- b. *Contiguity Domain:* A Contiguity Domain D is a phonological phrase in which G satisfies Contiguity for P in D .
- c. A domain D is preserved from structure A to structure B iff \exists a Contiguity domain D' in B that has the same immediate dominance relationships between P and G that D has in A .

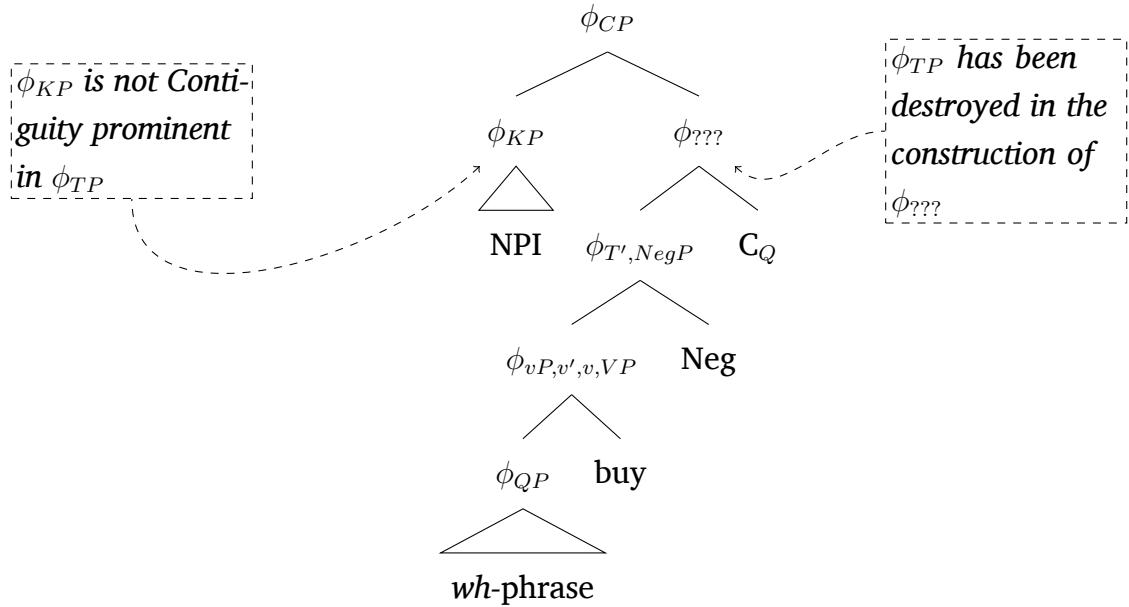
In other words: a Contiguity domain is a phonological phrase in which a probe satisfies Contiguity for its goal, and which immediately dominates the probe, immediately dominates the goal, or immediately dominates both the probe and goal. At some later point in the derivation, this Contiguity domain is considered to be preserved if there is a phonological phrase that preserves these particular immediate dominance relationships.

Let us now consider how (68) rules out multiple applications of Grouping in the cases we are examining. Consider first the structure in (69a), before Grouping has applied. ϕ_{TP} is the Contiguity Domain for the NPI and Neg, which Agrees with it—it is a phonological phrase that immediately dominates the NPI and Neg, and the NPI satisfies Contiguity for Neg in ϕ_{TP} . Consider now the structure in (69b), after which Grouping has applied, resulting in the destruction of ϕ_{TP} , in violation of (68). In (69b), it is true that the NPI is Contiguity-prominent in ϕ_{CP} . However, ϕ_{CP} cannot ‘count’ as a Contiguity domain for NPI and Neg, because ϕ_{CP} does not have the same immediate dominance relationships with respect to NPI and Neg as ϕ_{TP} : ϕ_{CP} does not immediately dominate both NPI and Neg. As a result, the derivational step in (69) is not Contiguity Preserving, and is therefore ruled out by (68).

(69) a.

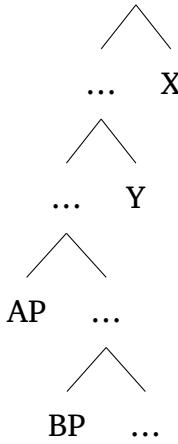


b.



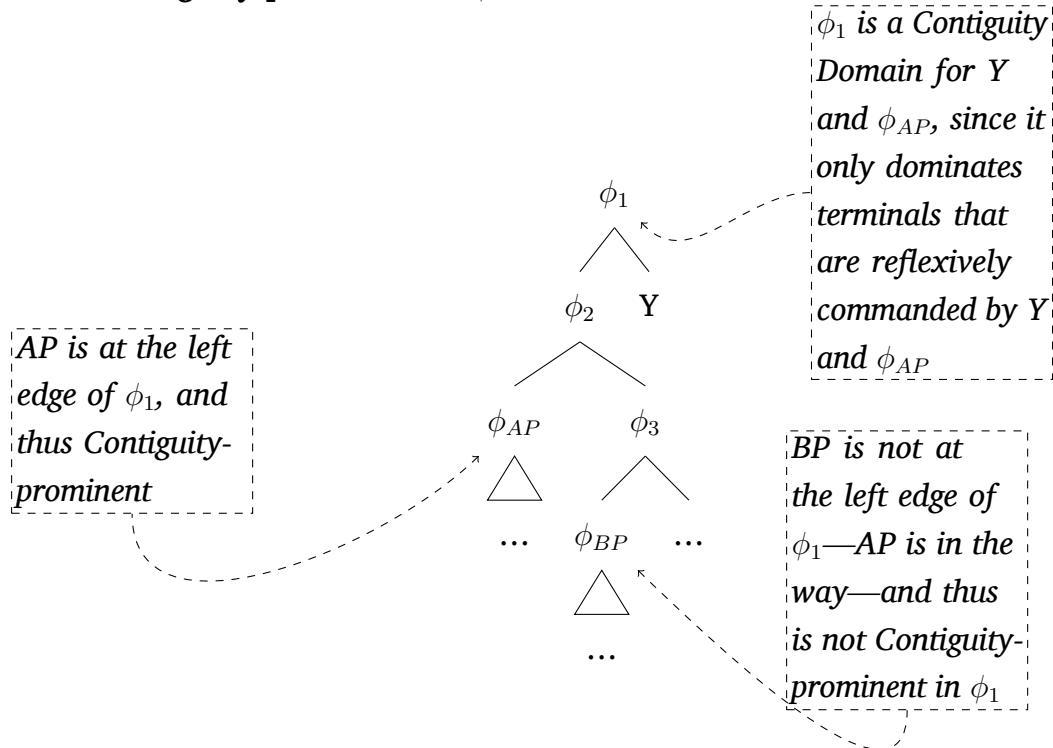
This solution is quite general. Grouping to satisfy the Contiguity needs of an in-situ goal will be blocked if that goal is c-commanded by some other goal in languages like Japanese and Korean. Consider the abstract structure in (70). Suppose also that Y Agrees with AP and X Agrees with BP.

(70) *Right-headed, left-active*



Given this, AP satisfies Contiguity with Y when Y is Merged into the clausal spine, either through a vacuous application of Grouping, or by definition, as we see in (71).

(71) AP is Contiguity-prominent in ϕ_1

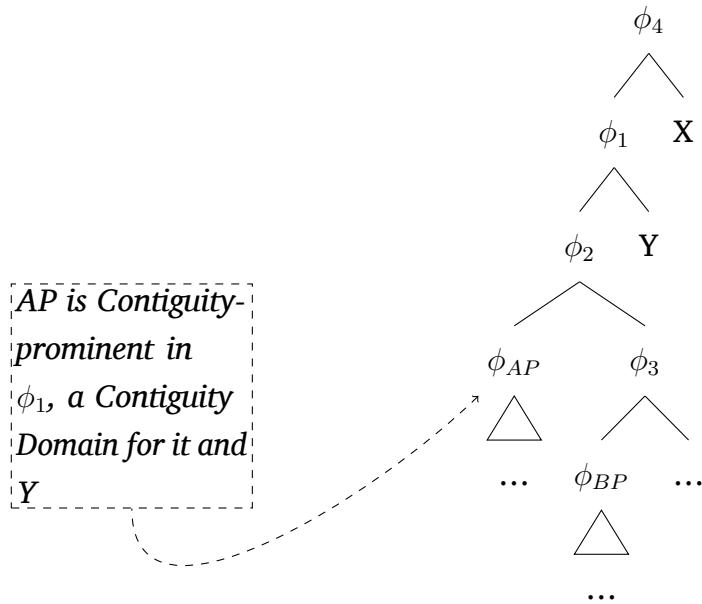


Now suppose that X were to Agree with BP; BP in principle should be able to satisfy Contiguity for X through Grouping, as schematized in (72). Indeed, ϕ_{BP} is Contiguity-prominent within ϕ_{group} , and therefore satisfies Contiguity for X. However, the position of

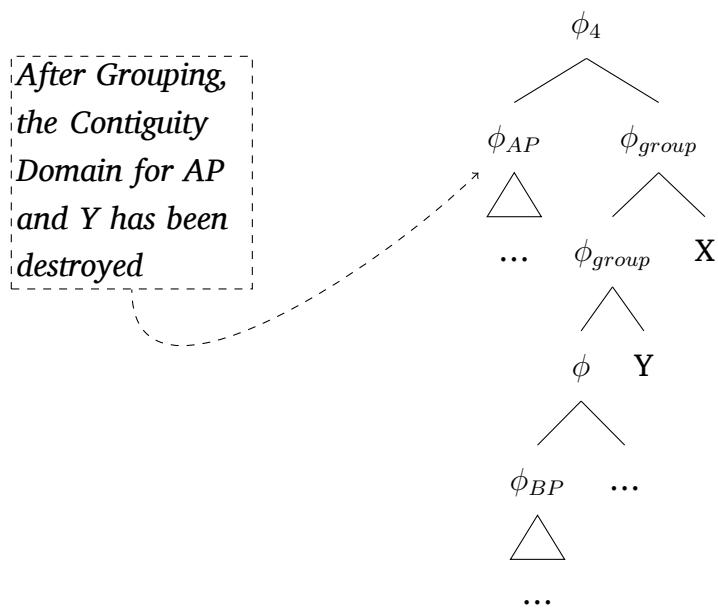
ϕ_{AP} has been altered. It is no longer Contiguity-prominent in ϕ_1 [although it is Contiguity-prominent in ϕ_4]; Grouping, then, has broken the Contiguity relationship between ϕ_{AP} and Y, since ϕ_4 cannot count a Contiguity Domain for ϕ_{AP} and Y, as it fails to immediately dominate Y. Derivational steps like that like that in (72) are not Contiguity Preserving, as they violate (120). In such instances, we expect phrases like BP to satisfy Contiguity for X through overt movement, even in languages that do not normally require BP like elements to undergo such movement, since Grouping to satisfy Contiguity is blocked.

(72) **Grouping breaks Contiguity between AP and Y**

a.



b.



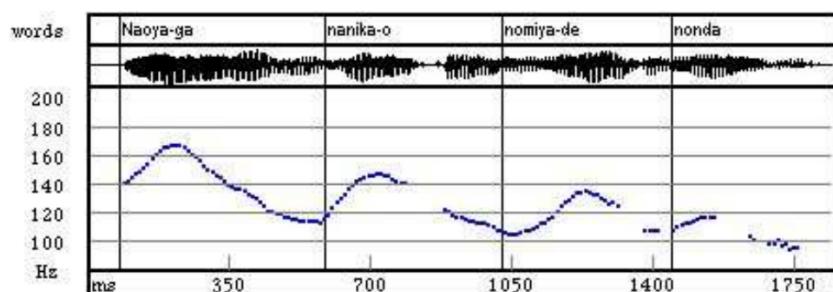
I have laid out the theory of the Hoji/Beck effect in languages like Japanese and Korean. In the following subsections, I will present evidence for the prosodic structures I have posited—we will see that there is a particular prosodic hallmark of interveners in these languages, allowing us to predict which elements will be subject to this effect, and which will not. Then, I will show that the theory presented here makes a number of additional correct predictions.

3.3.2.1 The prosody of interveners

We have just seen that certain elements in the clause, such as *wh*-phrases and NPIs, at least in Japanese, require an alteration of the prosodic structure to be licensed in-situ. I proposed that this was the result of Contiguity, a prosodic locality requirement on probes and goals in Agree relationships. This raises the question: how are we to know whether or not an element is in an Agree relationship with the verbal complex. The answer comes from something which I will dub ‘span marking’. As has been noted in previous literature, certain elements, including focus sensitive items, NPIs, and *wh*-phrases, all have effects on the intonation of Japanese and Korean sentences. A span of the sentence—thus the name—beginning with the *wh*-phrase, focus sensitive item, or NPI and ending with the verb, is “dephrased” or “deaccented”—the phonetic signatures associated with lexical pitch accents and other prosodic phrases in this span are either absent, or much diminished.

Japanese has just such a process of post-focal and post-*wh*-phrase dephrasing, as can be seen in (73).

(73) a. “Broad focus”:

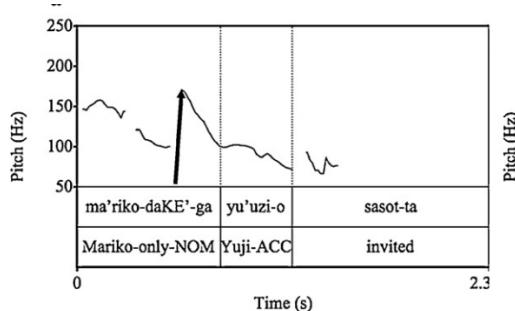


Ishihara (2003)

Naoya-ga nanika-o nomiya-de nonda
N.-NOM something-ACC bar-LOC drank

‘Naoya drank something at the bar.’

b. Focal Dephrasing:

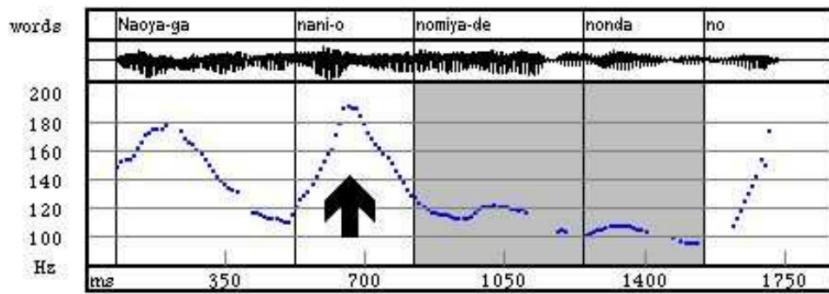


Kitagawa, Tamaoka, and Tomioka (2013)

mariko-dake-ga yuji-o sasot-ta
M.-only-NOM Y.-ACC invited

‘Only Mariko invited Yuji.’

c. Wh-dephrasing:



Ishihara (2003)

Naoya-ga nani-o nomiya-de nonda
N.-NOM what-ACC bar-LOC drank

‘What did Naoya drink at the bar?’

In (73a), we see a broad focus sentence, where each word in the sentence bears a pitch accent. Each pitch accent is realized, with a process of declination occurring, where subsequent pitch accents are not pronounced as strongly as their immediate precedent. In (73b), we see a sentence where the subject is marked with a focus particle. All of the words following the subject are lexically marked for pitch accents. However, these pitch accents are not realized in the post-focal environment, or are greatly reduced. I analyze this, following Ishihara (2003), as evidence of post-focal dephrasing in Japanese. The sentence in (73c) involves a wh-word, and is comparable to (73b). Each word is lexically associated with a pitch accent, but no word in the post-focal domain is realized with this accent. The process of dephrasing happens generally in environments following an NPI as well. As demonstrated through experiment in Ishihara (2007a), NPIs trigger a comparable process of deaccenting, although no pitch tracks like those in (73) are provided.

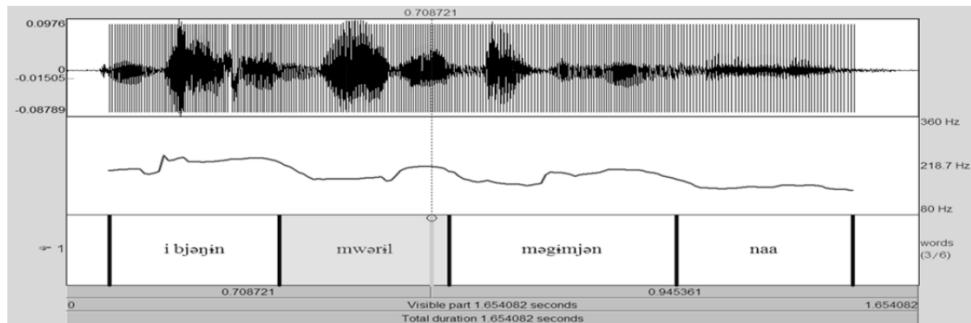
I will now show that Korean too exhibits post-focal dephrasing. First, consider the

pitch tracks in (74).

(74) Focus triggered dephrasing in Korean

a. Broad focus sentence

Yun (2012)

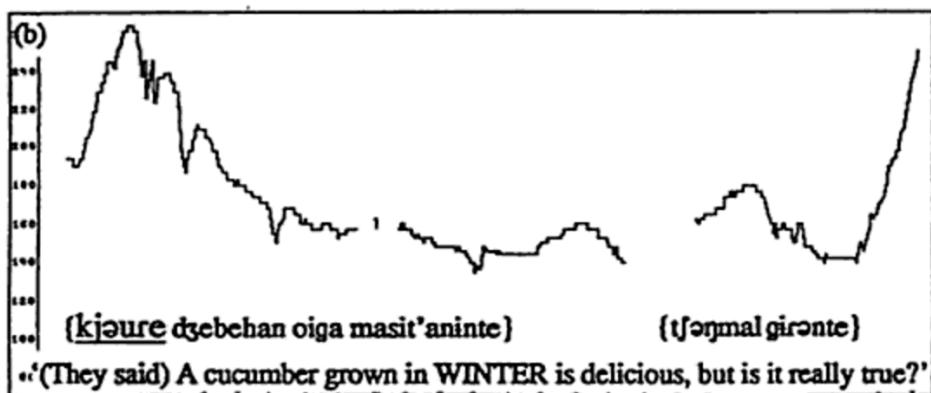


I pyeng-un mwe-lul mek-umyen na-a
this illness-TOP what-ACC eat-if cured-INT

‘This illness will be cured if you eat something.’

b. Focus dephrasing

Jun (1996)

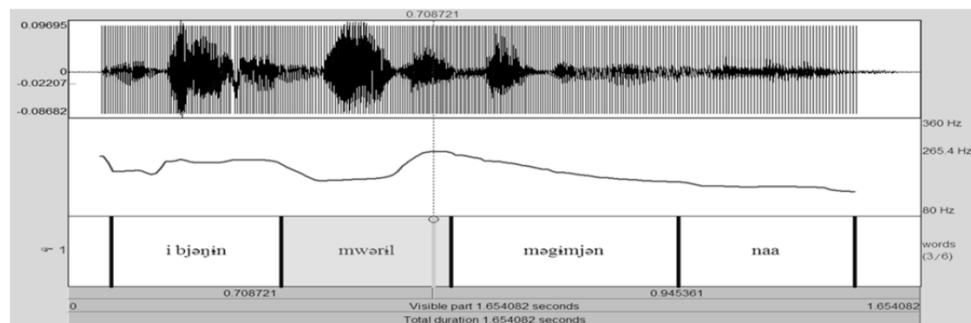


kjeur-e dʒebaha-n oi-ga masti'a-ninte tʃøŋmal girønte
winter-LOC grow-REL cucumber-NOM delicious-they.say really so-Q

‘They say a cucumber grown in WINTER is delicious, but is it really so?’

c. Wh-dephrasing

Yun (2012)



I *pyeng-un* *mwe-lul* *mek-umyen na-a*
 this illness-TOP what-ACC eat-if cured-INT

‘What’s the x such that this illness will be cured if you eat x?’

In (74a), we see a pitch track for a “broad focus” Korean sentence. A L(HL)H contour tone is associated with roughly each word in the sentence. (74a) contrasts with (74b-c). In (74b), the initial word bears narrow focus. It is realized with a LH pitch, and pitch remains quite low and flat for the portion of the sentence following this element. In (74c), the second word is a wh-word. It is realized with a LH pitch, and pitch following it remains quite low and flat for the rest of the sentence, comparable to the pitch track in (74b).

Further evidence for dephrasing comes the the application or non-application of prosodic structure sensitive phonological rules in post-focal contrasts. Kim (2015) argues that the non-application of lenis stop voicing is a diagnostic for the edge of prosodic structure, since lenis stop voicing does not appear to apply to consonants at the very edge of intermediate prosodic domains. Interestingly, as we see in (75), lenis stop voicing consistently applies to all possible targets to the right of a focus-bearing element, even though this rule does not usually apply in a broad-FOCUS context. The initial consonant of each word in (75) is a possible target for this rule. As we see in (75a-e), lenis stop voicing applies, perhaps unexpectedly, to all possible targets to the right of a word bearing narrow focus.

(75) Lenis stop voicing

Kim (2015)

mij_{AJ}-ga *Pomi-eke* *kapa_J-ul* *pillj_At_{CU}-_{AT}ta*
 Miyoung-NOM Pomi-DAT bag-ACC loan-PAST-DEC

‘Miyoung loaned her bag to Pomi.’

- a. ((*mi.j_{AJ}.i.ga*)_{AP} (*po.mi.e.ge*)_{AP} (*ka.baj.ul*)_{AP} (*pil.lj_A.t_{CU}._{AT}.ta*)_{AP})_{IP}
- b. ((*mi.j_{AJ}.i.ga*)_{AP} (*po.mi.e.ge*)_{AP} (*ka.baj.ul*)_{AP} (**pil.lj_A.t_{CU}._{AT}.ta**)_{AP})_{IP}
- c. ((*mi.j_{AJ}.i.ga*)_{AP} (*po.mi.e.ge*)_{AP} (**ka.baj.ul** *bil.lj_A.t_{CU}._{AT}.ta*)_{AP})_{IP}
- d. ((*mi.j_{AJ}.i.ga*)_{AP} (**po.mi.e.ge** *ga.baj.ul* *bil.lj_A.t_{CU}._{AT}.ta*)_{AP})_{IP}
- e. ((**mi.j_{AJ}.i.ga** *bo.mi.e.ge* *ga.baj.ul* *bil.lj_A.t_{CU}._{AT}.ta*)_{AP})_{IP}

In (75a-b), we see that each word in a broad focus sentence or sentence where the verb bears narrow focus is contained within its own AP, since lenis stop voicing does not apply in any possible context. In (75c), we see that the verb and direct object are contained

in the same AP when the direct object bears focus, since the initial consonant of the verb is subject to lenis stop voicing. In (75d), we see that the indirect object and everything to its right are contained in the same AP when the indirect object bears focus, since the initial consonant of both the verb and direct object are subject to lenis stop voicing. In (75e), we see that the subject and everything to its right are contained in the same AP when the subject bears focus, since the initial consonant of the verb, direct object, and indirect object are all subject to lenis stop voicing. From this, as well as the pitch track data previously presented, we can conclude that *wh*-phrases and focus sensitive elements satisfy Contiguity for a head in the verbal projection through Grouping. In addition to this, Sohn (1999) notes that NPIs in Korean trigger dephrasing comparable to NPs with focus particles and *wh*-phrases, although, like Ishihara (2007a), no pitch tracks are provided.

How are we to account for these facts? To do so, a discussion of Agree and how it interacts with the PF interface is needed. Previously in this section, I suggested that there is a process of prosodic reorganization, termed Grouping, which applies to satisfy the prosodic needs of elements in Agree relationships. Agree is an operation that takes the value of one feature from some position in the tree, and sets the value of another feature to the value of the first feature; the values of certain features are then treated as instructions for pronunciation at the PF interface. A formulation of Agree is given in (76).

$$(76) \quad [\dots H_{F:Value_} \dots [\dots G_{F:Value_X} \dots] \dots] \\ \rightarrow [\dots H_{F:Value_X} \dots [\dots G_{F:Value_X} \dots] \dots]$$

For instance, in English, T is commonly taken to Agree with the subject, schematized in (77). This, in combination with the PF rules in (77), gives us an account of subject-verb agreement in English.

$$(77) \quad [\dots T_{F:_} \dots [\dots G_{F:Vs} \dots] \dots] \\ [\dots T_{F:sg} \dots [\dots G_{F:sg} \dots] \dots]$$

- a. [T, sg] → -s
- b. [T, pl] → -Ø

Agree is most commonly used to account for these sorts of segmental alternations in inflectional paradigms. However, there is no reason in particular to think that segmental alternations of the sort in (77a-b) are the only sort of instruction that valued features send to PF. We can account for the deaccenting patterns which we have seen in Japanese and Korean with a rule like that in (78).

(78) *Deaccenting rule:*

If a prosodic phrase ϕ immediately dominates an element with the feature [wh] or [foc], elements dominated by ϕ that lack [wh] or [foc] are not pronounced with a pitch accent.

The facts about lenis stop voicing in Korean receive a similar treatment, as in (79). Given (79), lenis stop voicing in Korean may overapply, but only in the prosodic domain delimited by a focus-bearing element and the head that Agrees with it.

(79) *Lenis stop voicing rule:*

If a prosodic phrase ϕ immediately dominates an element with the feature [wh] or [foc], lenis stop voicing may apply to segments that are not at the left edge of ϕ .

The presence of phonological effects that rules of the sort in (78-79) capture, considered alongside Grouping, can serve as a diagnostic for the presence of an Agree relationship in the syntax—at least in left-active, right-headed languages like Japanese and Korean. In these languages, when a focus bearing element or a *wh*-phrase is in an Agree relationship, but is not at the edge of the prosodic constituent that dominates both the *wh*-phrase and its probe, Grouping must apply. Grouping, as defined in this chapter, will always result in the creation of a prosodic phrase that immediately dominates a probe and in which the goal is at the left or right edge. Note that the rules in (78-79) make reference to immediate domination. The outcome of this is that these rules will affect only the domain ‘between’ the probe and goal—deaccenting, for instance, will apply to all of the elements in the prosodic phrase created by Grouping, modulo the focus bearing element or *wh*-phrase and its associated functional head, since both these elements bear [foc] or [wh].

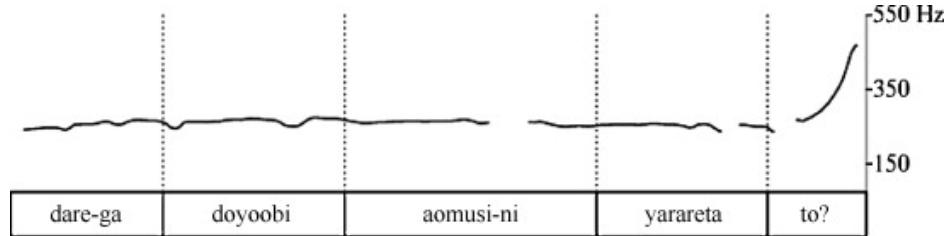
In other words, we see that there is a prosodic signature that is associated with prosodic phrases created by Grouping. Grouping creates a prosodic phrase containing one of these elements and the head with which it Agrees, and this prosodic phrase is realized using a particular prosody, perhaps determined by which element is Contiguity-prominent within that phrase. Evidence from Fukuoka Japanese lends evidence to this view. Smith (2014) observes that Fukuoka Japanese is comparable to Tokyo Japanese, in that *wh*-phrases and focus-sensitive items appear to require Grouping with the head that licenses them. Interestingly, however, the prosodic realization of the phrase created by Grouping differs between *wh*-phrases and focus-sensitive items. Smith (2014) finds that the realization of the prosodic phrase created by Grouping to license focus-sensitive items is comparable to Tokyo Japanese: all elements with lexical pitch accents are realized with their pitch compressed. In contrast, the realization of the prosodic phrase created by Grouping to

license *wh*-phrases is significantly different: all lexical pitch accents in this span are not realized, the span is realized at a higher pitch than usual, and there is a final rise around the question complementizer, as demonstrated in (80).

- (80) a. *dare-ga doyoobi aomusi-ni yarareta to Ø*
 who-NOM Saturday caterpillar-by was.done prt Cwh

‘Who was affected by caterpillars on Saturday?’

b.



It is important to note here that speakers do not *always* produce sentences in which deaccenting of the sort in (80), and more generally in this section, take place. We have used the presence of post-focal deaccenting to argue for structures like that in (81); but the absence of such deaccenting, at least in some sentences, need not be taken as an *absence* of such structures for those sentences. Consider once more the structures in (81), in both of these structures the *wh*-phrase satisfies Contiguity for C. In sentences where post-focal deaccenting occurs, we see this most clearly—the phrase satisfies Contiguity within either $\phi_{grouping}$, as in (81a), or within ϕ , as in (81b), and additionally alters the way that the phrase is actually realized, marked either by post-focal deaccenting, as in Tokyo Japanese, or by through the use of a flat, high pitch contour, as in Fukuoka Japanese. In sentences where no post-focal deaccenting occurs, the *wh*-phrase satisfies Contiguity in the same way, but does not alter the way that the phrase is actually realized. In other words: the presence of phonetic effects in some utterances, such as post-focal dephrasing, can be taken as evidence for the application of Grouping, but the absence of such effects in other utterances should not be taken as evidence for the lack of an application of Grouping. Rather, we see here a distinction between an underlying prosodic structure, common to all utterances, and later choices made in the phonetics about the way that the underlying prosodic structure is realized.

3.3.3 Additional predictions in Japanese and Korean

At the outset of this chapter, we saw that there were a number of accounts of the contrast in grammaticality in (81) on the market, and that each theory managed to capture some

facts that others did not.

- (81) a. * *Amuto mues-ul sachि-anh-ass-ni?*
anybody what-ACC buy-NEG-PST-Q
- b. *Mues-ul amuto _____ sachি-anh-ass-ni?*
what-ACC anybody buy-NEG-PST-Q
- 'What didn't anybody buy?'

In the previous section, I proposed a novel theory of this contrast, rooted in the notion of Contiguity Preservation. We saw that derivations in which NPIs and other focus-sensitive items command an in-situ *wh*-phrase require the *wh*-phrase to undergo movement to a higher position, even in languages where Contiguity for C could normally be satisfied through the Grouping of C and *wh*-phrase it Agrees with. In this section, we will see that this theory is able to capture all of the facts that other theories on the market fail to capture.

3.3.4 The ameliorating effect of embedding

Tomioka (2007a) notes that the Hoji/Beck effect either disappears or is significantly ameliorated when the *wh*-phrase and intervener are both contained in an embedded clause, but the *wh*-phrase takes matrix scope, as in (82-83).

(82) Embedding ameliorates the effect

- a. ? *Kimi-wa [daremo nani-o yom-ana-katta-to] omotteiru-no*
you-TOP anyone what-ACC read-NEG-PST-C think-Q
- b. ? *Ne-nun [amuto mues-ul ilkci-anh-ass-ta-ko] sayngkakha-ni*
you-TOP anyone what-ACC read-NEG-PST-DEC-C think-Q
- 'What do you think that no one read?'

- (83) a. *Kimi-wa [John-mo nani-o yon-da-to] omotteiru-no*
you-TOP John-also what-ACC read-PST-C think-Q
- b. *Ne-nun [John-to mues-ul ilk-ess-ta-ko] sayngkakha-ni*
you-TOP John-also what-ACC read-PST-dec-C think-Q
- 'What do you think that John also read?'

This is analogous to the ameliorating effect of hyperraising on the problem posed for raising across experiencers in left-headed, right-active languages, investigated in chapters 1 and 2. There, as here, we saw that the introduction of a clause boundary allowed a Contiguity Relationship present in the lower clause to safely be severed when movement took place into a higher clause. Here, it seems to be the case that similar facts exist for Grouping: Grouping may sever a Contiguity relationship when the trigger of Grouping is not in the same phase as that Contiguity relationship.

Recall that this was puzzling for all of the structural accounts that we examined in the first section of this chapter. However, we expect such effects to arise given the theory I have developed in this chapter. Consider once more the definition of Contiguity Preservation, (84). Note that, under this definition, Contiguity relationships formed in prior phases may be destroyed in later phases. Contiguity Preservation holds, in other words, at the phase level. In the examples in (83), the focus bearing element and, importantly, its licensing head are contained in one phase, but the licensing head for the *wh*-phrase is contained in another. Grouping to satisfy Contiguity between the *wh*-phrase and matrix question complementizer will, in these cases, break the Contiguity relationship between the NPI and embedded negation. However, neither the negation nor the NPI are in the spellout domain in which the Contiguity-destroying operation takes place. The Contiguity relationship between the two may therefore be broken by Grouping in such a case, since Contiguity Preservation only holds for Contiguity relationships formed in the highest phase at any given point in the derivation.

(84) ***Contiguity Preservation:***

2 of 2

- a. A Contiguity Domain D for a probe-goal pair $\langle P, G \rangle$ must be preserved in every spellout domain that contains both P and G .
- b. *Contiguity Domain:* A Contiguity Domain D is a phonological phrase in which G satisfies Contiguity for P in D , and D immediately dominates either P or G .

Consider an intermediate stage of the derivation for a sentence like (85a)—one in which only the embedded clause has been constructed, in (85b).

- (85) a. *Ne-nun [John-to mues-ul ilk-ess-Ø-ta-ko] sayngkakha-ni*
 you-TOP John-also what-ACC read-PST-FOC-dec-C think-Q

‘What do you think that John also read?’

- b. *[John-to mues-ul ilk-ess-Ø-ta-ko]*
 John-also what-ACC read-PST-FOC-dec-C

In (85b), there is only one Agree relationship present—that between the focus head in the verbal complex, and the subject, *John-to*, which is marked with a focus particle. The *wh*-phrase is not in an Agree relationship with anything at this point in the derivation. Now consider the final stage of the derivation, in (85a). In (85a), the matrix question complementizer has entered into an Agree relationship with the *wh*-phrase in the embedded clause. Grouping must take place, to ensure that Contiguity between the *wh*-phrase and complementizer is satisfied. Grouping, in this case, will create a structure in which the focus bearing subject in the embedded clause fails to satisfy Contiguity for the focus head in the embedded verbal complex. However, this is acceptable, given (84). In (84), there is a phase boundary—delimited by the embedded complementizer—between the matrix question complementizer, and the focus head and the focus bearing element it associates with. The focus head and focus bearing element are therefore not contained in the higher phase, during which Grouping of the *wh*-phrase and question complementizer. As a result, the Contiguity relationship between the focus bearing subject in the embedded clause and focus head in the embedded verbal complex may be safely broken.

This raises questions about the nature of Agree between the embedded complementizer and *wh*-phrase. If C generally enters into an Agree relationship with a *wh*-phrase, we might now wonder why Agree between C and the embedded *wh*-phrase in (85) does not trigger the effect in the same way that matrix C does for a clausemate focus. One possibility is that C does not generally enter into an Agree relationship with *wh*-phrases—perhaps it is only interrogative complementizers that target *wh*-phrases for Agree. The ameliorating effect of embedding we see above would thus have the same cause as facts from Hagstrom (1998). As we see in (86), placing the intervention configuration in an island causes the effect to disappear, comparable to the effect of embedding seen above. In (86b), there is no apparent complementizer in the adjunct which could Agree with the *wh*-phrase.⁸ The clauses with declarative complementizers in the cases examined here would be comparable to the cases in (86)—islands and embedded clauses would generally lack an intermediate step of Agree in Japanese.

- (86) a. * [*John-ka Bill-wa*] [*Mary-ga nani-o katta ato de*] *dekaketa no*
 J.-or Bill-TOP M-NOM what-ACC buy after left Q

'What did John or Bill leave after Mary bought?'

⁸ This might be suggestive of an approach to islands in which the 'is an island' property is tied to the presence or absence of a probe at the edge of the island. Islands, under such an approach, would be islands for overt movement because elements within them are unable to move overtly to their edge.

- b. *Mary-wa [[John-ka Bill-ga] nani-o katta ato de] dekaketa no*
 M-TOP J.-or Bill-NOM what-ACC buy after left Q
 ‘What did Mary leave after John or Bill bought?’ *Hagstrom (1998)*

If this analysis is on the right track, this opens up at least two avenues for further investigation. The first is whether or not there are languages that have overt movement, but lack Agree between C and *wh*-phrases in embedded clauses. These would be languages in which *wh*-movement would be possible only when the gap is in the matrix clause. As we see in (87), there are indeed languages that have overt *wh*-movement, but lack long distance *wh*-movement.

(87) Some languages do not allow long distance *wh*-movement

- a. * *Wen glaubst du dass sie ___ gesehen hat*
 whom believe you that she seen has
 ‘Who do you believe that she has seen?’ *Anyadi and Tamrazian (1993)*
- b. * *Kogo ty dumaes̄, cto Maša ljubit?*
 whom you think that Masha loves
 ‘Who do you think that Masha loves?’ *Khomitsevich (2008)*
- c. * *Co Tomek mówi že Maria wie ___*
 what T. says that M. knows
 ‘What does Tomek say that Mary knows?’ *Witkoś (1995)*

Another possible avenue to further validate this analysis would be to investigate whether or not there are languages that have *wh*-in-situ like Japanese, but which do not display amelioration in embedded contexts. These would be languages in which embedded complementizers *do* Agree with *wh*-phrases—thus triggering the effect in the embedded context as well.

3.3.5 Intervention without *wh*-phrases, no intervention with *wh*-phrases

In the previous section, we saw that the canonical Hoji/Beck effect in *wh*-phrases is a specific instance of a more general configuration. We saw that, in left-active languages with heads on the right, when there are two phrases that enter into Agree relationships with two separate heads, Grouping cannot be used to place the lower phrase into a position of Contiguity-prominence if it is in an Agree relationship with the higher of the two heads.

Were this to happen, it would break the Contiguity relationship between the higher phrase and lower head, causing the derivation to fail to be Contiguity Preserving.

If this analysis is on the right track, we expect to be able to find similar effects, even when the lower of the two phrases is not a *wh*-phrase—something unexpected under a Beck (2006) account in particular [and the syntactic accounts as well, provided that NPs with focus particles do not also undergo covert movement]. Any element which triggers span marking could potentially be an intervner for another trigger of span marking. As we see in (88), these effects can be found in Korean. In (88a), we see that an NPI subject may not appear to the left of an object marked with a focus particle. In contrast, in (88b), we see that an NPI subject can appear to the right of an object marked with a focus particle. This is comparable to the more canonical Hoji/Beck effect, discussed in the previous section.

(88) **Non-*wh* Hoji/Beck effect & scrambling amelioration**

- a. * *amwuto i chay-man an-ilk-ess-ta*
anyone this book-only NEG-read-PAST-DEC

‘No one read only this book.’
- b. *i chayk-man awmuto an-ilk-ess-ta*
this book-only anyone NEG-read-PAST-DEC

‘Only this book is what no one read.’

Kim (2002)

We have already seen that phrases bearing focus trigger deaccenting and dephrasing, hallmarks of Grouping. This suggests that phrases bearing focus must enter into an Agree relationship with some head, which we will call Foc—see Lee (2005) for arguments that *man* enters into an Agree relationship with a higher functional head, and Hirsch (2017) for arguments that exhaustive focus markers at the NP level generally mark the presence of a bipartite focus construction involving a higher functional head. If that head is higher than the negation marker in Korean, which appears to be quite low, in (88), then the effect in (88) has the same cause as the more canonical effect in (87). The focused phrase enters into an Agree relationship with Foc, and the NPI enters into an Agree relationship with Neg, and Foc c-commands Neg. As a result, Grouping cannot be used to satisfy Contiguity between Foc and the focused phrase, since it will break the Contiguity relationship between Neg and the NPI, causing the derivation not to be Contiguity Preserving.

The relative ordering of the heads in these configurations is of importance, given the theory proposed in this section. As we will see, it appears to be the case that the relative positioning of Neg and Foc in Korean is an important factor. In Korean, there are several

different ways of negating a sentence, dubbed ‘short’ and ‘long’ forms. In short form negation, the negative particle *an-* precedes the verb, as in (88) and (89a). In long form negation, the negative particle *ani* follows the verb, and is itself followed by an auxiliary.

(89) Two forms of negation in Korean

- a. *Eunji-ga pap-ul an-mek-ess-ta*
Eunji-NOM rice-ACC NEG-eat-PST-DECL
'Eunji didn't eat the rice.'
- b. *Eunji-ga pap-ul mek-ci ani ha-ess-ta.*
Eunji-NOM rice-ACC eat-ci NEG do-PST-DECL
'Eunji didn't eat the rice.'

Loewen (2007)

Interestingly, as we see in (90), the effect demonstrated in (88) disappears when the long form of negation is used. As demonstrated in (90b), it is clear that Foc may occur to the left of negation in the long form. Given the theory we have proposed, expect (90) to be grammatical. In left-active, right-headed languages, like Korean, all probes and goals satisfy Contiguity without the need for Grouping or movement in sentences with nested dependencies, like (90).

(90) No Hoji/Beck effect with long form of negation

- a. ? *amwu-to i kes-man ilk-ci ani ha-ass-ta*
anyone this thing-only read-C NEG do-PST-DECL
- b. *amwu-to i kes-man ilk-ci-[nun] ani ha-ess-ta*
anyone this thing-only read-C-FOC NEG do-PST-DECL
'No one read only this.'

Sells (2001)

If this analysis is on the right track, then we should be able to find comparable effects involving sentences with *wh*-phrases and focus-bearing NPs, where the *wh*-phrase c-commands the focus-bearing NP, provided that the head that Agrees with the focus bearing NP is located to the *right* of the question complementizer. The *-wa* marker performs a number of different tasks in Japanese. In addition to functioning as a topic marker, *-wa* may also mark a contrastive focus (Komagata (1998)). When *-wa* marks a contrastively focused nominal, that nominal triggers post-focal dephrasing (Kitagawa (2007)); recall that non-contrastive uses of *-wa* do not normally trigger dephrasing, nor do they phrase with elements to their right more generally. When a direct object is marked with contrastive

-wa, that direct object must scramble to the left of a *wh*-subject, as we see in (91). Given the assumption, following Tomioka (2010), that the operator associated with *-wa* is quite high, we expect the ungrammaticality of (91a)—Grouping to satisfy the needs of the contrastive topic will disrupt the Contiguity relationship between the question particle and *wh*-phrase.

(91) **Contrastively-focused direct object must scramble to left of *wh*-subject**

- a. # *Zyaa dare-ga WAin-wa eranda-no-Ø*
wh-NOM wine-CONT select-Q-OP

‘Then, who selected WINE?’

- b. *Zyaa WAin-wa dare-ga eranda-no-Ø*
wine-CONT wh-NOM select-Q-OP

‘Then, who selected WINE?’

Kitagawa (2007)

The facts presented in this section are not particularly problematic for some of the accounts reviewed in section 1 of this chapter. The syntactic accounts can account for these facts in a fairly straightforward fashion, given the additional assumption that relative ordering of negation, focus, and question particles in the verb reflect the scopal relationships between landing sites of covert movement, with particles to the right outscoping particles on the right. Similarly, these facts are accounted for under Tanaka’s (1997, 2003) system, under the assumption that such particles denote the landing site of null operator movement.

For other accounts, however, these facts are problematic. Beck’s analysis, for instance, does not straightforwardly capture these facts. For Beck, only *wh*-phrases should be subject to intervention, since only *wh*-phrases lack a defined normal semantics. The semantic clash should not arise at all in the Korean case examined in this subsection, since there is no *wh*-phrase present in the sentence. The logic of Beck’s analysis is as follows: ungrammaticality of sentences like (81-a) are taken to show us that a focus-marked DP cannot be structurally higher than a *wh*-phrase at LF, and the acceptability of sentences like (81-b) are taken to show us that scrambling of *wh*-phrase to the left of a focus-marked DP creates a LF that reflects the surface structure. If the same logic is applied to (91), we draw the opposite conclusions. That is to say, (91) appears to show us the following. First, it shows that a *wh*-phrase cannot be structurally higher than a focus-marked DP. Second, it shows that moving a focus-marked DP to a position above a *wh*-phrase does not cause an Hoji/Beck effect. Clearly, both of these conclusions cannot be true at the same

time. There are ways of saving structural analyses of intervention effects. For instance, we could posit structural differences between (81) and (91) which would account for these seemingly contradictory patterns. But this is ad-hoc: nothing about these analyses lead us to expect both the patterns in (81) and (91) to be present in the same language.

The Korean facts presented in this subsection are problematic for Tomioka's account. Under that analysis, the ungrammaticality of sentences like (81-a) make reference to a special property of the information structure of *wh*-questions. However, we see that similar effects arise in sentences that do not involve *wh*-phrases, and therefore are unlikely to be subject to the same informational-structural requirements as *wh*-questions.

3.3.6 Scrambling feeding intervention

Under the approach laid out in this chapter, the canonical Hoji/Beck effect arises in right-headed, left active languages when two phrases are in an Agree relationship with two separate heads, and the higher of the heads Agrees with the lower of the two phrases. Given such a configuration, Grouping cannot be used to create a structure in which Contiguity is satisfied for the higher of the two heads, as the application of Grouping would destroy the configuration in which the lower of the two heads satisfies Contiguity with the higher of the two phrases.

If this approach is on the right track, then we should expect *wh*-phrases not to be able to command an NPI, just in cases when the question complementizer is lower than negation. As we see in (92), this expectation is borne out. In (92), the question complementizer is lower than the negation that licenses the NPI in the matrix clause. Scrambling of the *wh*-phrase places it in a position from which it c-commands the NPI. There are thus two Agree relationships for which Contiguity must be respected: one between the question complementizer and *wh*-phrase, and another between negation and the NPI. Grouping cannot be used to create a prosodic structure in which Contiguity is satisfied, as it will destroy the prosodic structure in which Contiguity is satisfied for the Agree relationship between the *wh*-phrase and question complementizer—in other words, the use of Grouping in such cases will cause the derivation not to be Contiguity Preserving. While *ka* in (92) heads the embedded CP, it is not contained in the Spell-out domain of its complement, so the Contiguity relationship between it and scrambled *wh*-phrase must be preserved.

(92) Scrambling across an NPI blocked

- *Nani-o dare-mo [John-ga ____ katta-ka] sira-nakatta
what-ACC anybody John-NOM bought-Q know-NEG.PAST

Intended: 'No one knew what John bought.'

Tanaka (1997)

Conversely, scrambling an NPI object to the left of an in-situ *wh*-phrase, as in (93a-b), is ungrammatical. In (93), the application of Grouping to satisfy Contiguity for the Agree relationship between the question particle and *wh*-phrase would destroy the prosodic structure in which Contiguity for the Agree relationship between the negative particle and NPI is satisfied.⁹ The derivation would therefore not be Contiguity Preserving, and is therefore ruled out.

(93) Scrambling across a *wh*-phrase blocked

- a. ?* LGB-sika Taroo-ga [dare-ga ____ yoma-nai-ka] siritagatteiru (koto)
LGB-FOC T.-NOM who-NOM read-NEG-Q want-to-know

'Only LGB, Taroo wants to know who read.'

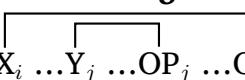
- b. ?* LGB-sika dare-ga [Hanako-ga ____ yoma-nai-to] itta-no
LGB-FOC who-NOM H.-NOM read-NEG-C said-Q

'Only LBG, who said that Hanako read?'

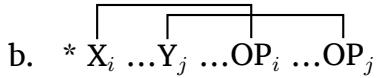
Tanaka (1997)

The approach laid out in this chapter thus derives a number of predictions made by the Linear Crossing Condition of Tanaka (1997), repeated in (94). The configuration in (94a) is allowed, since Grouping may be used to satisfy Contiguity for both dependencies; the application of Grouping in the case of (94a) to satisfy Contiguity for one dependency will not disrupt the prosodic phrasing for the other. Configurations like (94b) are not allowed, since Grouping to satisfy the dependency between OP_j and Y would destroy the prosodic structure in which OP_i and X satisfy Contiguity, thereby causing the derivation not to be Contiguity Preserving—the Hoji/Beck effect, and many of the other cases examined in this section are instances of (94b) configurations.

(94) Linear Crossing Constraint

- a. 
X_i ... Y_j ... OP_j ... OP_i

⁹ It will need to be the case in (93) that the embedded Neg head is considered part of the matrix Spell-out domain, in much the same way that the embedded complementizer is.



In other words, in left-active, right-headed languages, nested Agree relationships will be allowed, but crossing Agree relationships will not. In the former case, Grouping to satisfy the needs of the lower goal and probe will not disrupt the Contiguity relationship between the higher goal and probe. In the latter case, however, Grouping to satisfy the needs of the lower goal and higher probe will disrupt the Contiguity relationship between the higher goal and lower probe—so long as all probe-goal relationships are contained in the same phase.

3.3.7 Recap

In this section, we investigated a number of additional predictions made by the theory of Hoji/Beck effects proposed in this chapter. We saw that the theory was correctly able to capture a number of facts that other theories fail to. First, we saw that the theory correctly predicts that Hoji/Beck effects arise in sentences without *wh*-phrases, so long as two of the elements in question display the hallmarks of Grouping, and the structurally low phrase is associated with the structurally high head. Second, we saw that scrambling of *wh*-phrases could feed intervention, just in cases where the landing site of the *wh*-phrase is *above* the canonical intervener. In such cases, the head licensing the *wh*-phrase appears to the left of the head licensing the intervener, scrambling thus creates a configuration in which Grouping to satisfy the intervener will disrupt Grouping to satisfy the *wh*-phrase. Then, we saw that embedding the intervention configuration causes the effect to disappear when the *wh*-phrase continues to take matrix scope. In such cases, the head and tail of the NPI chain are not contained in the phase that Grouping to satisfy Contiguity between C and the *wh*-phrase takes place—as a result, the prosodic structure in which Contiguity between the NPI and negation was satisfied may be safely destroyed.

3.4 A variation on Japanese and Korean

In this section, we will examine Mongolian, a language similar in many ways to Japanese and Korean. It is a scope-rigid SOV language with *wh*-in-situ; in the terms of the theory developed in this chapter, it is a left-active, right-headed language. We will see that Mongolian presents two puzzles for LF theories of the Hoji/Beck effect. The first puzzle has to do with a difference between the semantic import of scrambling in Mongolian, in contrast to Japanese and Korean, and how this interacts with the Hoji/Beck effect. In Mongolian, contrasting with Japanese and Korean, scrambling does not have an effect

on quantifier scope—for LF theories of the Hoji/Beck effect, this would lead us to expect scrambling not to ameliorate the Hoji/Beck effect, since scrambling repairs the effect in Japanese and Korean by dint of altering scopal relationships. Nevertheless, scrambling of a *wh*-phrase to the left of an intervener ameliorates the Hoji/Beck effect in Mongolian.

The second puzzle has to do with the set of elements that trigger the effect. We will see that some elements that clearly evoke focus alternatives in the semantics do not trigger the effect, whereas others do. Crucially for the account at hand, the elements that do not trigger the effect do not display the hallmark of Grouping in the language, whereas the elements that do trigger the effect do display this hallmark.

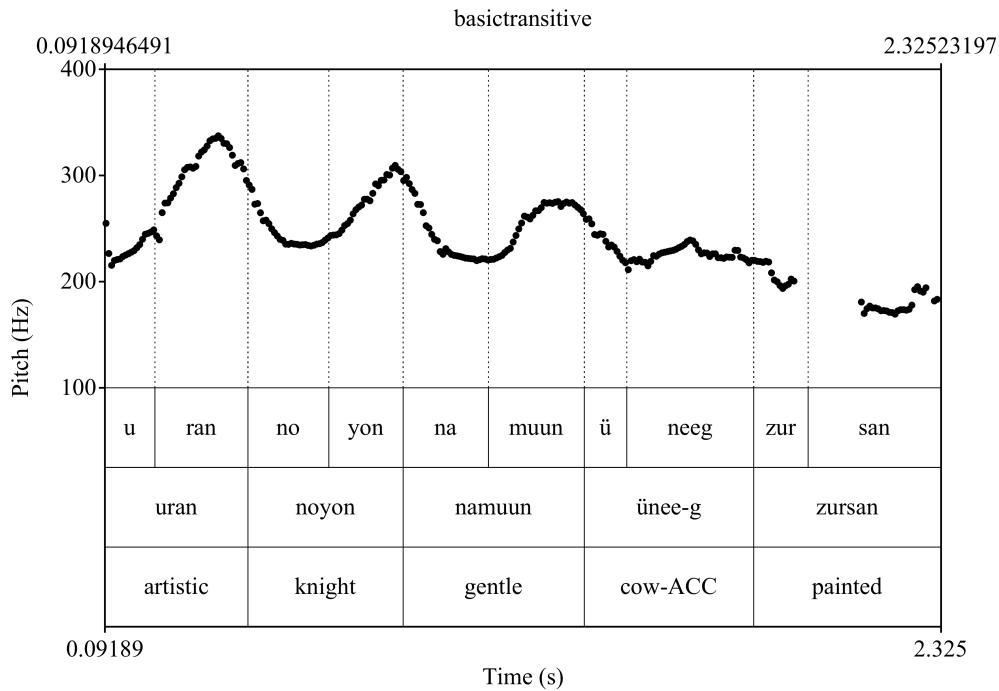
An examples of a transitive sentence in Mongolian is shown in (95). As we see by the relative position of the tense marker to the verb and case marker on the object, heads in Mongolian appear to go on the right. Mongolian is a language with predictable stress at the word level, in all of the words in (95) stress is predicted to appear on the ultimate syllable—stress in Mongolian is marked by a pitch excursion; it is a pitch-accent language. In declarative transitive sentences, there appears to be a process of downdrift, as each pitch accent in the clause is realized at a successively lower level than the one before it. The test proposed in Richards (2017c) suggests that Mongolian is a language with prosodic activity on the left, since, in a NP consisting of two words, the one on the left is more prominent than the one on the right.¹⁰

(95) Transitive Mongolian sentence

¹⁰ The idea behind this test is that ‘prosodic activity’ correlates with where languages place prominence within their prosodic constituents. If a language places prominence at the left edge of a prosodic constituent, we expect there to be ‘lopsided’ pitch peaks within that prosodic constituent—the leftmost element in that constituent receives a prosodic boost, on top of/above what we expect from declination, a general, perhaps universal, process of F_0 declination that takes place over the duration of an utterance. If a language places prominence at the right edge of a prosodic constituent, we expect the pitch peaks within that constituent to be more or less equal—the rightmost element receives a prosodic boost, which should counteract the effect of declination, resulting in the rightmost element having a F_0 value roughly equivalent to that of the leftmost element.

- a. *uran noyon namuun üinee-g zur-san*
 artistic knight gentle cow-ACC paint-PST

‘The artistic knight painted the gentle cow.’



As expected for such a language, Mongolian allows *wh*-in-situ, as we see in (96). A *wh*-phrase in Mongolian may appear in-situ, or it may be scrambled to the left of the clause. In addition, like Japanese and Korean, there is a question particle which appears at the end of the clause in interrogative sentences.

(96) Mongolian allows *wh*-in-situ

- a. *uran noyon xeden namuun üneeg zursan bee*
 artistic knight how.many gentle cow-ACC drew Q

‘How many gentle cows did the artistic knight draw?’

- b. *xeden namuun üneeg uran noyon zursan bee*
 how.many gentle cow-ACC artistic knight drew Q

‘How many gentle cows did the artistic knight draw?’

Akin to Japanese and Korean, Mongolian allows scrambling, as we see in (97).

- (97) *namuun üinee-g uran noyon zur-san*
gentle cow-ACC artistic knight paint-PST

‘The artistic knight painted the gentle cow.’

In Japanese and Korean, as demonstrated in (98), scrambling of quantificational elements creates new scopal relationships.

- (98) a. *Dareka-ga daremo-o aishiteiru*
some-NOM everyone-ACC loves

‘Someone loves everyone.’

$*\forall > \exists$

- b. *Dareka-ga daremo-o aishiteiru*
some-NOM everyone-ACC loves

‘Someone loves everyone.’

$\checkmark \forall > \exists$ *Bao, Hasebe, and Maki (2015)*

Interestingly, as we see in (99), this is not the case for Mongolian. Scrambling of quantificational elements in Mongolian creates no new possibilities for scope.

(99) Scrambling does not alter scope in Mongolian

- a. *Tere rali-du yamar nige k um un k um un b uk un-i qara-jai*
that rally-at someone-NOM everyone-ACC see-PST

‘Someone saw everyone at the rally.’

$*\forall > \exists$

- b. **Tere rali-du k um un b uk un-i yamar nige k um un qara-jai*
that rally-at everyone-ACC someone-NOM see-PST

‘Someone saw everyone at the rally.’

$*\forall > \exists$ *Bao, Hasebe, and Maki (2015)*

Mongolian thus presents a good set of conditions to disambiguate theories of the Hoji/Beck effect that locate the cause of this effect at LF, and the theory developed in this chapter, which attributes the cause of the effect to PF malformedness. If LF theories of the effect are on the right track, we might expect scrambling of a *wh*-phrase across an intervener in Mongolian not to improve the acceptability of a sentence, since scrambling in Mongolian does not appear to have an effect on the interpretation of quantificational elements. If a PF theory of the effect is on the right track, we should expect scrambling of a *wh*-phrase across an intervener to improve the acceptability of a sentence—position in the prosodic structure is all that should matter.

As we see in (100), Mongolian does indeed exhibit the Hoji/Beck effect with focus sensitive markers like *even*; comparable to Japanese and Korean.

(100) ***Even* intervenes in Japanese and Mongolian**

- a. * *Taro-sae nani-o tabe-ta-no*
T.-even what-ACC eat-PST-Q

‘What did even Taro eat?’

Japanese

- b. * *uran noyon xiürtel yamar ünee-g zursan bee*
artistic knight even what cow-ACC paint Q

‘What cow did even the artistic knight paint?’

Mongolian

Likewise, as shown in (101), scrambling of the *wh*-phrase to the left of the intervener improves the status of the sentence in both Mongolian and Japanese.

(101) **Scrambling ameliorates the Hoji/Beck effect**

- a. *nani-o Taro-sae tabe-ta-no*
what-ACC T.-even eat-PST-Q

‘What did even Taro eat?’

Japanese

- b. *yamar ünee-g uran noyon xiürtel zursan bee*
what cow-ACC artistic knight even paint Q

‘What cow did even the artistic knight paint?’

Mongolian

This similarity is unexpected under LF theories of the Hoji/Beck effect—scrambling in Mongolian does not have an effect of the semantics of a sentence, in contrast to Japanese, and therefore should not ameliorate LF malformedness. However, for the theory presented in this chapter, we expect this similarity. Scrambling of the *wh*-phrase allows both the *wh*-phrase and focus marked element to satisfy Contiguity, regardless of the effect on interpretation, or lack thereof.

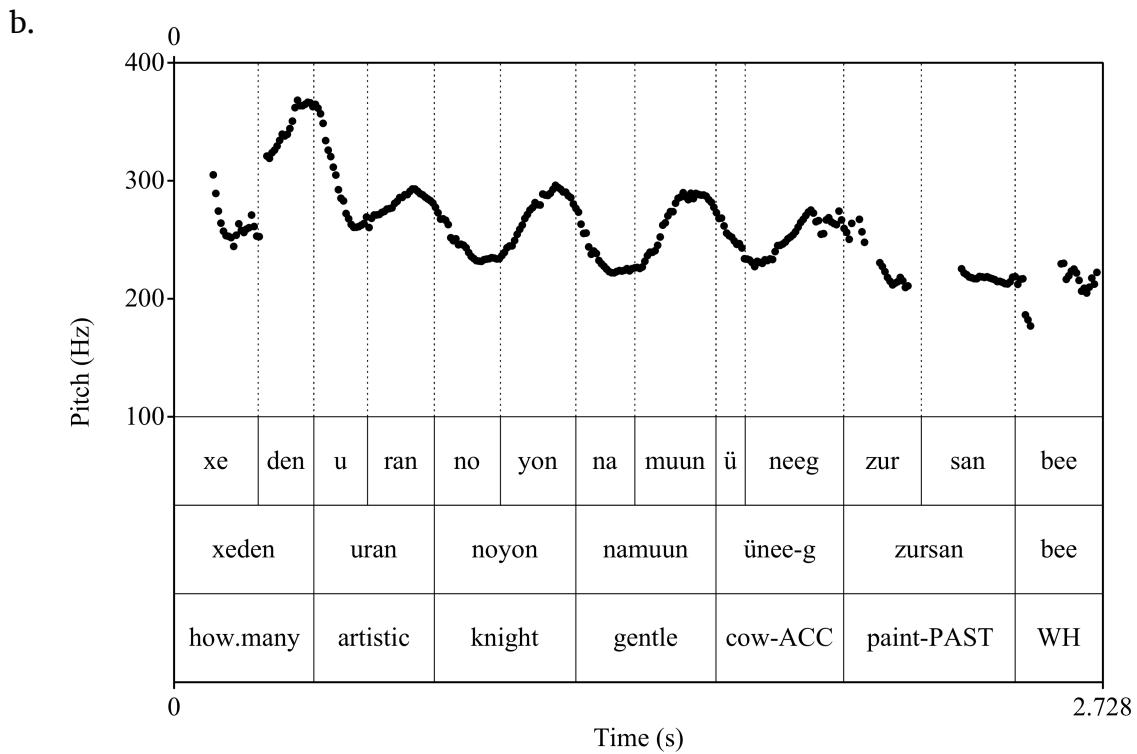
We will turn now to the second puzzle posed by languages like Mongolian—that of cross-linguistic variability in the set of interveners. In Japanese and Korean, we saw that in-situ *wh*-phrases displayed a hallmark of Grouping: something happened to the prosodic structure along the span of the sentence bookended by the *wh*-phrase and question particle. As we see in the subject question in (102a-b) and the object question in (102b-c), Mongolian appears also to display a hallmark of Grouping, although it differs in form from

Japanese and Korean. In the examples in (102), pitch accents following the *wh*-phrase are compressed in comparison to those in (100). The *wh*-phrase appears to receive a pitch boost, as in Japanese and Korean. Furthermore, the pitch accents are all realized at approximately the same level: the process of downdrift that occurs in declarative sentences vanishes along the span of Grouping.

(102) ***wh*-questions display the hallmark of Grouping**

- a. [*xeden uran noyon*] [*namuun ünee-g*] *zursan bee*
 how.many artistic knights gentle cow-ACC paint Q

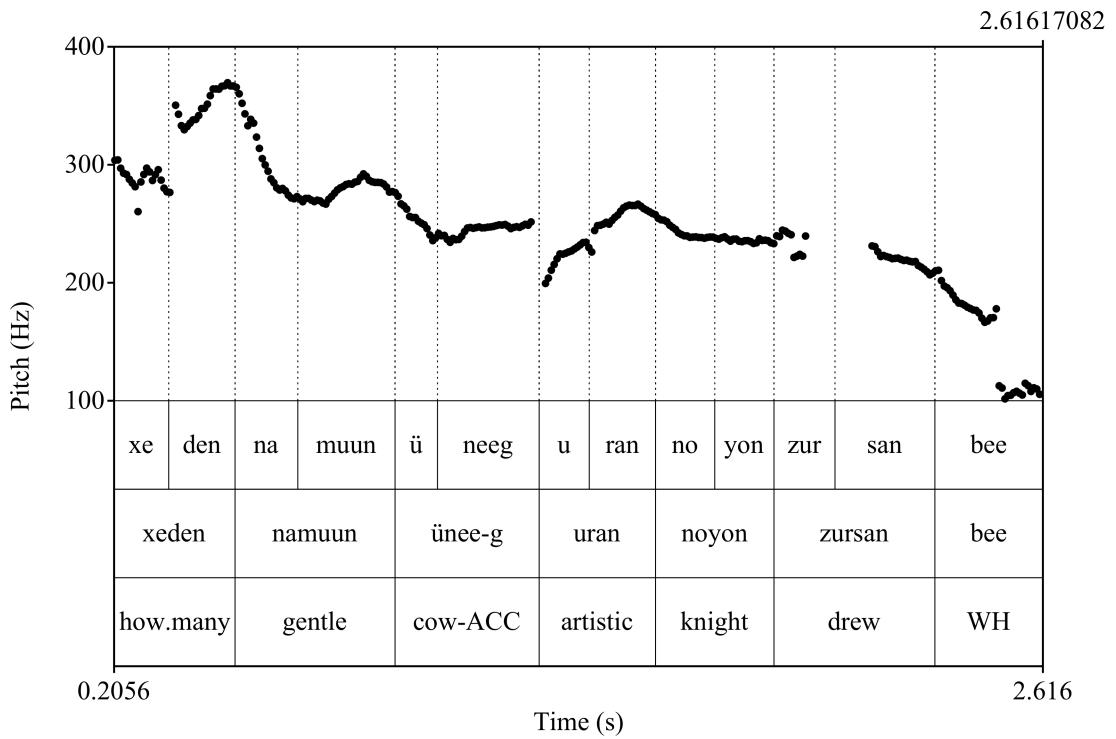
'How many artistic knights painted the gentle cow?'



- c. [*xeden namuun ünee-g*] [*uran noyon*] *zursan bee*
 how.many gentle cow-ACC artistic knight drew Q

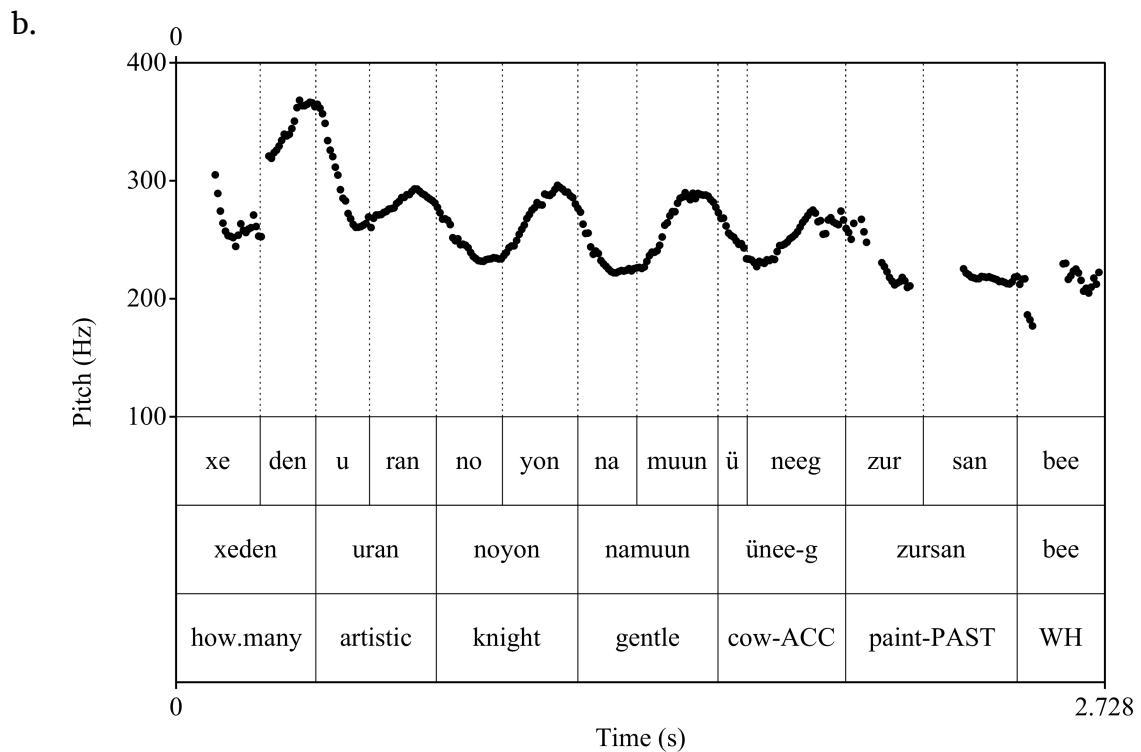
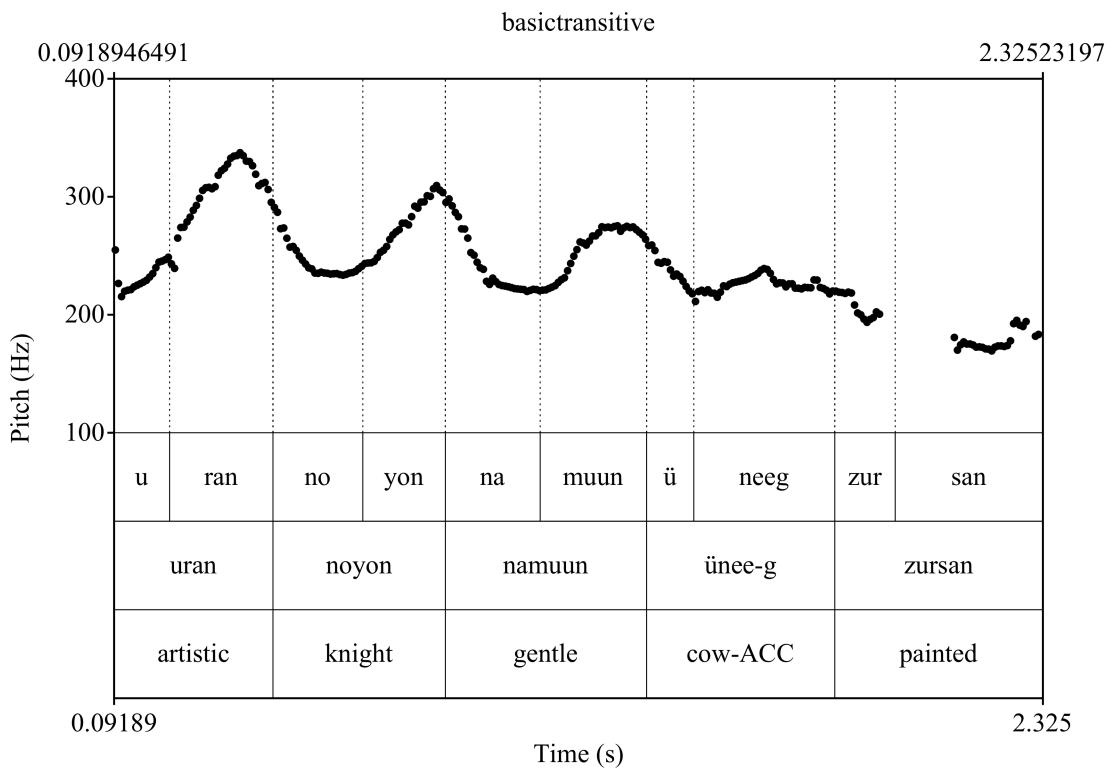
'How many gentle cows did the artistic knight draw?'

- d.



Compare, for instance, the pitch track for (102a) in comparison with a comparable transitive declarative sentence. Both pitch tracks are repeated in (103). In (103a), a transitive sentence without focus or a *wh*-element, we see a steady effect of downdrift throughout the sentence. Compare, for instance, the pitch peaks on *noyon* and *ünee-g*; the apex of the former is 310hz, whereas the apex of the latter is 239hz. This contrasts with the *wh*-question in (103b), where the pitch peaks on *noyon* and *ünee-g* are of roughly the same height; the apex of the former in (103b) is 296hz and the apex of the latter is 276hz. In other words, in the case of (103a), the ratio of the pitch peak on *noyon* to the pitch in the pitch peak on *ünee-g* is 1.3; whereas in the case of (103b), the ratio of the pitch peak on *noyon* to the pitch in the pitch peak on *ünee-g* is 1.07.

(103) a.



We can account for this effect with the following span marking rule.

(104) **Mongolian span marking rule:**

If a phonological phrase ϕ dominates an element bearing [wh] or [foc], downdrift is suspended in ϕ .

In Japanese, as we have seen, the presence of focus particles on nominals to the left of an in-situ *wh*-phrases is not allowed—focus sensitive particles can trigger the Hoji/Beck effect given the proper configuration. We saw before why this was the case: Grouping to satisfy the needs of the Agree relationship between the in-situ *wh*-phrase and Q particle would destroy the prosodic structure in which the focused phrase satisfies Contiguity for the operator that Agrees with it. Derivations of the sentences in (105) cannot be Contiguity Preserving, and are therefore banned.

(105) **Focus sensitive operators intervene in Japanese**

- a. * *Taro-sae nani-o tabe-ta-no*
T.-even what-ACC eat-PST-Q

‘What did even Taro eat?’

- b. * *Taro-dake nani-o tabe-ta-no*
T.-only what-ACC eat-PST-Q

‘What did only Taro eat?’

Mongolian, interestingly, displays a split in these terms. *even* is a trigger for the Hoji/Beck effect, as we see in (106a). However, *only* is not such a trigger, as we see in (106b).

(106) **Not all focus sensitive operators intervene in Mongolian**

- a. * [*uran noyon xiirtel*] [*yamar ünee-g*] *zursan bee*
artistic knight even what cow-ACC paint Q

‘What cow did even the artistic knight paint?’

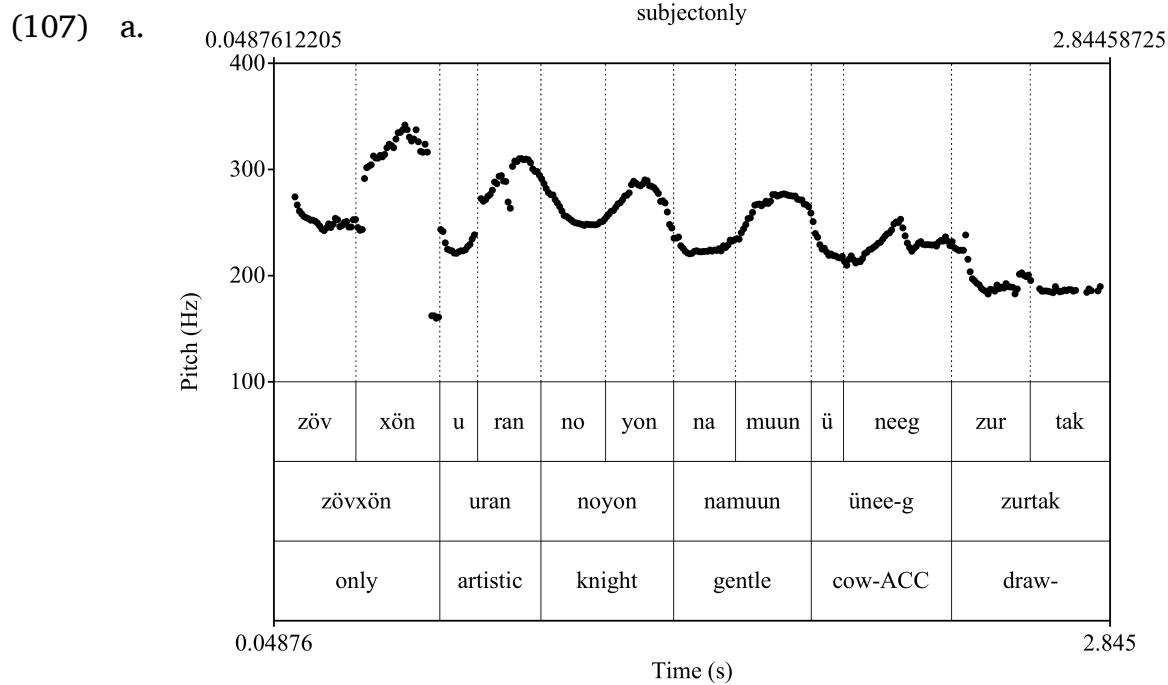
- b. [*zövxöng uran noyon*] [*yamar ünee-g*] *zursan bee*
only artistic knight what cow-ACC paint Q

‘What cow did only the artistic knight draw?’

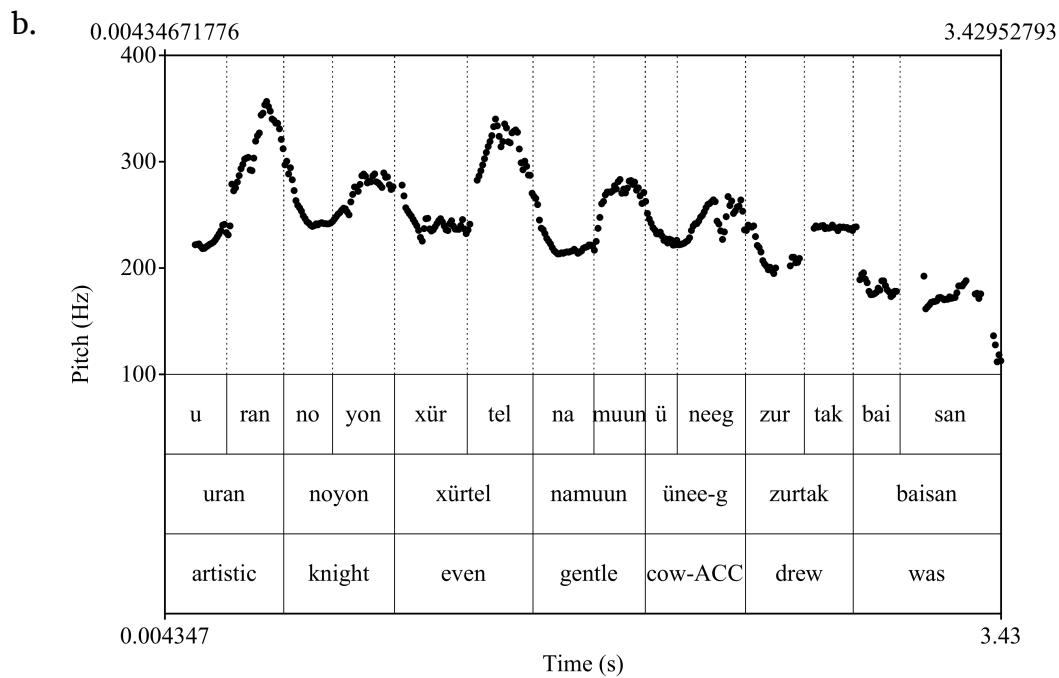
If the theory presented in this chapter is on the right track, we expect a difference in the prosodic realization of sentences with *xiirtel* and sentences with *zövxöng*. The former should display after *xiirtel* the hallmark of Grouping in Mongolian, which I have suggested is a combination of pitch compression and lack of downstep. In contrast, the

latter should not display the hallmark of Grouping after *zövxöng*. If *xürtel*, but not *zövxöng*, is licensed through Grouping, then only *xürtel* should be a trigger of the Hoji/Beck effect. As demonstrated in (107), this expectation is borne out. In (107a), we see a sentence with *zövxöng* associated with the subject. There is no particular pitch boost on *zövxöng*, and the pitch peaks associated with each word slowly decline as the sentence proceeds from left to right. In (107b), we see a sentence with *xürtel* associated with the subject. *xürtel* receives a pitch boost, consistent with elements that must respect Contiguity in the language.

Furthermore, the pitch peaks of the words following it appear to be relatively level when compared with those in (107a). Consider, for instance, the pitch peaks of *uran* and *namuun* in (107a) with the pitch peaks of *noyon* and *namuun* in (107b). Both are separated from each other by one phonological word. The pitch peaks of *uran* and *namuun* in (107a) are different: *uran* is clearly higher than *namuun*. The ratio of the first pitch peak to the second is 1.12 in this case. In contrast, the pitch peaks of *noyon* and *namuun* in (107b) are roughly identical: *noyon* is not clearly higher than *namuun* in this case, rather, they are of roughly the same height. The ratio between the two is only 1.07. Similarly, there is a marked decline between *namuun* and *iinee-g* in (107a), but not in (107b). The ratio between the two is 1.15 in the first case, but only 1.02 in the second. In other words, we see that *xürtel*, but not *zövxöng*, displays the hallmark of span-marking in Mongolian.



‘Only the artistic knight painted the gentle cow.’

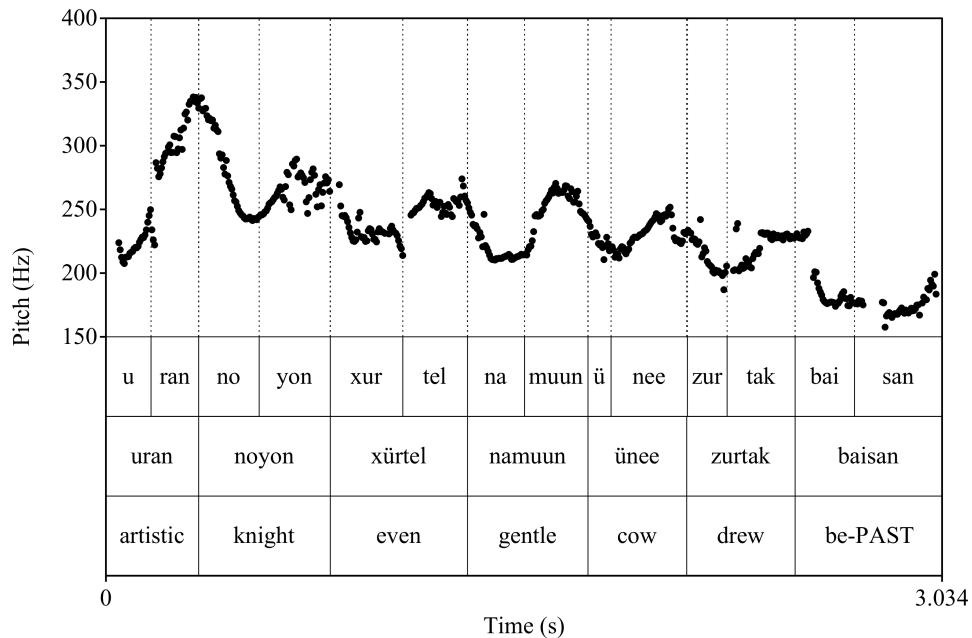


‘Even the artistic knight painted the gentle cow.’

Furthermore, the presence of span marking on in a sentence with *xürtel* is not contingent on there being a pitch boost on *xürtel*. As we see in the sentence in (108a), *xürtel* need not receive a pitch boost. In these cases too, the pitch peaks of each word after the first are roughly identical, comparable to sentences in which the subject is a

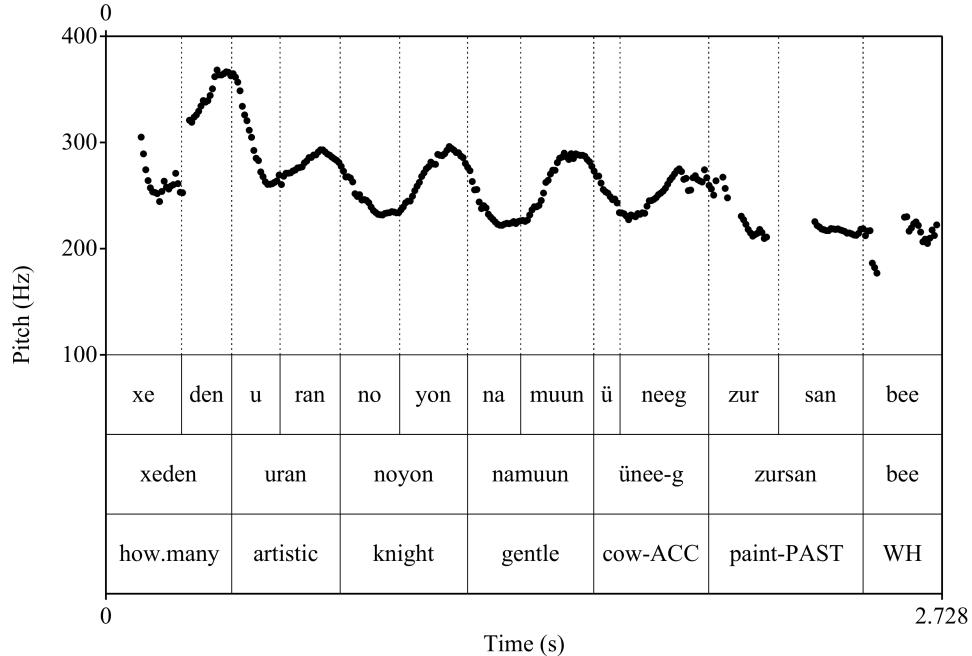
wh-phrase, as in (108b). For instance, the ratio between *uran* and *noyon* in the first case is 1.07, and it is 1.05 in the second case.

(108) a.



'Even the artistic knight painted the gentle cow.'

b.



'How many artistic knights painted the gently cow?'

Note that the difference between *even* and *only* with respect to intervention effects does not reduce to a difference between prenominal and postnominal elements. Consider

(109)—we see that universal quantifiers in Mongolian are post-verbal, but do not trigger an intervention effect. Note also the difference in the post-subject domain between (108) and (109b). In (108), there is the ‘flat’, monotonous prosodic contour that appears to trigger the intervention effect. In (109b/c), in contrast, there is the declining, non-monotonous prosodic contour, comparable to (108a), which does not appear to trigger the effect. Note, for instance, that there is a noticeable pitch declination between *oyutan-t* and *ünee-g*; the apex of the pitch peak on the former is at 312hz, and the apex of the pitch peak on the latter is at 248hz—this is almost identical to the decline in pitch between *noyon* and *unee-g* in a transitive sentence like that in (109d). The ratio of the two relevant pitch peaks in the (109b/c) case are 1.25, and in the (109d) case the ratio of the two relevant pitch peaks is 1.29.

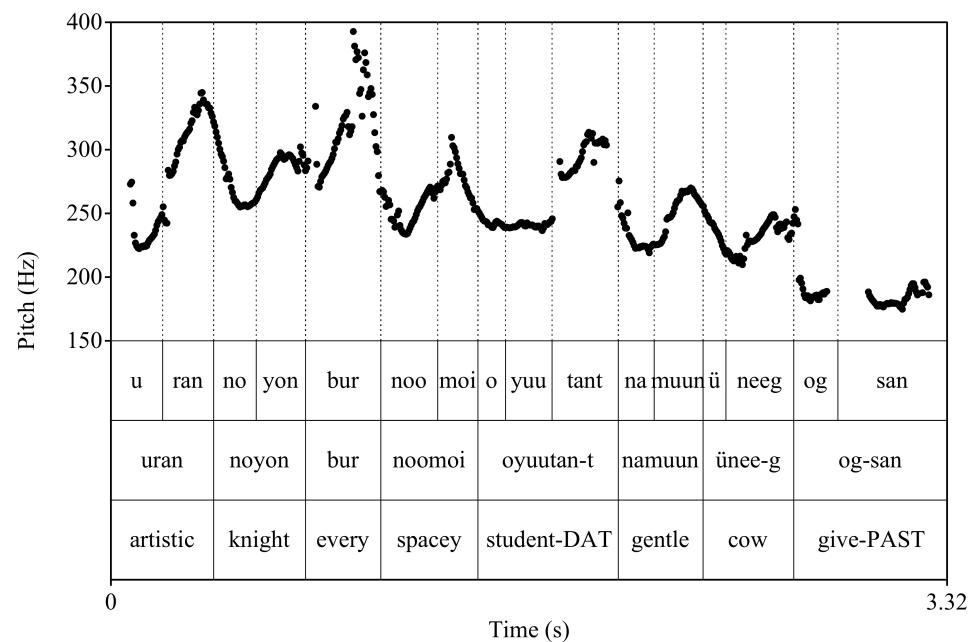
- (109) a. [*uran noyon bur*] [*yamar ünee-g*] *zursan bee*
 artistic knight every how many cow-ACC paint Q

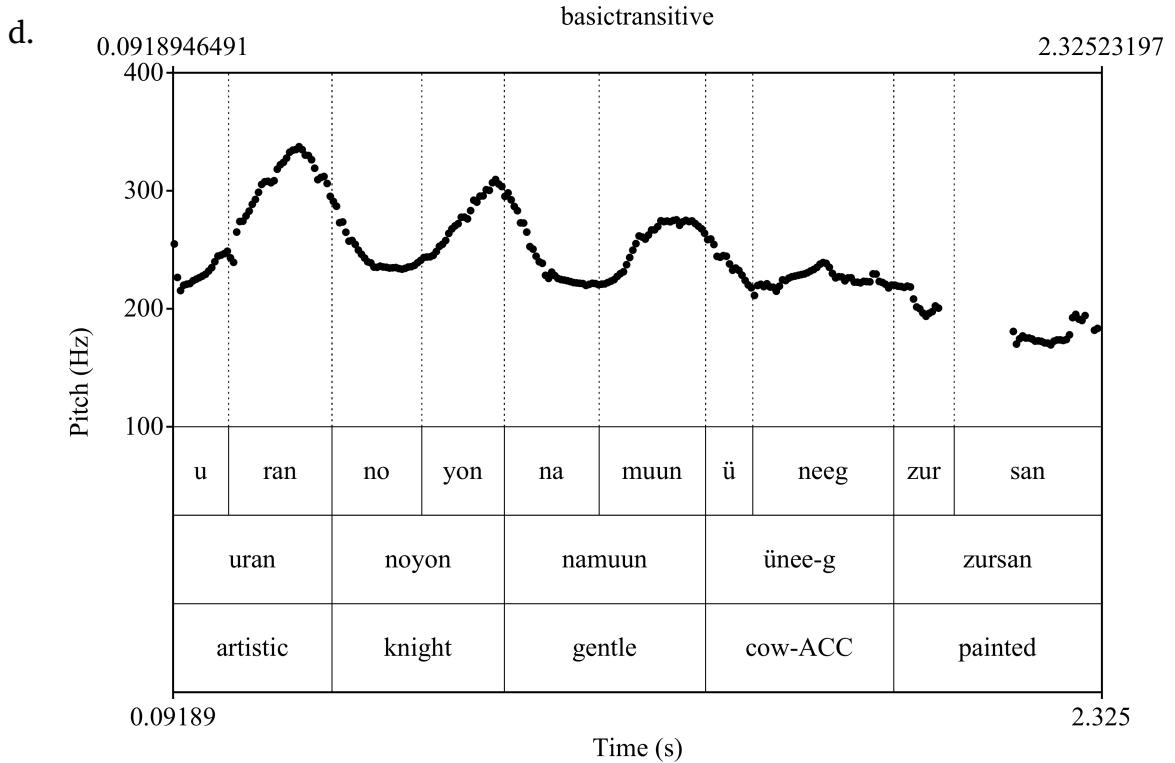
‘How many cows did every artistic knight paint?’

- b. [*uran noyon bur*] [*noomoi oyutan-t*] [*namuun ünee-g*]
 artistic knight every spacy student-DAT gentle cow-ACC
ogsan
 give

‘Every artistic knight gave a spacy student a gentle cow’

c.





We have just seen that Mongolian displays a difference in the prosody of sentences with operators that are commonly assumed to be triggers of the Hoji/Beck effect, and that whether or not an operator is a trigger for the effect appears to correlate with whether or not it has an effect on the prosody of the sentence. If the analysis proposed is on the right track, this reflects a difference in the syntactic structures associated with modifiers like *xürtel* on the one hand and modifiers like *zövxöng* on the other. More specifically, it appears to be the case that the former enter into an Agree relationship, which triggers the application of Grouping and concomitant prosodic alternation, but the latter do not. We have also seen that in-situ *wh*-phrases trigger a prosodic change comparable to modifiers like *xürtel*, suggesting that in-situ *wh*-phrases are indeed licensed through Grouping, as in Japanese and Korean. The contrast in grammaticality between sentences like those in (110) is captured straightforwardly by the theory proposed in this section. In (110a), the Contiguity relationship constructed to satisfy the needs of the subject containing *xürtel* and the head that Agrees with it is disrupted by Grouping of the object and *bee*—Grouping, given such a configuration, will destroy the ϕ in which the *xürtel*-marked phrase was Contiguity-prominent, causing the derivation as a whole not to be Contiguity Preserving. In contrast, in (110b), the subject is not in a comparable Agree relationship; as a result, Grouping the object and *bee* together will not cause the derivation to fail to be Contiguity Preserving.

- (110) a. *[*uran noyon xürtel*] [*yamar ünee-g*] *zursan bee*
 artistic knight even what cow-ACC paint Q

‘What cow did even the artistic knight paint?’

- b. [*zövxöng uran noyon*] [*yamar ünee-g*] *zursan bee*
 only artistic knight what cow-ACC paint Q

‘What cow did only the artistic knight draw?’

These facts pose a particular challenge for semantic approaches to the Hoji/Beck effect, such as those proposed in Beck (2006). For these approaches, focussing elements such as *xürtel* and *zövxöng* are expected to be cross-linguistically stable as interveners, since they evoke focus alternatives in their semantics. The data in (110) are therefore doubly unexpected: in Mongolian, clearly, some elements that evoke focus alternatives in their semantics trigger the effect, but others do not. Likewise, it would be difficult for syntactic approaches to the effect to account for this difference in a non-arbitrary fashion. The theory presented in this chapter is thus superior to these accounts, since it is able to predict whether or not a potential trigger of the effect will actually trigger the effect: if such an element displays the hallmarks of Grouping, like *xürtel*, then it should trigger the Hoji/Beck effect; if such an element does not, like *zövxöng*, then it should not trigger the effect.

Supporting evidence for the theory of the Hoji/Beck effect proposed in this chapter, which relies crucially on the notion of prosodic locality, comes from the interaction of interveners and *wh*-verbs in Mongolian. As we see in (111), Mongolian has an interrogative verb, which may behave as an unaccusative, unergative, or transitive verb, but not as a ditransitive verb.

(111) Mongolian has interrogative verbs

- a. *buuts yaa-sem-bee*
 dumpling what.do-PST-Q

‘What happened to the dumplings?’

- b. (?) *Bat yaa-sem-bee*
 B. what.do-PAST-Q

‘What did Bat do?’

- c. *Bat buuts-ig yaa-sem-bee*
 B. dumplings-ACC what.do-PST-Q

'What did Bat do to the dumplings?'

- d. **Bat nom-ig dorj-it yaa-sem-bee*
 B. book-ACC D.-DAT what.do-PST-Q

Intended: 'Bat *what*-ed the book to Dorj?'

Speaker comment: "Dorj-it isn't connected to anything"

In this section, I've argued that Grouping is utilized to satisfy Contiguity in left-active, right-headed languages like Mongolian, as an alternative to syntactic movement. Grouping is subject to a restriction: it may not occur if it breaks another Contiguity relationship that was formed in the same phase. This is the core of the account of the Hoji/Beck effect laid out in this chapter. However, suppose that the question complementizer and *wh*-element were to become prosodically local through some method other than Grouping—through whatever process takes place to turn a series of affixal heads into a single prosodic word. This would presumably not involve Grouping, and therefore would not be subject to the same restriction that Grouping is subject to. In other words: we expect that the process of word formation in (111) will be able to create a structure in which the *wh*-verb satisfies Contiguity for the question particle without the need for Grouping; as a result, the *wh*-verb should not be subject to the Hoji/Beck effect.

As we see in (112), this expectation is borne out. The *wh*-verb in Mongolian should be—and is—able to co-occur with focused elements, even with *xürtel*, which displays the signature of Grouping.

(112) The interrogative verb is not subject to intervention

- a. *Bat xürtel yaa-sem-bee*
 B. even what.do-PST-Q

"Even Bat, what did he do?"

- b. *Tsuhung Bat yaa-sem-bee*
 only B. what.do-PST-Q

'What did only Bat do?'

- c. *Bat yaa-əx-gui-bee*
B. what.do-NEG-IRR-NEG-Q

‘What didn’t Bat do?’

Speaker comment: “There are many things he might not have done.”

In the previous parts of this chapter, I proposed a theory of the Hoji/Beck effect which is rooted in the prosody. This theory rules out crossing Agree relationships, at least in left-active, right-headed languages, like Japanese, Korean, and Mongolian. I suggested that the presence of ‘span’ marking between phrases in a clause and the verbal complex can be used as a diagnostic for the presence or absence of Agree relationships. I showed that, in Mongolian, elements that trigger the effect have this ‘span’ marking, whereas elements that don’t mark the ‘span’ don’t trigger the effect. I further noted that the theory leads us to expect that *wh*-elements which might satisfy Contiguity with the interrogative complementizer without the use of Grouping, such as the Mongolian interrogative verb, would not be subject to the Hoji/Beck effect, and showed that this expectation is indeed borne out.

3.5 Left-headed, right-active languages

In this section, we will examine two left-headed, right active languages—French and Kikuyu—and see that the Hoji/Beck effect arises in cases of *wh*-in-situ in these languages.¹¹ In French, we will see that the set of interveners is quite large, and how the theory developed in this section correctly predicts the appearance of the Hoji/Beck effect. In Kikuyu, we will see that the set of interveners is a subset of the possible interveners, and that the actual interveners in Kikuyu have a prosodic signature which the potential interveners, which do not trigger the effect, lack.

3.5.1 French

French has heads on the left, and prosodic activity on the right, as was established in chapter 1. As we see in (113), a number of syntactic tests suggest that prosodic activity is on the right in French.

(113) Syntactic tests for prosodic activity in French

¹¹ The discussion of Hoji/Beck effects in left-headed, right active in this chapter is quite restricted. We will discuss in further detail the distribution of in-situ *wh*-phrases in such languages in chapter 4.

a. **No left-edge restriction on pied-pipers:**

[*Des photos de qui*] *penses-tu que je devrais acheter?*
of.the photos of who think-you that I should

‘Pictures of whom do you think I should buy?’

b. **Allows adverbs between verb and object:**

Jean voit souvent Marie

J. sees often M.

‘John sees Mary often.’

c. **Disallows adverbs between verb and subject:**

**Jean souvent voit Marie*

J. often sees M.

‘Jean often sees Mary.’

Richards (2016, 2017a)

d. **Left-headed compounds**

poisson-épée

‘swordfish’; fish + sword

Selkirk (1986) establishes that a number of phonetic properties correlate with the right edge of prosodic constituents in French. Furthermore, the diagnostic for prosodic activity proposed in Richards (2017c) also suggests that prosodic activity in French is on the right.

As expected from such a language, French allows *wh*-in-situ, shown in (114).

(114) **French *wh*-in-situ**

T’as mangé quoi?
you-have eaten what

‘What have you eaten’

As we see in (115), there are many elements in French that cannot appear to the left of an in-situ *wh*-phrase, such as focus particles like only, negation, certain adverbs, and floated quantifiers.

(115) **French has the Hoji/Beck effect**

a. **Seul Jean aime quoi*
only Jean likes what

Intended: ‘What does only Jean like?’

- b. **Il ne mange pas quoi*
 he NE eats not what
 Intended: ‘What doesn’t he eat?’
- c. **Il fait souvent quoi le dimanche*
 he makes often what the Sunday
 Intended: ‘What does he often do on Sundays?’ *Hamlaoui (2010)*
- d. **Ils ont tous mangé quoi*
 they have all eaten what
 Intended: ‘What have they all eaten?’ *Zubizarreta (2003)*

Clefting the *wh*-phrase, in each case, improves the effect.¹²

(116) Clefting ameliorates the effect

- a. *Qu'est-ce que seul Jean aime*
 what-is-this that only Jean likes
 ‘What does only Jean like?’
- b. *Qu'est-ce qu'il ne mange pas*
 what-is-this that-he NE eats not
 ‘What doesn’t he eat?’
- c. *Qu'est-ce qu'il fait souvent le dimanche*
 what-this-is that-he makes often the Sunday
 ‘What does he often do on Sundays?’
- d. *Qu'est-ce qu'ils ont tous mangé*
 what-this-is that-they have all eaten
 ‘What have they all eaten?’

Hamlaoui (2010) notes that the class of interveners in French are all part of a particular set: namely, they are elements which attract stress—either obligatorily, in the case of particles which associate with focus, like *seul*, or preferentially, in the case of quantificational adverbs like *souvent*. In French, the assignment of stress is closely tied with prosodic

¹² See Boeckx (1999); Pesetsky (2000); Zubizarreta (2003); Vergnaud and Zubizarreta (2005); Hamlaoui (2010); Baunaz (2011) for more discussion of such contrasts.

phrasing; indeed, Féry (2001) suggests that sentential stress in French is suprasegmental, tied to the right boundaries of prosodic phrases rather than associating within the word proper. These two observations, taken in consideration together, suggest that the class of interveners induces prosodic rephrasing, comparable to the class of interveners in Japanese and Korean. We can treat the stress attracting property of interveners in French in much the same way—if they are to appear sentence medially and receive stress, they must be in an Agree relationship with a functional head in the verbal complex, which will trigger Grouping to render the intervener Contiguity-prominent. This rephrasing, in combination with a stress rule like that in (117), allows us to account for the prosodic properties of interveners in French.

(117) **French stress rule:**

Assign stress only to elements at the right edge of ϕ .

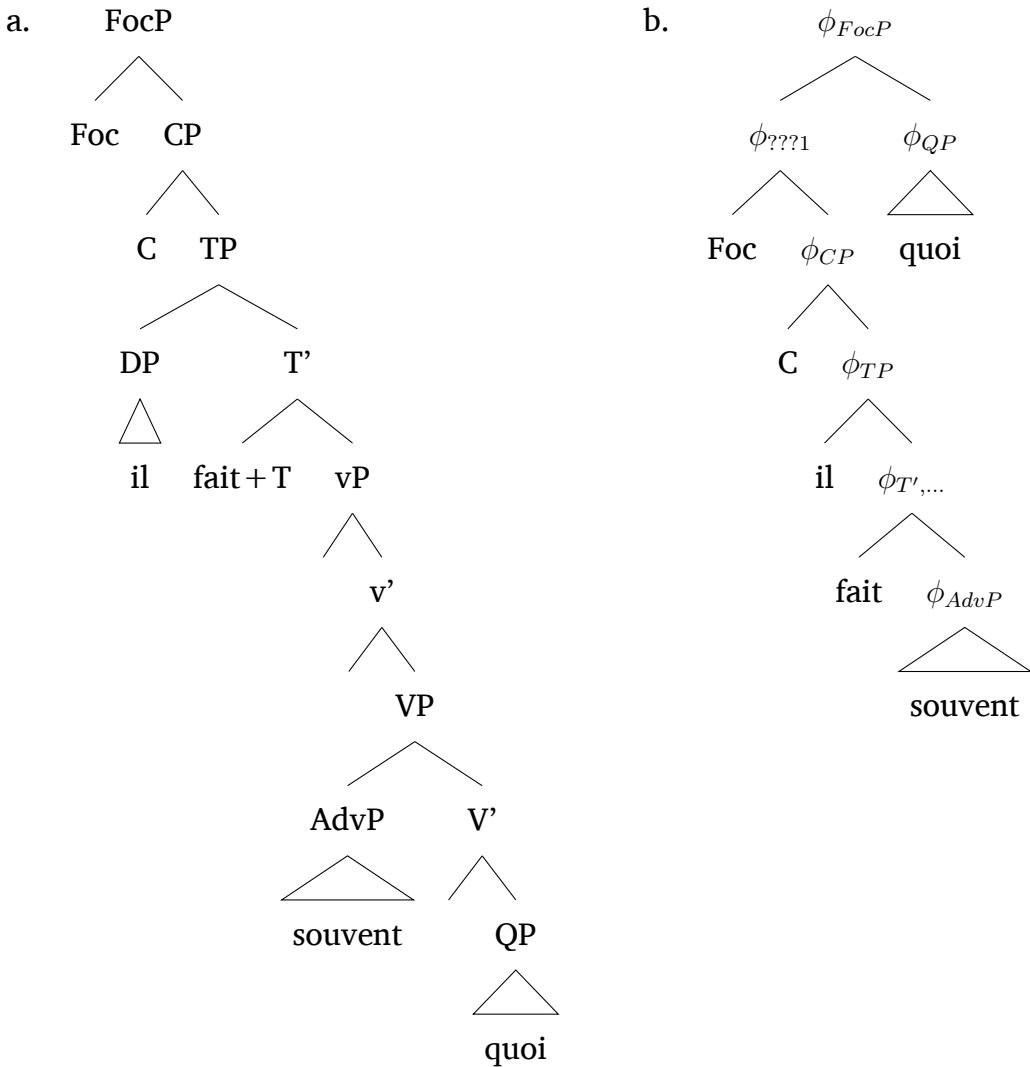
We have seen before that Japanese prefers nested dependencies comparable to those in (116), when a focus bearing element and *wh*-phrase co-occur in the same clause. Let's see how the theory we have built in this chapter predicts the acceptability of these sorts of dependencies to be conditioned by the directionality of heads, accounting for this difference between French and Japanese.¹³ We will take the ungrammatical example in (118) as an example. In the corresponding syntactic and prosodic structures in (119), Grouping has taken place, in order to render the focus bearing adverb, *souvent*, Contiguity prominent in a ϕ that contains Foc, the focus licensing head.

- (118) * *Il fait souvent quoi*
he makes often what

Intended: ‘What does he often do’

¹³ The French data in (116) appear to pose a problem for the LCC, as proposed in Tanaka (1997). Tanaka's theory would lead us to expect (116) to be grammatical for the same reason that they are grammatical in Japanese—the lines in (116) do not cross.

(119)



We might expect (119b) to be good on first glance—*souvent* is Contiguity-prominent in a ϕ that dominates it and its probe, namely, in $\phi_{???1}$. Likewise, *quoi* is Contiguity-prominent in a ϕ that dominates it and its probe, namely, in ϕ_{FocP} . Why, then, should we rule out (119b)? Recall our definition of Contiguity Preservation, given in (120).

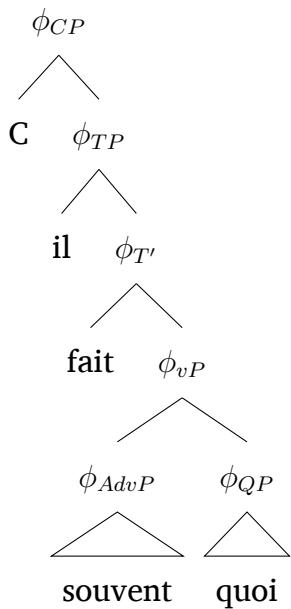
(120) ***Contiguity Preservation:***

2 of 2

- a. A Contiguity Domain D for a probe-goal pair $\langle P, G \rangle$ must be preserved in every spellout domain that contains both P and G .
- b. *Contiguity Domain:* A Contiguity Domain D is a phonological phrase in which the terminal elements are all reflexively c-commanded by P and/or G , and G satisfies Contiguity for P in D .

In (119b), the Contiguity Domain in which the *wh*-phrase satisfied Contiguity for C has been destroyed by Grouping—prior to Merge of Foc and Grouping to satisfy Contiguity between it *souvent*, the prosodic structure looked like (121). In (121), ϕ_{CP} was the Contiguity Domain for C and QP: QP satisfied contiguity for C in ϕ_{CP} , and ϕ_{CP} only contained terminal elements that were c-commanded either by C or by QP. In (119b), this domain has been destroyed as a result of Grouping; the derivational step in (119b) is not Contiguity Preserving, and therefore ruled out.

(121) **Representation prior to Merge of Foc**



The approach posited in this chapter can account for an interesting case of variability in the status of floated quantifiers as interveners in French, noted in Zubizarreta (2003). Zubizarreta notes that floated quantifiers like *chacun*, which resist being stressed, do not count as interveners, as we see in (122).

- (122) a. ?? *Ils devraient chacun inviter Pierre*
 they should each invite P.

‘They should each invite Pierre.’

- b. *A ton avis, ils devraient chacun inviter qui*
 in.your.opinion they should each invite who

‘In your opinion, who should they each invite?’

Zubizarreta (2003)

In this chapter, I have shown that there is a general ban on successive applications of Grouping, motivated by Contiguity and Contiguity Preservation. In left-headed, right-active languages, crossing applications of Grouping are not allowed, as Grouping will end up destroying the Contiguity domain for the leftmost goal in the configuration. Suppose that stress in (122a) is the reflex of an Agree relationship between Foc and *chacun*—or, more specifically, that the application of Grouping would create the prosodic structure necessary for stress to be assigned to *chacun*. The unacceptability of (122a) shows us that *chacun* is unable to enter into an Agree relationship with Foc. As a result, we should expect it not to count as an intervener, since it will not require Grouping to be licensed, as it is not in an Agree relationship. Since *chacun* cannot trigger Grouping, it will not cause the Contiguity-theoretic problem outlined above for the in-situ *wh*-phrase, and therefore will not be an intervener.

3.5.2 Kikuyu

This chapter has primarily focused on languages that have heads on the right and prosodic activity on the left. At the outset of this chapter, however, we saw that Bantu languages, canonically left-headed, right-active languages, seem to vary in terms of whether or not they display the Hoji/Beck effect. Some do, and some do not; furthermore, there is variability among these languages with respect to what will count as a trigger for this effect. In this section we will look at Kikuyu, and find that the language displays such variability. Crucially, as we will see, all of the elements that count as interveners trigger a difference in prosodic phrasing. Kikuyu is a Bantu language spoken primarily in Kenya. It canonically has an SVO word order, but allows *wh*-phrases to front. As we see in (123), it also allows *wh-in-situ*, as expected for a Bantu language, which we have generally seen to be left-headed languages with prosodic activity on the right.

(123) *Wh-in-situ* in Kikuyu

- a. *n̄ī k̄ī Njeri a-k̄ū-rug-a*
FOC what Njeri 1SM-sc fut-cook-sc fv

‘What will Njeri cook?’
- b. *Njeri a-k̄ū-rug-a k̄ī*
Njeri 1SM-sc fut-cook-sc fv what

‘What will Njeri cook?’

As we see in (124), the set of triggers for the Hoji/Beck effect in Kikuyu are unlike those in Japanese. Focused particles and universal quantifiers, for instance, may appear in the canonical subject position, to the left of the verb.¹⁴

(124) No Hoji/Beck effect with *only* or quantifiers

- a. *o = mündū w-o-the o-on-ir-e kī̄ rū-cinī*
O = person 2-all SM-see-PFV-FV what 11-morning
‘What did each and every person see this morning?’
- b. *no Abdul tu w-on-ir-e kī̄ rū-cinī*
NO A. only SM-see-PFV-FV what 11-morning
‘What did only Abdul see this morning?’

However, as we see in (125), there are certain elements, namely verbal negation and a polarity particle that might be verum focus [Yuan (2017)], that appear to trigger the Hoji/Beck effect.¹⁵ *Even* appears to trigger the effect as well, as we see in (125c); the sentence in (125c) requires the presence of *nī̄*, which is generally not obligatory.

(125) Hoji/Beck effect with polarity particles and *even*

- a. **Abdul nī̄-o-on-ir-e kī̄ rū-cinī*
A. FOC-SM-see-PFV-FV what 11-morning
‘What did Abdul definitely see this morning?’
- b. **Abdul nd-a-on-a kī̄ rū-cinī*
A. NEG-SM-see-FV what 11-morning
‘What did Abdul definitely not see this morning?’
- c. **o = na Abdul nī̄-o-o-on-ir-e kī̄ rū-cinī*
O = EVEN A. FOC-SM-see-PFV-FV what 11-morning
‘What did even Abdul see this morning?’

If the analysis provided in this chapter is on the right track, then we should expect that the particles in (125) should trigger a difference in prosodic phrasing in the clause, and that the set of potential triggers in (124) should not.

¹⁴ The subject in (124a) appears to trigger anti-agreement on the verb. See Baier (2017) for reasons why this might be the case.

¹⁵ Yuan (2017) reports that sentences like (125b) are acceptable. There appeared to be intra-speaker variation with respect to examples like (125b), since we had the same consultant.

Gjersøe (2015) notes that a number of words in Kikuyu are associated with a floating low tone, which is argued to be the cause of a process of downstep in the language. This placement of floating low tones has long been argued to be either motivated by the syntactic [Clements (1984)] or prosodic [Gjersøe (2015)] structure. We can thus use the application of downstep as a probe for prosodic structure in the language. I will follow Gjersøe (2015) in using a superscripted arrow that points downwards to denote a tone which has been subject to this process. There are a number of phonetic effects associated with downstep. The F0 of a downstepped tone is lower than the F0 of a regular tone; in addition, the F0 of all tones following a downstepped tone are also lowered—a H tone following a downstepped H tone will never be realized higher than the downstepped H tone; likewise, L tones following a downstepped H tone will be realized lower than L tones preceding a downstepped H tone. This can be seen in a comparison of the pitch tracks for (126a-b). In (126a), the subject is not a trigger of downstep, H tones in the verb are realized a step higher than L tones in the subject. Contrastively, in (126b), the subject is a trigger of downstep, H tones in the verb are realized slightly *lower* than L tones in the subject.

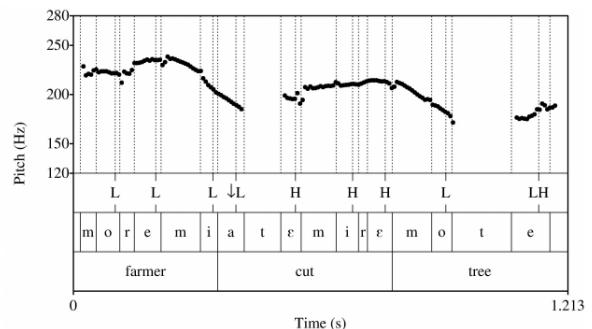
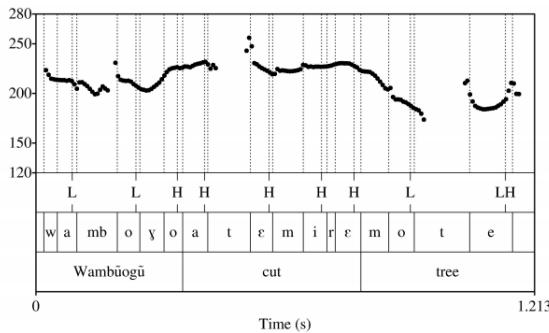
- (126) a. *wàmbòyó á-tém-ír-é* *mò-č↓*
W. SM-cut-PFV-FV 3-tree

‘Wambūgū cut a tree.’

- b. *mò-rèmì ↓á-tém-ír-é* *mò-č*
1-farmer SM-cut-PFV-FV 3-tree

‘The farmer cut a tree.’

c.



Interestingly, as we see in (127), the floating tone is not necessarily realized on the word immediately following one which bears such a floating tone. Rather, as argued in Gjersøe (2015), this floating low tone is aligned with the right edge of a ϕ , and is realized on the word immediately following that ϕ . In (127), the verb is lexically specified as an

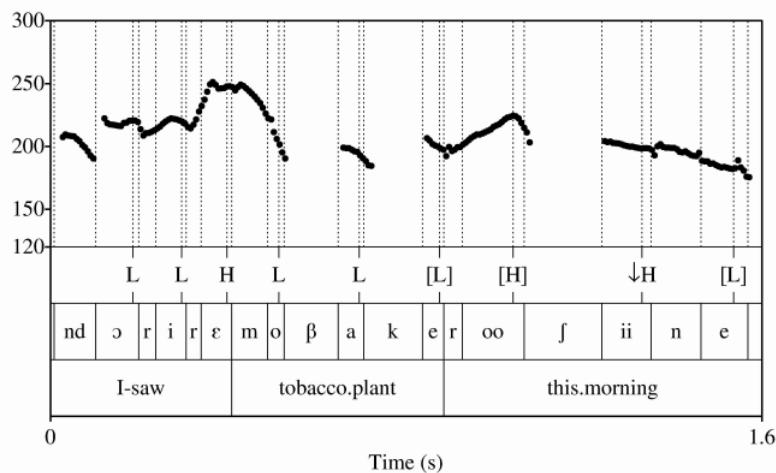
element that bears a floating L tone. However, as we see in the actual realization of the sentence, the L tone is realized on the final word in the sentence, as evinced by downstep of the tone on the second syllable of *ro:siínè*.

- (127) a. /ndòrìré(L) mobàkě ro:siínè/

(nd-òr-ìr-é mòbàkè)̣ (ró:siínè)̣
SM-see-PRF-FV 3-tobacco 11-morning

'I saw the tobacco plant this morning.'

b.



Interestingly, as claimed by Gjersøe (2015), there are at least two syntactic markers that appear to change the prosodic structure of sentences in Kikuyu, namely: the verum focus particle *nī*-, and the negation particle *ndi*—which are the two elements that trigger downstep in Kikuyu. As we see in (128), for instance, sentential negation requires the verb to be followed by a prosodic boundary, rather than the object selected by the verb.¹⁶ As a result, downstep surfaces not on the adjunct, as in (127), but on the direct object.

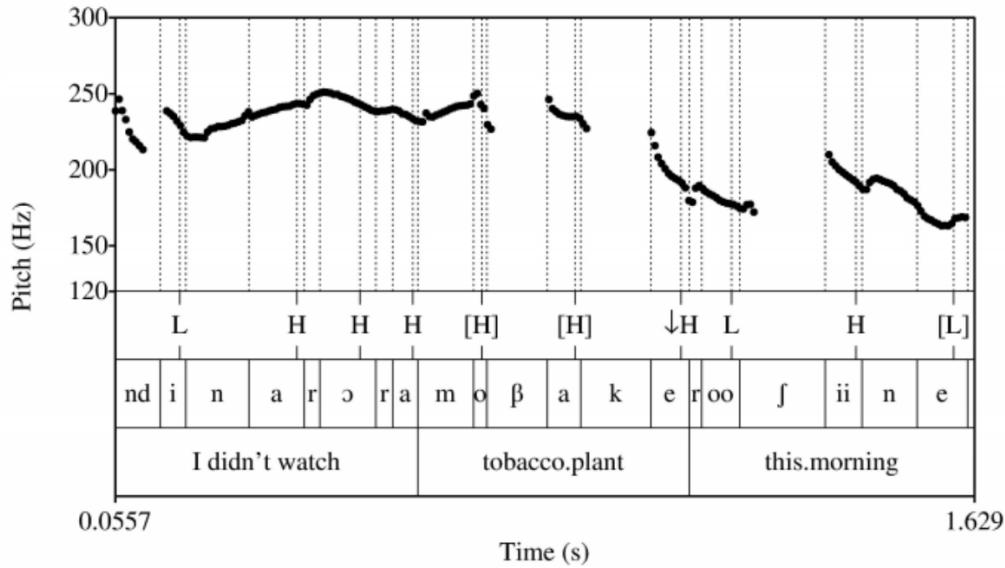
- (128) a. /ndìnárórá moβàkě ro:siíně/

(n-ndi-ná-rór-á)̣ mó-βàk̄ě rò:-siíně
SM-NEG-STAT-watch-FV 3-tobacco 11-morning

'I didn't watch the tobacco plant this morning.'

b.

¹⁶The tones realized as L in (127) are realized as H in (128). When downstep is realized on a non-initial syllable in a given word, all L tones in the word preceding that syllable are deleted and replaced with H tones [Clements (1984); Gjersøe (2015)].



Gjersøe (2015) doesn't say whether or not a similar effect emerges with *n̫*. If the analysis presented in this section is on the right track, we would expect it to. And indeed, as seen in (129), it does appear to be the case that *n̫* triggers a similar process of rephrasing.¹⁷ Phonological alternations between the examples in (129) that suggest this is the case. Recall that all L tones in a word are converted into H tones when they precede a downstepped syllable also in the word. In (129a-b), we see that the initial syllable of /mbàkè/ is L; in contrast, in (129c-d), we see that the intial syllable of /mbàkè/ is H. The inverse is true of the initial syllable of /ro:síñè/, in (129a-b), it is H, whereas in (129c-d) it is L, this suggests that the process of L→H conversion takes place in /ro:síñè/ in the (129a-b) examples, but not in the (129c-d) examples.

- (129) a. /Àbdúl ó:níré mbàkè ro:síñè/

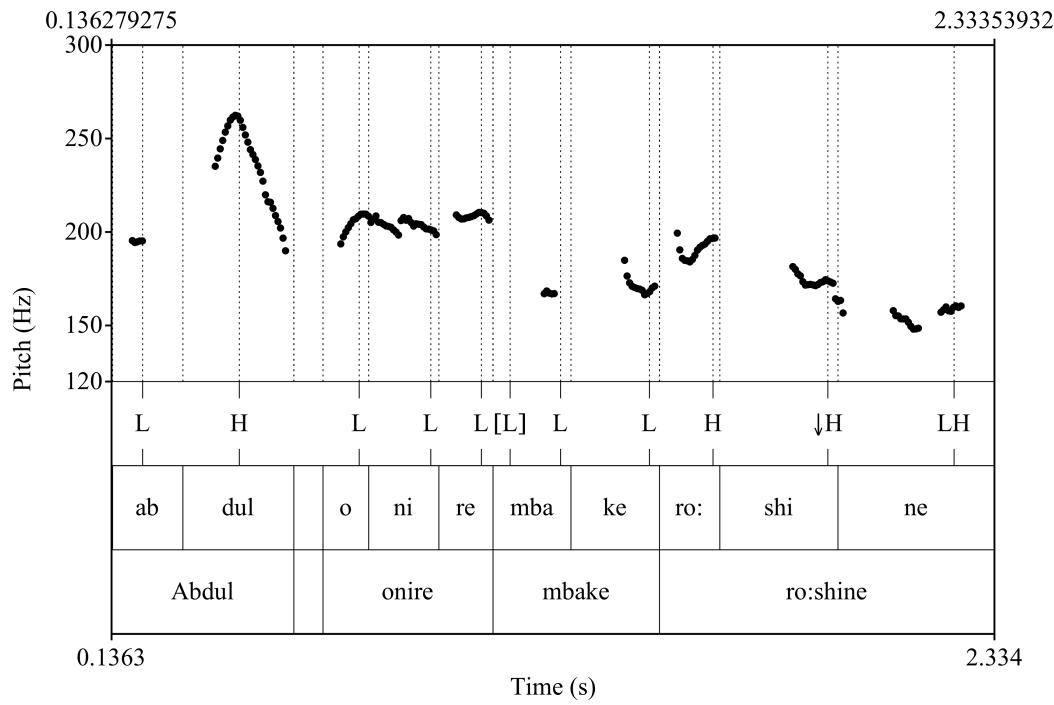
Abdul (ó-ón-ír-é mbàkè)φ (ró:↑síñè)φ

A. SM-see-PRF-FV 3-tobacco 11-morning

'Abdul saw the tobacco plant this morning.'

b.

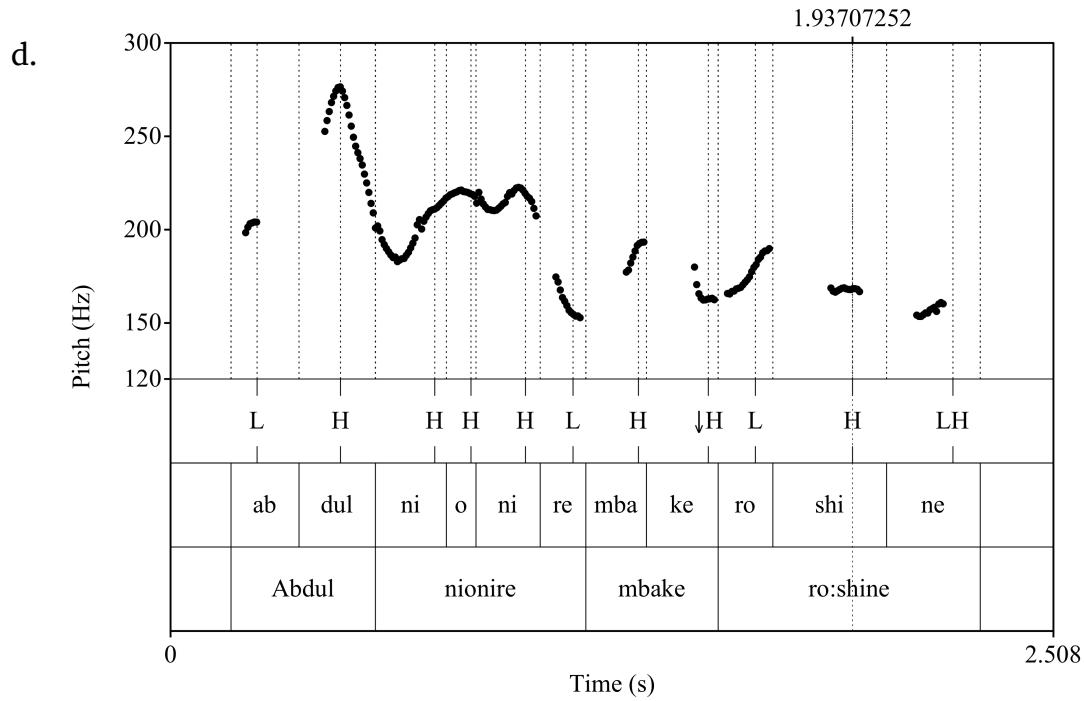
¹⁷ The speaker I worked with appears to differ from Gjerøe's in several respects. The class 3 prefix for the speaker I worked with tends to be realized without a vowel. In addition, the speaker I worked with appears to have *òn* instead of *òr* as the verb stem for 'to see'—however, Clements and Ford (1981) obtain similar results to Gjersøe with a comparable speaker. This is doubtlessly a result of dialectal difference between the speaker I worked with and Gjersøe's.



c. /Àbdúl néóníré mbàké ro:siínè/

Abdul (né-ó-ón-ír-é)_φ mbá[↓]ké rò:siínè_φ

A. SM-see-PRF-FV 3-tobacco 11-morning

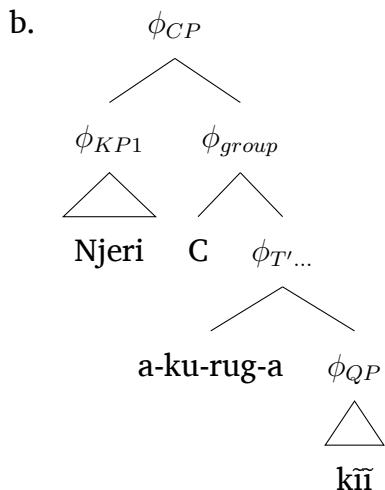


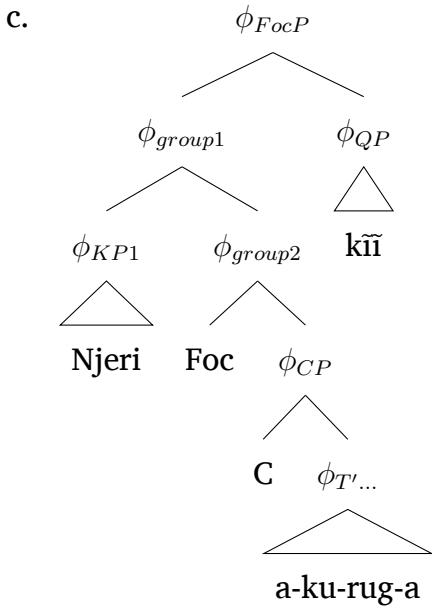
Assuming this analysis is on the right track, it can receive a similar analysis to that

proposed for Hoji/Beck effects throughout the rest of the chapter. Consider an ungrammatical sentence like (130a). In (130a), when the C is merged, it Agrees with the *wh*-phrase, resulting in a prosodic structure like (130b). Grouping applies to create a Contiguity Domain that dominates the complementizer, in which the *wh*-phrase is Contiguity-prominent. In (130c), the Foc head has been merged into the structure, and *Njeri* has moved to the left of it. Foc Agrees with the verbal complex, so Grouping must take place to render the verbal complex Contiguity-prominent. However, here, Grouping destroys the Contiguity Domain for C and QP; the derivation is therefore not Contiguity Preserving and is ruled out.

- (130) a. **Njeri n̩-Ø-a-k̩-rug-a k̩iː*
 N. FOC-C-1SM-sc fut-cook-sc fv what

Intended: ‘What will Njeri certainly cook?’





These facts, like those in Mongolian, are particularly challenging for the approach proposed in Beck (2006). There, Hoji/Beck effects are analyzed as being caused by the presence of elements, such as *only* and *even*, that must associate with focus operators, being in a position in which they command in-situ *wh*-phrases. However, this analysis cannot be on the right track for Kikuyu—here we see that *only* and *even*, which should always class together in this regard, behave differently. The *only* construction in Kikuyu is not a trigger for Hoji/Beck effects, but the *even* constructions is.

3.6 A coda: a language without prosodically active edges?

We will now direct our attention to Egyptian Arabic. Egyptian Arabic is like Japanese, Korean, and Amharic in displaying island-insensitive *wh*-in-situ, as we see in (131).

(131) Egyptian Arabic *wh*-in-situ is comparable to Japanese and Korean *wh*-in-situ

- a. ?inta ?aabilt ?il-bint illi ?itgawwizit miin
you met.2sgmas the-girl that married.3sgfem who

“Who_i did you meet the girl that got married to him_j? ”

- b. ?inta suft ?ahmad wi miin fi ?il-haflah
you saw.2sgmas Ahmad and who at the-party

“Who_i did you see Ahmad and him_j at the party?”

Soltan (2012)

Interestingly, as we see in (132), Egyptian Arabic lacks the Hoji/Beck effect, at least for focus sensitive items.¹⁸

(132) **Egyptian Arabic consistently lacks Hoji/Beck effects**

- a. *mahammad bas ha-yi?aabil miin?*

Mohammad only FUT-meet.3sgmas who

“Who will only Mohammed meet?”

- b. *mahammad barDUh ha-yi?aabil miin?*

Mohammad also FUT-meet.3sgmas who

“Who will also Mohammed meet?”

Soltan (2012)

If the approach presented in this section is on the right track, we expect the presence of *wh*-phrases to the right of foci in Egyptian Arabic not to disrupt pre-existing Contiguity relationships that license focus-sensitive elements, such as the subjects in (132).

Hellmuth (2006 et. seq) describes the prosodic properties of Egyptian Arabic. In Egyptian Arabic, each non-functional word is associated with a pitch accent, as demonstrated in (133). The final word in a sentence is generally realized with a much lower pitch accent than would be expected.

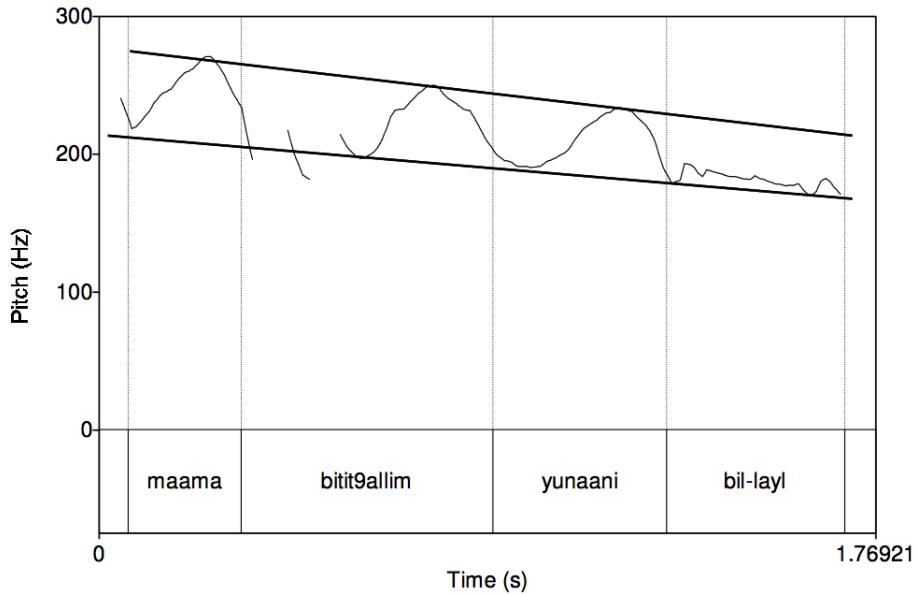
(133) a. *maama biti9allim yunaani bi-l-layl*

Mum learns Greek in-the-night

‘Mum is learning Greek in the evening.’

- b.

¹⁸ Soltan (2012) doesn’t supply data for NPIs, unfortunately.

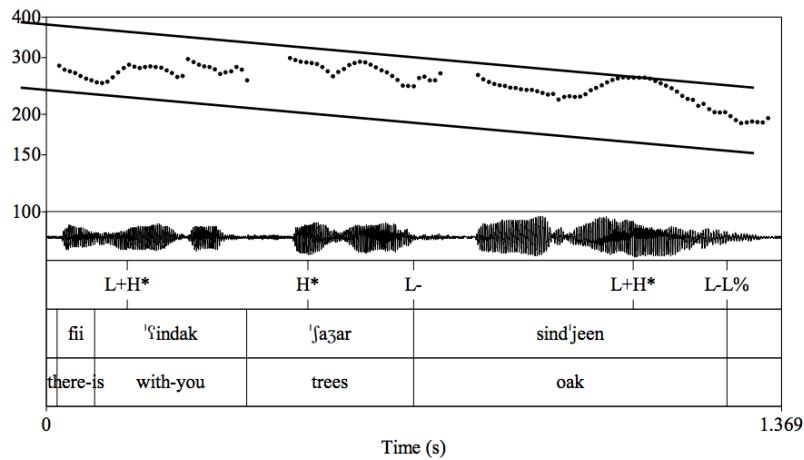


The syntax-prosody mapping is quite opaque in Egyptian Arabic. Hellmuth (2006) notes that Minor Phrases, or minimal ϕ , are constructed without regard to the syntactic structure of the sentence, and are simply required to be binary branching. Furthermore, such phrases are not analyzed as being associated with any sort of pitch accent, on either the right or left side.

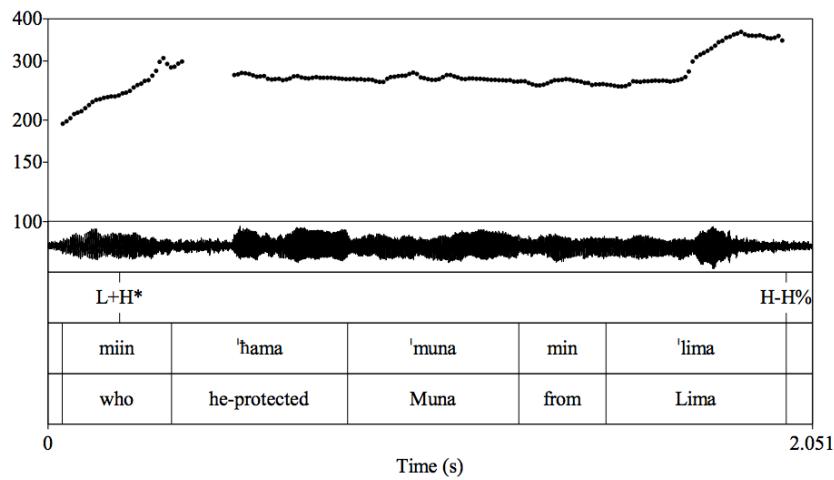
Interestingly, Egyptian Arabic, despite allowing *wh*-in-situ, does not appear to display the prosodic hallmark of Grouping that we have seen in Japanese and Korean. It is particularly interesting to consider this in contrast with other dialects of Arabic. Chahal and Hellmuth (2014) perform a comparative study on the intonational properties of Egyptian Arabic and Lebanese Arabic. They are found to differ significantly in terms of their focus and *wh*-prosody. Lebanese Arabic, on the one hand, categorically deaccents elements in a post-focal or post-*wh*-phrase position, as demonstrated in (134b-c).

(134) Lebanese Arabic prosodic contours

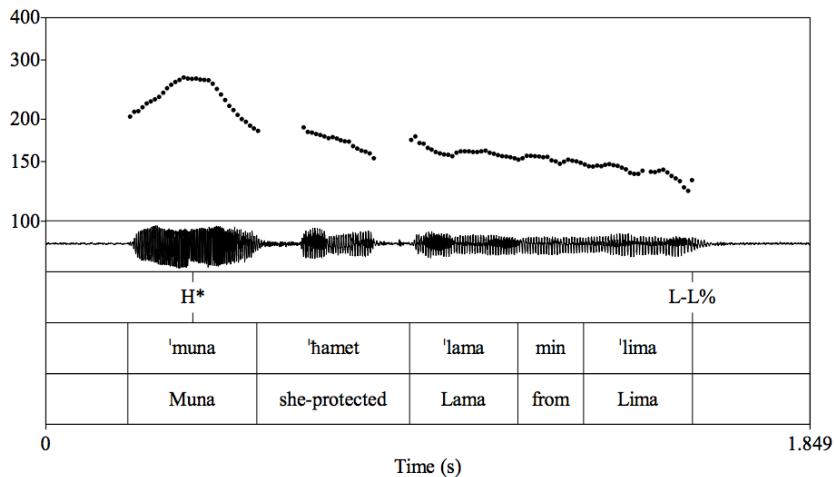
- a. *Declarative:*



b. *Wh-question:*

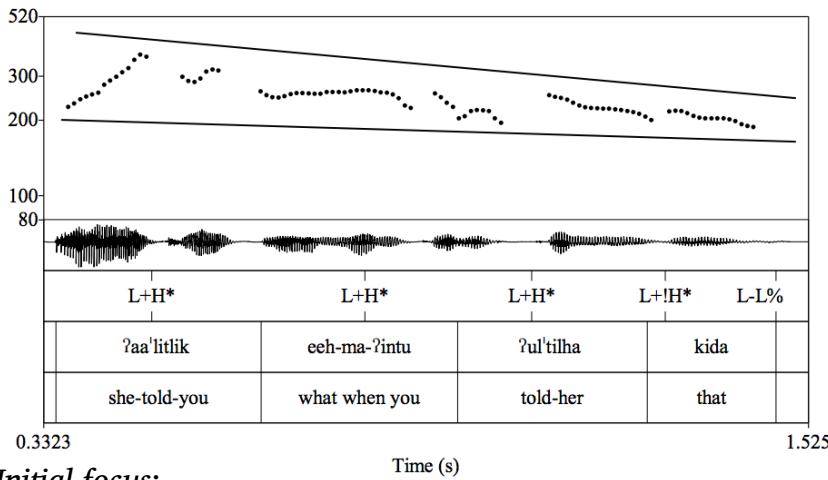


c. *Initial focus:*

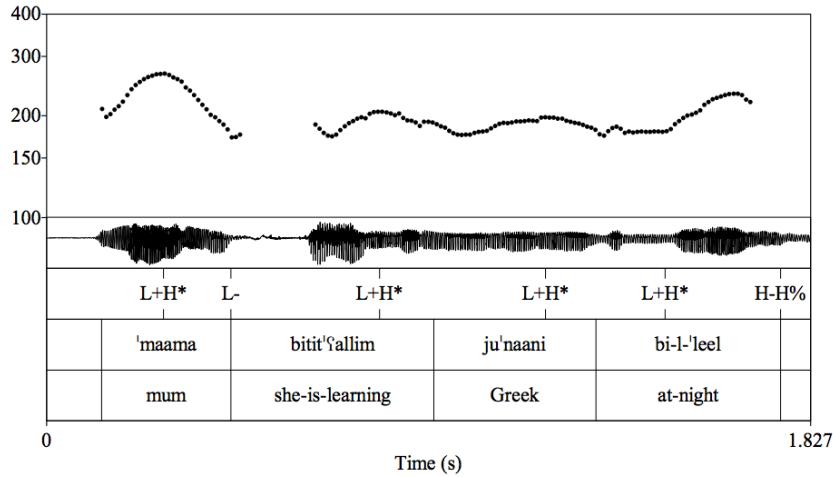


Egyptian Arabic, on the other hand, displays pitch *compression* in such contexts, but does not categorically deaccent post-focal or post-*wh*-phrase elements, as seen in (135).

- (135) a. *Wh-question:*



- b. *Initial focus:*



This suggests that Grouping is not operative in Egyptian Arabic, in the way that it appears to be in Japanese, Korean, Lebanese Arabic, and perhaps Amharic. We have seen in the previous sections of this paper that the canonical Hoji/Beck effect arises in left-active, right-headed languages, as a result of a particular interaction between multiple Grouping operations, which will cause a derivation not to be Contiguity Preserving. However, recall from the introductory section to this chapter that some Bantu languages—which we have analyzed throughout the dissertation as left-headed, right active languages—also appear to display the effect.¹⁹ We might now, wonder: why does Egyptian Arabic behave in such a way? Another way of asking the question would be: how does Egyptian Arabic license *wh-in-situ* without the use of Grouping?

We have observed two things of interest in this respect so far with respect to Egyptian Arabic prosody. First, we have seen that Egyptian Arabic does not display the signature

¹⁹ We will investigate such a language, Kikuyu, with respect to these effects in the following section.

of Grouping. Second, we have seen that Egyptian Arabic does not display the hallmarks of prosodic activity at either the left or right edge of its minimal ϕ . Egyptian Arabic can therefore be analyzed as a language that lacks prosodic activity altogether, a possibility proposed in Richards (2016). If this analysis is on the right track, we make a startling prediction about Egyptian Arabic: it should disallow *wh*-fronting, for the same reason that it disallows Grouping. Given the framework used in this dissertation, *wh*-movement and Grouping are mechanisms that a language utilizes to ensure that certain elements are placed in a position of Contiguity-prominence, which is determined by the directionality of prosodic activity in a given language. If a language were to lack prosodic activity altogether, as I am proposing is the case for Egyptian Arabic, then we would expect *wh*-movement to be impossible for the same reason that Grouping is. This prediction is in fact borne out, as we see in (136).²⁰

(136) **Egyptian Arabic lacks *wh*-movement**

- a. *?inta šuft miin ?imbaarih*
you saw.2sgmas who yesterday
‘Who did you see yesterday?’
- b. **miin ?inta šuft ?imbaarih*
who you saw.2sgmas yesterday
‘Who did you see yesterday?’

Why should this be the case? Consider once more the definition of Contiguity in (137).

(137) **Contiguity in toto**

- a. *Contiguity*:
A Goal must be *contiguity prominent* within a ϕ that dominates a probe that Agrees with it.
- b. *Contiguity prominent*:
 G is *contiguity prominent* within ϕ_1 if no other ϕ lies between G and the prosodically active edge of ϕ_1 , and ϕ_1 dominates G .

²⁰ Soltan (2012) notes that Egyptian Arabic does allow a sort of clefting with resumption of *wh*-phrases. Whether or not this involves a movement dependency of the sort investigated throughout this thesis is a topic for further work. However, if the proposed analysis of Egyptian Arabic is on the right track, then we should expect such instances of resumption to behave differently than *wh*-movement with respect to principles like Contiguity.

What Contiguity does is ban the presence of phonological phrases between a goal, and one of the edges of a phrase that contains that goal and its probe. If a language lacks prosodic activity altogether, then this requirement will always be satisfied. In such a language, there can be no phonological phrases which appear between a goal and the prosodically active edge of a phrase containing that goal and its probe, because that phrase has no prosodically active edge.

3.7 Open questions and final recap

In this section, I first discuss some open questions for the account developed in this chapter. Then I provide a recap of the chapter as a whole.

3.7.1 Open questions

In this chapter, I developed a Contiguity theoretic account of the Hoji/Beck effect: a ban on the co-occurrence of a *wh*-phrase and focus in certain combinations within the same clause. We saw that the effect arose in right-headed languages of both sorts, as well as left-headed languages with prosodic activity on the right. Other theories of this effect, like those developed in Pesetsky (2000); Kotek (2014), are able to capture a similar effect in English, which appears only in multiple *wh*-questions in which Superiority is violated, as in (138).²¹

- (138) a. Which book did only Mary show ____ to which boy?
b. * Which boy did only Mary show which book to ____?

The theory developed in this chapter does not straightforwardly extend to the effect in (138). However, we know what an account *might* look like, provided we are able to show the existence of span marking in Superiority violating multiple *wh*-questions in English. In the case of Japanese, a left-active language where probes generally follow their goals, we saw that Grouping cannot take place when the Grouped element occurs within a span of the sentence between a probe and a goal, as it disrupts the Contiguity relationship between the probe and goal. One possibility would be to say that something similar happens in (138b): the in-situ *wh*-phrase serves as a probe for the fronted *wh*-phrase in cases where Superiority is violated; Grouping, perhaps necessary for the realization of focus in English, cannot take place between the two.

²¹ For the English examples involved, the * should be taken to indicate the absence of an otherwise expected pair-list reading.

Likewise, the theory developed in this chapter does not lead us to expect certain effects described by Kotek (2014). These involve the appearance of intervention effects in multiple questions that respect Superiority when the lower *wh*-phrase is contained inside an island, as in (139).

- (139) *Which linguist will only come [if we invite which philosopher]?

Again, the theory developed in this chapter does not straightforwardly extend to the effect in (139). One possibility for a prosodic approach to this effect would be to show that *wh*-phrases which remain inside islands are licensed through some special prosody, which is incompatible with the presence of focus higher in the clause. Evidence that this might on the right track comes from Baunaz (2011). Baunaz (2011) shows that *wh*-in-situ in certain French dialects is not island sensitive, but requires a particular intonational contour. This intonational contour is not generally required of all clauses involving *wh*-in-situ in these dialects—it is obligatory only in cases where the *wh*-phrase remains in-situ.

Earlier in this chapter, I noted a proposal made in Kotek (2017); Erlewine and Kotek (2017). Kotek & Erlewine propose that any element that undergoes movement and cannot reconstruct is the sort of element that will count as an intervener. We will consider some of the facts discussed in Erlewine and Kotek (2017) in more detail, since they have to do with the Hoji/Beck effect proper. Erlewine and Kotek (2017) takes stock of a variety of quantificational elements in Japanese, and observes how they interact with in-situ *wh*-questions. They observe that some quantificational elements are scope-rigid with respect to negation, whereas others are not; those that are scope-rigid with respect to negation count as interveners whereas those that are scope-flexible are not interveners. Furthermore, they show in several cases that the scope-flexible quantificational elements count as interveners only when they are forced to take wide scope above negation. Under the theory developed in this chapter, we know more or less what we should expect: the scope-rigid quantifiers examined by Erlewine and Kotek (2017) should have the prosodic signature of ‘span marking’, whereas the scope-flexible quantificational elements should have this signature only when they take wide scope.

Unfortunately, I must leave a exhaustive survey of the prosodic properties of these quantificational elements a topic for future research. At present, I will examine one particular case: that *dake* when attached to a dative or prepositional element. *dake*, as we see in (140), may appear either before or after the marker *to*. The attachment site has an effect on interpretation: pre-*to* *dake* is scopally ambiguous, whereas post-*to* *dake* is not.

- (140) a. *Taro-wa Hanako-to-dake hanasa-nak-atta.*
Taro-TOP Hanako-with-only talk-NEG-PST
lit. ‘Taro didn’t talk only with Hanako.’ only > not, *not > only

b. *Taro-wa Hanako-dake-to hanasa-nak-atta.*
Taro-TOP Hanako-with-only talk-NEG-PST
lit. ‘Taro didn’t talk with only Hanako.’ only > not, not > only *Erlewine and Kotek (2017)*

Erlewine and Kotek (2017) note that post-*to dake* triggers the intervention effect, whereas pre-*to dake* does not.

- (141) a. * *Taro-wa Hanako-to-dake nani-o tabe-ta-no?*
 Taro-TOP Hanako-with-only what-ACC eat-PST-Q

b. *Taro-wa Hanako-dake-to nani-o tabe-ta-no?*
 Taro-TOP Hanako-with-only what-ACC eat-PST-Q

‘What did Taro eat (only) with (only) Hanako?’

Further bolstering their generalization, they note that the wide-scope reading of pre-to *dake* is blocked in cases involving a *wh*-phrase.

- (142) *Taro-wa Hanako-dake-to nani-o tabe-nai-no*
 Taro-TOP Hanako-only-with what-ACC eat-NEG-Q
 a. * What does Taro only not eat with Hanako? only > not
 b. What does Taro not eat with only Hanako not > only

We know of course what to expect of pre-to *dake* given the theory developed in this chapter: that the wide scope reading should obligatorily be associated with span marking, whereas the narrow scope reading should not.

Work done on the scope taking abilities of pre-case marker and post-case marker *dake* suggests that this is in fact the case. Sano (2002) notes that in cases like (143), where *dake* appears in a pre-case marker position, *dake* must take narrow scope with respect to *allow*.

- (143) *isya-wa Aiko-ni [kongo yasai-dake-o taberu] koto-o yurusita*
 doctor-TOP Aiko-DAT from-now-on vegetable-only-ACC eat C-ACC allowed
 ‘the doctor allowed Aiko to eat only vegetables from now on’ Sano (2002)

However, the wide scope reading may obtain in one case: when the focus particle *dake* receives focal stress.

- (144) *isya-wa Aiko-ni [kongo yasai-dake-o taberu] koto-o yurusita*
doctor-TOP Aiko-DAT from-now-on vegetable-only-ACC eat C-ACC allowed
'the doctor allowed Aiko to eat only vegetables from now on' Sano (2002)

In other words: the wide scope reading of pre-case marker *dake* is available just in cases where it triggers span marking in the sentence, which is what we expect given the theory developed in this chapter: elements that trigger span marking are interveners, whereas elements that do not, are not.

If Erlewine & Kotek's generalization ends up holding across many languages, and the generalization about span marking made in this chapter also ends up holding across many languages, then the question of choice among theories arises. One possibility is that there is no need for a choice: these sorts of interactions between covertly moved elements and in-situ *wh*-phrases generally cause problems for both the LF and PF interface; in some cases problems would arise for both interfaces. Another possibility is that 'covert' movement is covert only in the sense that it does not affect strings of phonemes—but it does impose particular requirements on the prosodic structure that might come into conflict.²²

Languages like Korean might provide a way of teasing the two theories apart. As we see in (145), a subject with either of the focus particles *-to* and *-man* cannot co-occur with an in-situ *wh*-phrase in object position.

- (145) ***-to* and *-man* are subject to the Hoji/Beck effect**

- a. * *John-to mues-ul ilk-ess-ni*
J.-also what-ACC read-PST-Q
"What did also John read?" Tomioka (2007a)
- b. * *Minswu-man mues-ul po-ass-ni?*
Minswu-only what-ACC see-Pst-Q
"What did only Minswu see?" Noh (2011)

However, these two particles have different scopal properties. As described by Lee (2004), we see that *-to* obligatorily scopes above negation, whereas *-man* is scope-flexible with respect to negation.

²² See Hirotani (2005); Ahn (2015); Sato and Maeda (2018) for some arguments that string-vacuous movement might have prosodic effects.

(146) Only *only* is scope-flexible

- a. *Mary-ka John-to mannaci ani hayssta*
Mary-Nom John-also meet not did
*“Mary didn’t meet John, although she met someone else.” Neg > also
- b. *Mary-ka John-man mannaci ani hayssta*
Mary-Nom John-only meet not did
✓‘It is not the case that Mary met only John. She met someone else, too.’
Neg > only
Lee (2004)

That *-man* is an intervener is unexpected under Erlewine & Kotek’s approach to the Hoji/Beck effect for Japanese. What (146b) shows us is that *-man* is able to reconstruct—which should allow it not to intervene for in-situ *wh*-phrases under the theory they develop. For the approach posited in this chapter, we know what to expect: both *-to* and *-man* enter into an Agree relationship with Foc, and trigger span marking.

3.7.2 Final Recap

In this chapter, I reviewed a number of approaches to the Hoji/Beck effect, an effect where languages that normally allow *wh*-in-situ require their *wh*-phrases to undergo left-dislocation in the presence of certain focus-sensitive or quantificational elements. I demonstrated a number of flaws inherent to these accounts, a proposed an alternative theory, rooted in the notion of Contiguity Preservation. I proposed a revised notion of Contiguity Preservation, repeated in (147).

(147) *Contiguity Preservation:*

2 of 2

- a. A Contiguity Domain *D* for a probe-goal pair $\langle P, G \rangle$ must be preserved in every spellout domain that contains both *P* and *G*.
- b. *Contiguity Domain:* A Contiguity Domain *D* is a phonological phrase in which *G* satisfies Contiguity for *P* in *D*.
- c. A domain *D* is preserved from structure *A* to structure *B* iff \exists a Contiguity domain *D'* in *B* that has the same immediate dominance relationships between *P* and *G* that *D* has in *A*.

Under this approach, successive applications of Grouping within the same phase may disrupt each other, and in such cases left-dislocation of the last element to enter into an

Agree relationship becomes obligatory. I showed that this approach correctly predicts a set of facts internal to Japanese and Korean that no other theory captures in total. I noted also that this approach allows us to predict what will count as an intervener, and what will not—elements that display the prosodic hallmark of Agree relationships associated with Grouping should intervene for in-situ *wh*-phrases, whereas elements that do not display such a prosodic hallmark should not count as interveners. I presented novel evidence from Mongolian and Kikuyu that suggest this is in fact the case—in these languages, the set of interveners is a subset of the set of interveners in Japanese and Korean, and only this subset displays the prosodic hallmark of Grouping in these languages.

The theory developed in this chapter also predicts a cross-linguistic typology about what sorts of configurations of heads and goals will generally allow the application of Grouping as means of satisfying Contiguity. I presented evidence from Georgian, Malayalam, Basque, French, and Kikuyu which showed this typology is in fact borne out. There are, then, three dimensions along which languages might vary with respect to the Hoji/Beck effect. Headedness and the position of prosodic activity restrict the application of Grouping in a language, while prosodic properties of lexical items determine whether or not they will trigger Grouping at all.

Chapter 4

Languages with limitations on Grouping

In the previous three chapters of this thesis, we have examined interactions between movement in the narrow syntax, and an operation on prosodic structures, called Grouping. In the languages we have investigated, Grouping seems to apply freely. This chapter deals with languages in which Grouping does not apply so freely—I will follow Richards (2016) in using the term ‘limited Grouping language’ to describe this sort of language. In these languages, as we will see, *wh*-in-situ is allowed, but displays an peculiar restriction: the in-situ *wh*-phrase must either be clause final, as in the case of Spanish, or almost clause final, as in the case of Zulu and Bùlì. I will argue that these effects can be seen as the same sort of intervention effect which we have investigated throughout the dissertation: a phrase appears between a goal and the active edge of a phrase which contains the goal and its probe. Here, the clause final requirement arises because other elements in the vP, which map to a ϕ , prevent the *wh*-phrase from satisfying Contiguity in-situ. When these elements do not map to a ϕ —either because they have been dislocated, or because they are phonologically light—the *wh*-phrase may remain in-situ. The main difference between these effects and those investigated previously is that Grouping is restricted in the languages under investigation.

In the the first and second sections of this chapter, I construct a theory of why languages might be limited in this way. The first section of this chapter involves a discussion of the sort of Grouping discussed in the first two chapters of this thesis, and how it might differ from the sort of Grouping discussed in the third chapter of this these. The second section of this chapter involves a comparative discussion of Romance and Bantu languages. We will see that two of these languages are limited Grouping languages [Spanish and Zulu], while others are not [French and Chichewa]. I suggest that the presence of a sentence

final restriction is tied to the absence of ‘span marking’ of the sort discussed in some detail in chapter 3. I show that the presence or absence of ‘span marking’ reflects a difference in the mechanisms these languages use to satisfy Contiguity—limited Grouping languages attempt to make their *wh*-phrase and associated C sufficiently local by moving a larger constituent, which contains the *wh*-phrase, to the left of C.

The third section of this chapter deals with almost-sentence final restrictions on in-situ *wh*-phrases in limited Grouping languages, focusing primarily on Bùlì, a Gur language spoken primarily in the north-eastern region of Ghana, and secondarily on Zulu. We will see that Bùlì displays an almost-sentence final restriction on in-situ *wh*-phrases, comparable to that displayed by Spanish and Zulu. I show that the generalization about span marking and limited Grouping holds in Bùlì—Bùlì, like Spanish and Chichewa, lacks span marking for *wh*-phrases and foci. We then turn to an account of the ‘almost-sentence final’ restriction in Bùlì. I show that Bùlì allows its in-situ *wh*-phrases to not be sentence final, so long as they are not followed by another prosodic phrase. I suggest that this provides evidence for the particular version of Contiguity assumed in the previous chapters of the thesis. I further argue that a number of other, comparable, size restrictions—both in Bùlì, and in Zulu—can be seen as the result of a conflict between Contiguity and Equal Sisters, an independent requirement imposed on the syntax-prosody mapping which requires sisters in the prosodic tree to be of an equal ‘size’. These facts will provide an argument that the sort of effects investigated throughout this thesis are truly prosodic in nature, rather than reflecting a sufficiently advanced set of syntactic features, which happen, in some cases, to be reflected in the prosody. In the cases of Bùlì and Zulu, in particular, we will see that the elements which count as interveners cannot be distinguished from those that do not in the narrow syntax. Constituents which consist of one phonological word do not count as interveners, but constituents which consist of two or more phonological words do.

4.1 Two types of Grouping

Previous chapters of this thesis dealt with Grouping, an operation on prosodic structures motivated by the need to satisfy Contiguity, a condition on the syntax-prosody mapping repeated in (1).

(1) *Contiguity in toto*

a. *Contiguity*:

Goals must be *Contiguity prominent* within a ϕ that dominates a probe that Agrees with them.

b. *Contiguity prominent:*

G is *contiguity prominent* within ϕ_1 if no other ϕ lies between G and the prosodically active edge of ϕ_1 , and ϕ_1 dominates G .

A definition of Grouping given in chapter 3 is repeated in (2-3).

(2) **Grouping**

Create a prosodic node within which a goal satisfies Contiguity for its probe.

(3) **The Grouping Procedure**

- a. Choose two nodes, N_1, N_2
- b. Substitute N_1 with either $[N_1 N_2]$ or $[N_2 N_1]$
- c. (i.) Substitute the mother of N_2 with N_2 's sister if N_2 has only one sister
(ii.) Substitute the mother of N_2 with a node dominating all of N_2 's sisters if N_2 has more than one sister.
- d. *Restriction:* Grouping cannot alter linear order.

Grouping has played an important role in chapters 1 and 2. There, we saw that movement of a goal to the left of a probe must be followed by Grouping of the probe and goal in languages where prosodic activity is on the right. Consider, for instance, the sentence in (4), involving movement of the subject to [spec,TP] in French, a left headed, right active language.

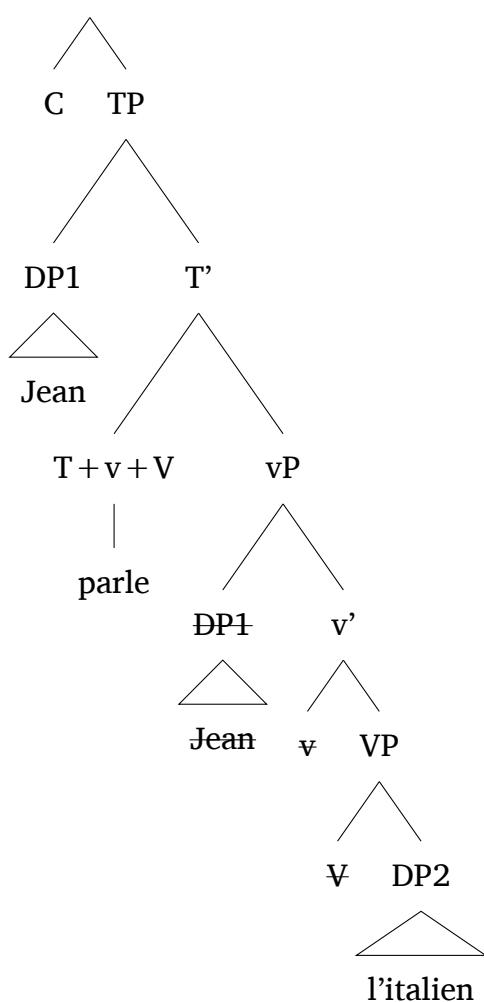
(4) *Jean parle l'italien*

J. speaks Italian

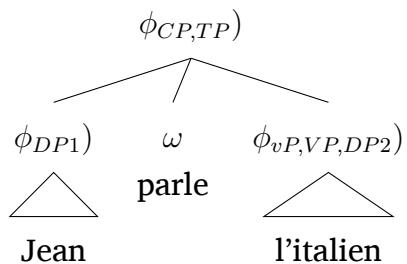
‘Jean speaks Italian.’

A sentence like (4) will have a syntactic structure like (5), and a corresponding prosodic structure, prior to Grouping, like (6). Note, in (6), that the subject does not satisfy Contiguity for T. There is no ϕ that dominates T and the prosodic phrase corresponding to the subject in which that prosodic phrase is Contiguity-prominent.

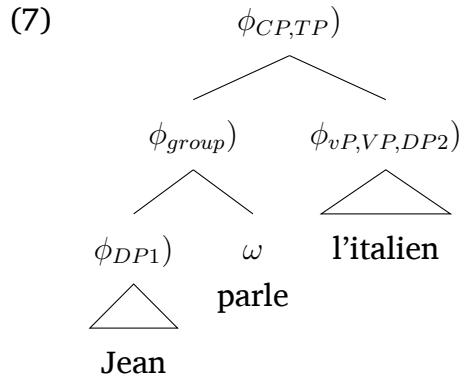
(5)



(6)



Grouping can—and in fact must—apply in this case, creating the structure in (7). In (7), the subject satisfies Contiguity for T—there is a prosodic node that dominates both the subject and T, its probe, in which the subject is Contiguity-prominent.



Grouping of this sort—motivated by the needs of T [in chapter 1] and v [in chapter 2]—applied primarily to elements which had moved into a preverbal position. In the main cases investigated in chapters 1 and 2, Grouping always involved strict linear adjacency between the probe and goal. It will be useful to give this sort of Grouping a name for the discussion that is to follow. I will call this sort of Grouping, which applies only under strict linear adjacency, *minor Grouping*.

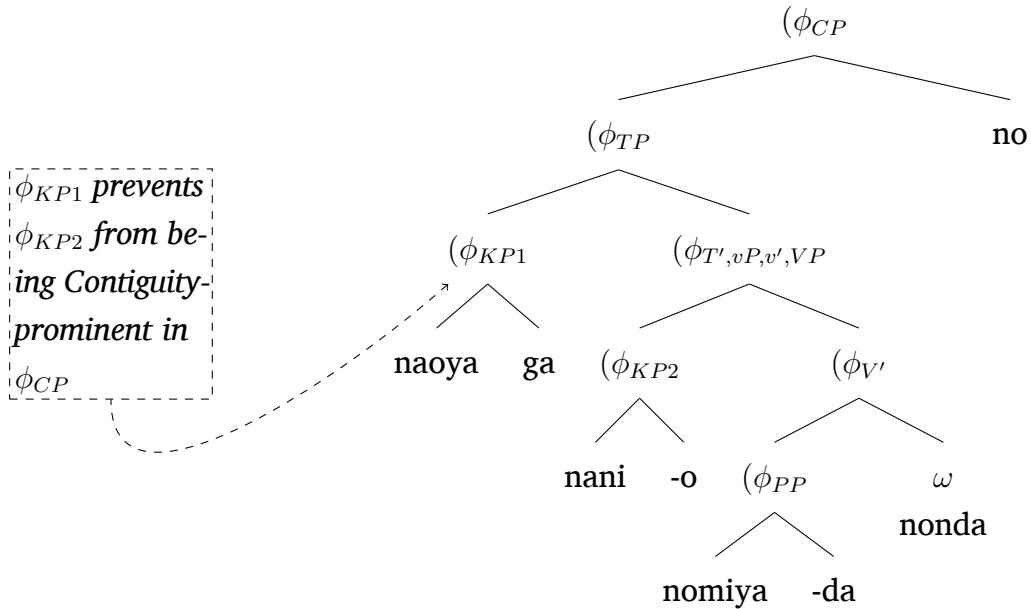
Grouping also played an important role in chapter 3—perhaps more so than it did in chapters 1 and 2. In chapter 3, we saw that Grouping could apply even when the probe and goal were not linearly adjacent. I will call this sort of Grouping *major Grouping*, to contrast with the sort of Grouping that applies under strict linear adjacency. Consider, for instance, the Japanese sentence in (8), involving an in-situ *wh*-phrase in the middle of the sentence. Such a sentence will have a prosodic structure like that in (9), prior to the application of Grouping. Note, in (9), that the *wh*-phrase fails to satisfy Contiguity for C.

- (8) *Naoya-ga nani-o nomiya-da nond a no*
 N.-NOM what-ACC bar-DAT drink Q

What did Naoya drink at the bar?

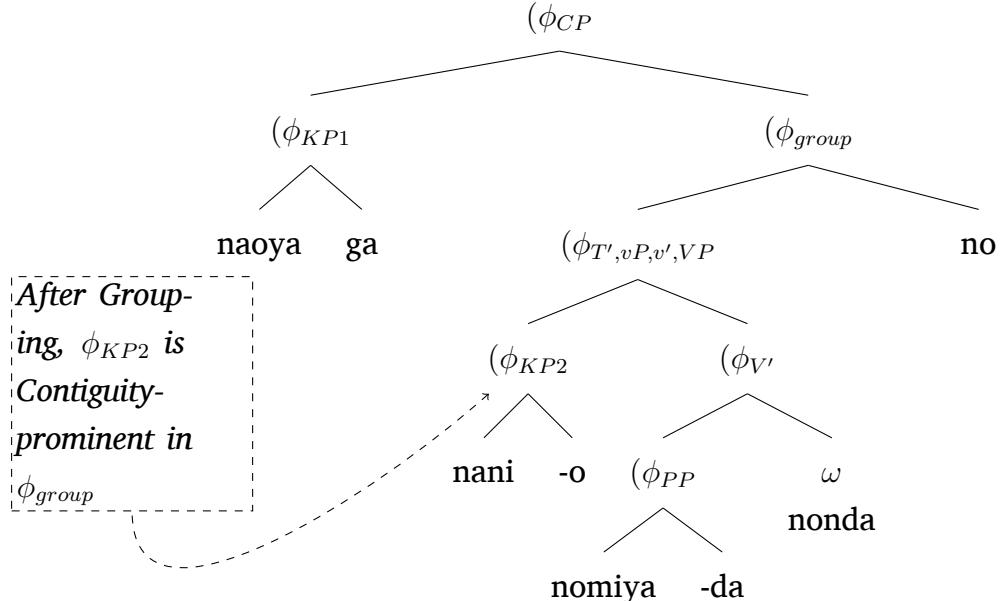
Richards (2016)

(9)



Grouping, as we have seen, takes place to ensure that the *wh*-phrase satisfies Contiguity for C. After Grouping is applied to (9), we have for (8) a prosodic structure like (10), in which the *wh*-phrase satisfies Contiguity for C.

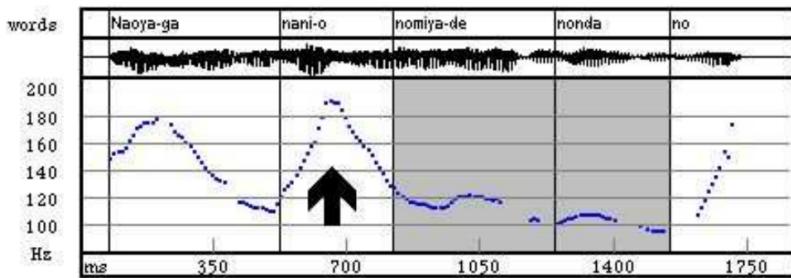
(10)



We might now wonder whether there are observable differences between the sort of Agree relationship which triggers minor Grouping—as in the case of Agree between T and the subject in languages like French—and the sort of Agree relationship which triggers major Grouping—as in the case of Agree between a *wh*-phrase and C in languages like

Japanese. The presence [or absence] of ‘span marking’, of the sort discussed in chapter 3, appears to be a possibility. As we see in (11), the prosodic constituent containing C and the *wh*-phrase is often realized with a particular prosodic contour: in Japanese, for instance, lexical pitch accents are not realized on elements that are not the *wh*-phrase or complementizer.

(11)



Ishihara (2003)

To my knowledge, no such ‘span marking’ has been reported for the span of the sentence containing the subject and verb in languages like Spanish.¹ What I would like to suggest is that the presence of major Grouping is directly tied to the presence of span marking in a given language, like that which we see in (11). The generalization I suggest is given in (12).

(12) The limited Grouping generalization

If a language does not display span marking for *wh*-phrases, then it does not allow major Grouping to satisfy Contiguity between C and the *wh*-phrase.

We might now wonder why the generalization in (12) might hold. I would like to suggest that this tells us something about the interface between the syntax and PF/prosody. Under the architecture assumed throughout this thesis, a core assumption has been that the prosodic tree is built in parallel to the syntactic tree. Furthermore, operations that apply to one tree might be motivated to improve the status of the other. Here, it seems to be the case that operations of this sort are limited in some way: major Grouping seems to be an option that languages take only if such Grouping has an effect at PF above and beyond the satisfaction of Contiguity—for instance, by creating the right sort of prosodic

¹ Note that there are, of course, instances of Grouping under linear adjacency which *are* associated with span marking. Recall our discussion from chapter 3 of Georgian, a right-headed, right-active language. There, we saw that in-situ *wh*-phrases appeared in an immediately preverbal position, and that the boundary tone normally associated with the right edge of a prosodic phrase was not realized.

domain for a span marking rule to apply. Minor Grouping, on the other hand, seems to be able to apply solely to satisfy the needs of Contiguity.

One possible reason, then, that (12) might hold, could be because manipulation of the prosodic structure for the needs of Contiguity may apply only to probes and goals. If this is correct, minor Grouping would be the only sort of Grouping that applies solely for the needs of Contiguity—the two nodes that the Grouping procedure applies to, in these cases, will always be a probe and its corresponding goal. Major Grouping, then, would only coincidentally lead to the creation of a prosodic structure in which Contiguity is satisfied, and would presumably be motivated for purely prosodic reasons, such as the creation of the right ‘sort’ of domain for a span marking rule to apply to.

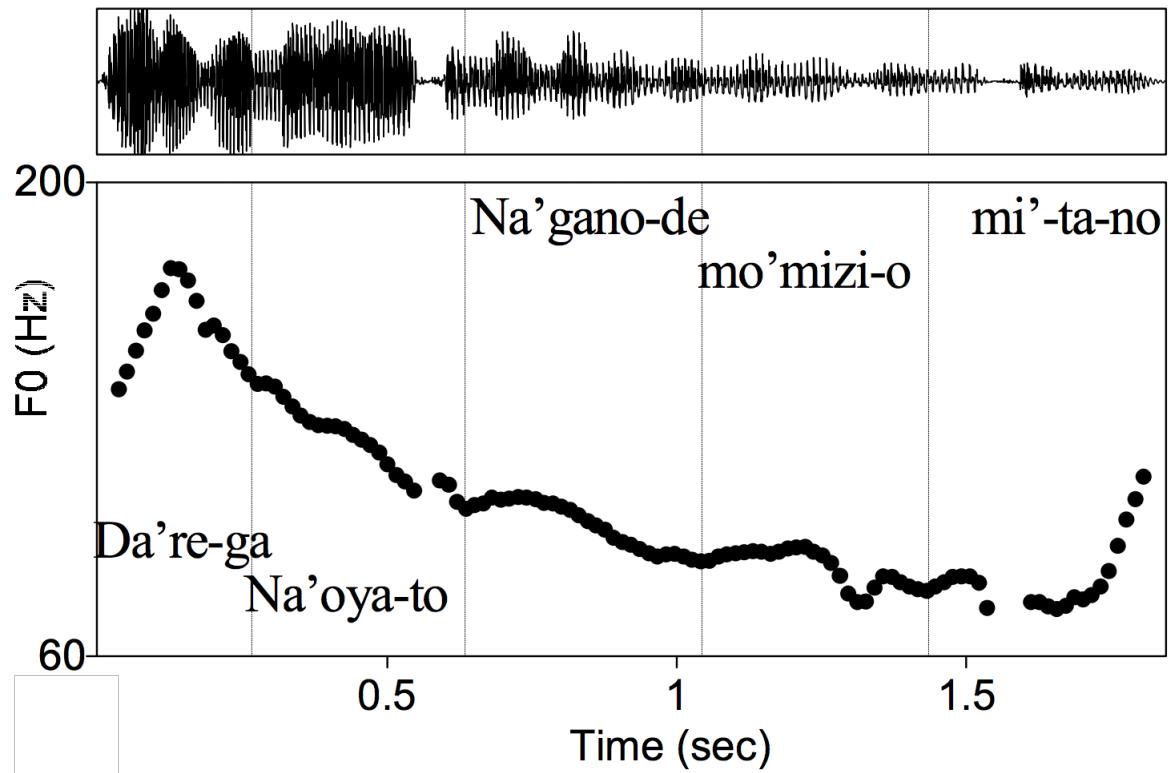
We can be certain, however, that Grouping in and of itself cannot account for the span marking phenomenon examined in chapter 3. There are two arguments to this effect. If span marking were a consequence of Grouping, we would expect span marking not to appear in cases where Grouping was not necessary: for instance, in a Japanese sentence like (13a), the *wh*-phrase naturally appears at the left edge of the sentence—it should therefore satisfy Contiguity with C without the need for Grouping. If span marking were purely a consequence of Grouping, then we would expect deaccenting not to apply in such cases, contrary to fact, as we see in (13b). Each of the words in (13) bears a lexical pitch accent; the deaccentuation that is the hallmark of span marking in Tokyo Japanese can be clearly seen in (13b), since the words between the *wh*-phrase and question particle each lack that pitch accent.

(13) **Span marking occurs even when the *wh*-phrase is sentence initial**

- a. *Dare-ga Naoya-to Nagano-de momizi-o mi-ta-no*
who-NOM N.-WIT N.-DAT leaves-ACC enjoy-PST-Q

‘Who enjoyed the autumn leaves with Naoya in Nagano’

- b.



Igarashi (2007)

Another argument for the dissociation of Grouping from span marking comes from languages like Georgian. Georgian, as we saw in chapter 3, is a right-headed, right-active language. A result of this is that *wh*-phrases must appear immediately preverbally, as we see in (14), since Grouping cannot create a prosodic structure in which the *wh*-phrase satisfies Contiguity.

(14) Nothing may appear between the verb and *wh*-phrase/focus

- a. **vin p'ur-i iq'ida*
who.ERG bread-NOM bought

'Who bought bread?'

- b. *p'ur-i vin iq'ida*
bread-NOM who.ERG bought

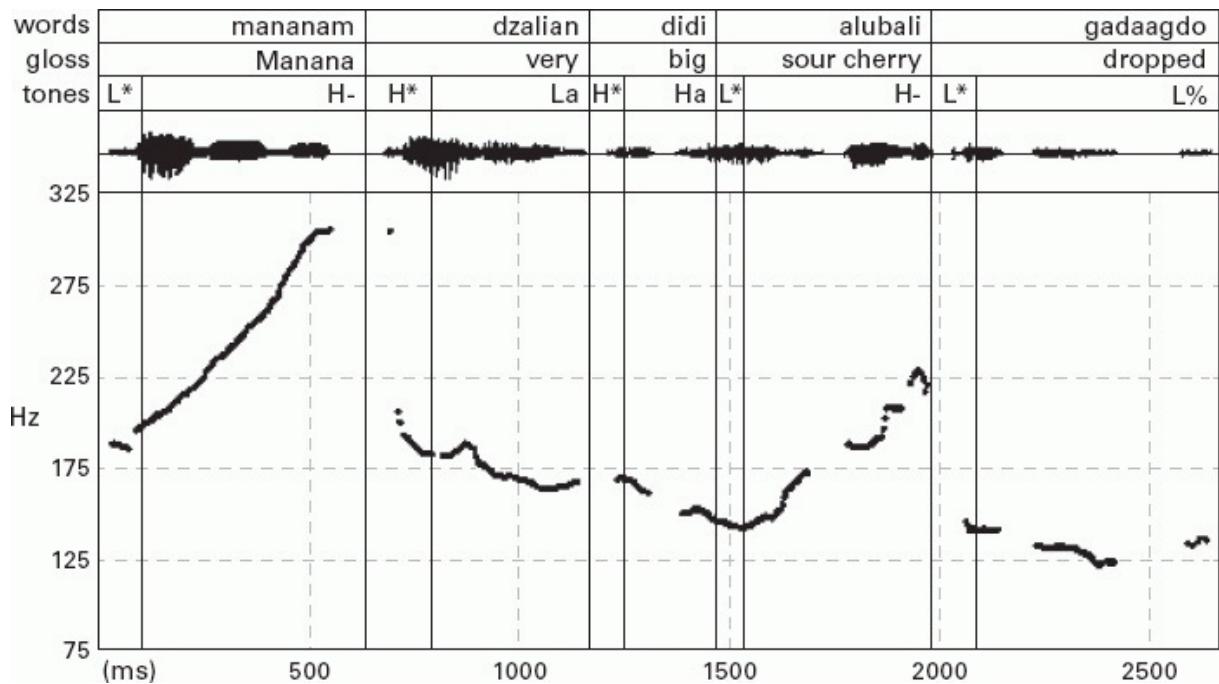
'Who bought bread?'

Erschler (2015)

It is worth now examining what the prosody looks like for this sort of sentence, and how it differs from a regular declarative in Georgian. As we see in (15), the right edge of each

Georgian ϕ is marked by a high tone.

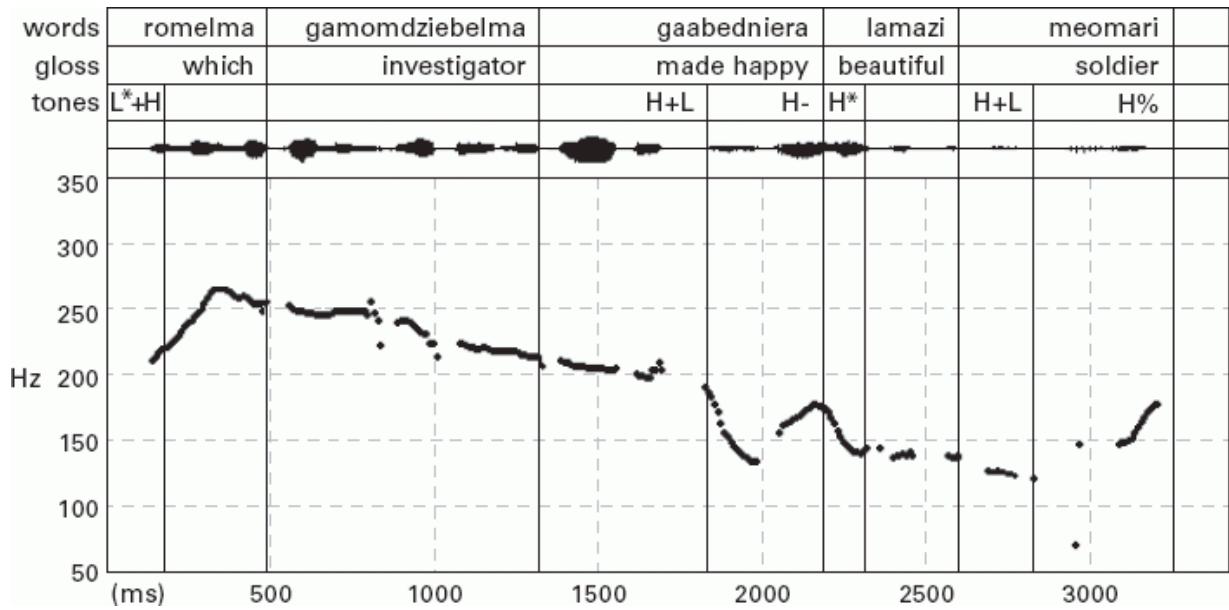
(15)



Skopeteas, Féry, and Asatiani (2009)

Consider the sentence in (16), involving a *wh*-question. Here, the high tone at the end of the *wh*-phrase is missing; instead the *wh*-phrase forms a ϕ with the verbal complex.

(16)



Skopeteas, Féry, and Asatiani (2009)

Recall in chapter 3 our discussion of Korean. There, we saw that span marking in Korean involved the absence of boundary tones associated with the left edge of ϕ — ϕ in between the *wh*-phrase and verbal complex are not associated with these tones. We can see (16) as an identical instance of span marking: here, the ‘span’ marked is quite small: the boundary between the *wh*-phrase and the complementizer itself, but nevertheless, it is still marked. Crucially, as we see here, Grouping cannot have applied to produce the span marking. Georgian is a language where Grouping will have no beneficial effect on the prosodic structure, and so should generally not apply in these cases.

4.2 The generalization, with differences between French and Spanish

4.2.1 Romance

To begin, we will concern ourselves with two Romance languages: Spanish and French. In the first section, we will see that they differ, in that the former requires in-situ *wh*-phrases to be roughly sentence final, whereas the latter does not display such a restriction.

4.2.1.1 French

French, as demonstrated in (17), allows optional *wh*-in-situ, and has its heads on the left. Cheng and Rooryck (2000) show that *wh*-in-situ in French is true *wh*-in-situ, and is not an echo question.

(17) French *wh*-in-situ

Tu as vu qui?
you have seen who

‘Who have you seen?’

This is to be expected, as we have already established in the first chapter of this thesis that French is a language with prosodic activity on its right. Recall that several syntactic properties correlate with prosodic activity on the right, repeated in (18). In addition, Selkirk (1986) establishes that a number of phonetic properties correlate with the right edge of prosodic constituents in French.

(18) Syntactic tests for prosodic activity in French

a. **No left-edge restriction on pied-pipers:**

[*Des photos de qui*] *penses-tu que je devrais acheter?*
 of.the photos of who think-you that I should buy

‘Pictures of whom do you think I should buy?’

b. **Allows adverbs between verb and object:**

Jean voit souvent Marie

J. sees often M.

‘John sees Mary often.’

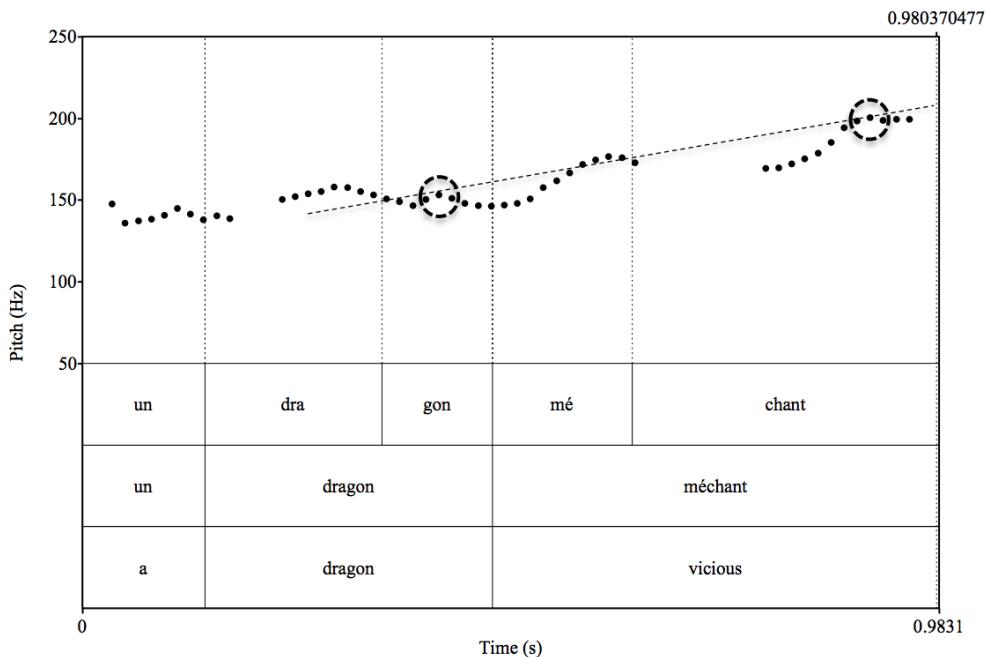
c. **Left-headed compounds**

poisson-épée

‘swordfish’; fish + sword

Furthermore, Norvin’s Test suggests that French is indeed a language with prosodic activity on the right. As we see in (19), the rightmost element in a binary branching nominal is more prominent than the leftmost element, a property which seems to correlate with prosodic activity being on the right.

(19)



Richards (2018)

As we see in (20), *wh*-in-situ in French is acceptable when the *wh*-phrase is not sentence final.

(20) French allows non-final *wh*-in-situ

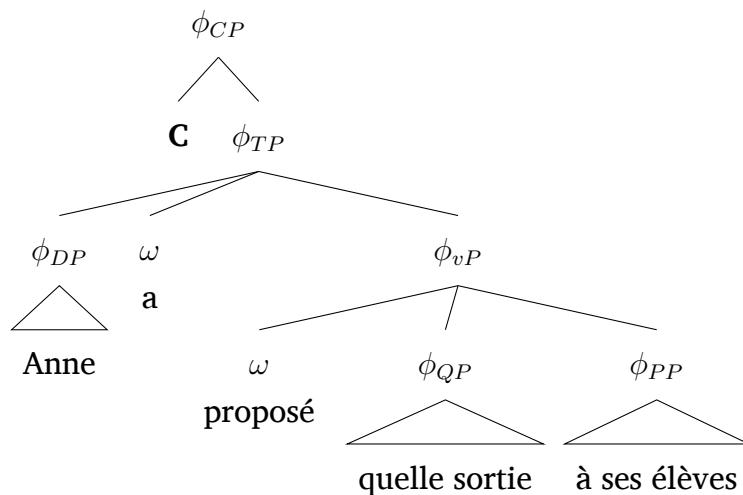
Anne a proposé quelle sortie à ses élèves?

Anne has suggested which outing to her students

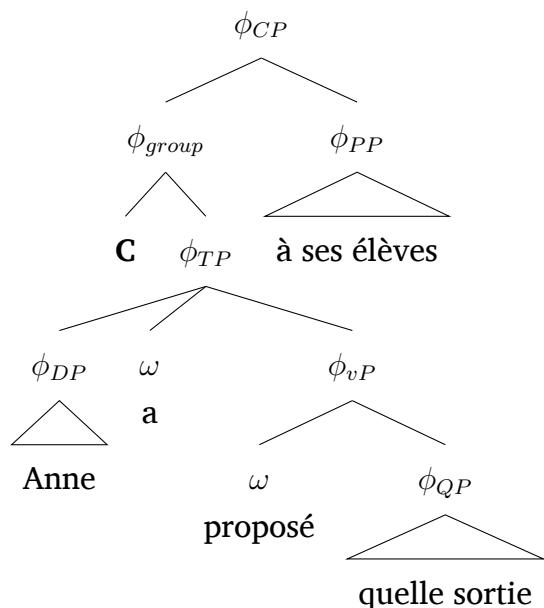
'Which outing did Anne suggest to her students?' *Gryllia, Cheng, and Doetjes (2016)*

In sentences like (20), major Grouping has presumably applied, transforming the structure in (21)—in which the *wh*-phrase fails to satisfy Contiguity for C—into a structure like that in (22), in which the *wh*-phrase succeeds in satisfying Contiguity for C.

(21)



(22)



If the generalization I suggested at the outset of this chapter is true, then we expect there to be span marking between the in-situ *wh*-phrase and C. Otherwise, the application

of major Grouping will not have been licensed given the generalization set out at the outset of this chapter. Work on the intonational properties of French suggest that span marking of this sort does indeed exist in French. Cheng and Rooryck (2000) note that a particular intonational contour is required if the *wh*-phrase is to remain in-situ. Hamlaoui (2011) notes that *wh*-in-situ in French requires all elements that precede the *wh*-phrase to be deaccented. Gryllia, Cheng, and Doetjes (2016) note that the pre-*wh*-phrase span of sentences in French that contain an in-situ *wh*-phrase are realized significantly faster than their declarative counterparts. All of these facts are suggestive of span marking in French: the span of the sentence in between the *wh*-phrase and question complementizer must be realized differently than a declarative sentence [or interrogative sentence with a fronted *wh*-phrase].

4.2.1.2 Spanish

Spanish, as demonstrated in (23), is like French in allowing optional *wh*-in-situ, and is generally left-headed. Zubizarreta (1998); Reglero (2004) shows that Spanish *wh*-in-situ is true *wh*-in-situ, not an echo question.

(23) Wh-in-situ in Spanish

- a. *Qué compró Juan?*
what bought J.

‘What did Juan buy?’

- b. *Juan compró qué*
J. bought what

‘What did Juan buy?’

Reglero (2004)

This is to be expected—recall from the first and second chapters of this thesis that a number of syntactic properties correlate with prosodic activity on the right. These tests are repeated for in (24), and indicate that Spanish displays these properties.²

(24) Syntactic tests for prosodic activity in Spanish

- a. No left-edge restriction on pied-pipers:

² Spanish, however, allows an adverb to occur between the verb and subject, contrasting with French and Icelandic. I refer the reader to §6.6 of Richards (2016) for a possible explanation of this discrepancy.

[*El retrato de quién*] ha dicho Juan que viste _____
the picture of who has said Juan that you

‘Who has John said that you saw the picture of?’

b. **Allows adverbs between verb and object:**

Juan habla a menudo italiano

J. speaks often Italian

‘John speaks Italian often.’

Richards (2016, 2017a)

c. **Left headed compounds**

pez espada

‘swordfish’; fish + sword

Spanish, unlike French, displays a restriction on in-situ *wh*-phrases. In Spanish, in-situ *wh*-phrases must appear sentence finally.

(25) **Spanish *wh*-in-situ restricted**

a. *Yo le di un libro a María*

I CL gave a book to Mary

‘I gave a book to Mary.’

b. * *Yo le di qué a María*

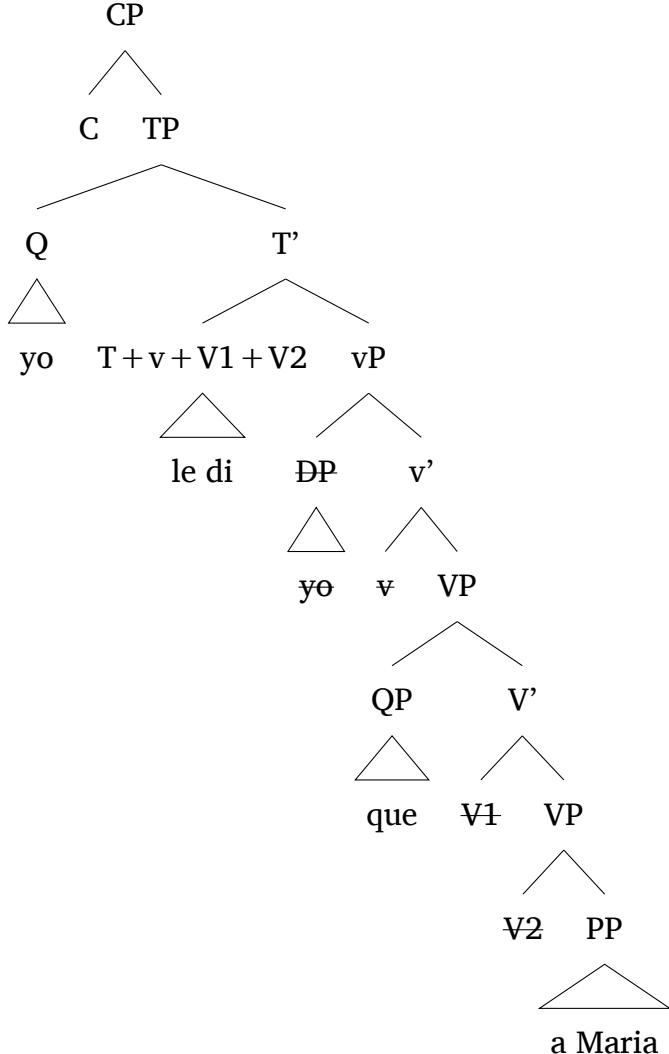
I CL gave what to Mary

‘What did I give to Mary?’

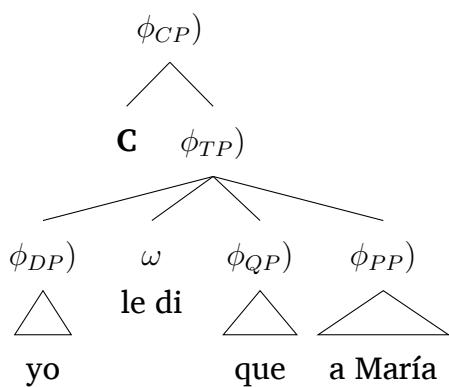
Reglero (2004), adapted

The ungrammaticality of (25b) is the result of the in-situ *wh*-phrase being unable to satisfy Contiguity in-situ. A sentence like (25) will have a prosodic structure like (26). In (27), ϕ_{PP} prevents ϕ_{QP} from satisfying Contiguity in ι , given a syntactic structure like (26). Therefore, the sentence is ruled out.

(26)



(27)



If Spanish is a limited Grouping language, then we should expect this requirement to surface. The prosodic structure in (27) is not satisfactory for Contiguity, and major Grouping cannot apply to render it Contiguity-compliant. If this analysis of Spanish is

on the right track, then we should expect the span of the sentence between C and the *wh*-phrase *not* to be subject to span marking. And indeed, this is what we find. Uribe-Etxebarria (2002); Etxepare and Uribe-Etxebarria (2005) note that there is no difference between the intonation of the pre-*wh*-phrase span of a Spanish sentence with *wh*-in-situ and the intonation of a comparable declarative sentence.³ In other words: Spanish lacks span marking, and therefore cannot use Grouping to satisfy its Contiguity-theoretic needs.

Note, of course, that Spanish appears to employ a number of syntactic methods to ensure that in-situ *wh*-phrases appear clause finally. One option appears to be right-dislocation of elements that would normally follow the *wh*-phrase, as in (28).

(28) **Right-dislocation renders the *wh*-phrase clause-final**

tú le diste a quien # la guitarra?
you CL gave to who the guitar

‘Who did you give the guitar to?’

Reglero (2004)

Fernández-Sánchez (2017) argues at length that right-dislocation in Spanish of the sort demonstrated in (28) involves a biclausal structure involving ellipsis, mitigating against a potential analysis of the break in (28) as the outcome of a Grouping operation. One argument against this comes from an apparent structural paradox. (29) suggests that the right dislocated element is c-commanded by the subject, since condition C seems to hold between the two. But this would also suggest that the clitic correlate of the right dislocated element c-commands the right dislocated element—were this the case, we should always expect condition C to rule out right-dislocation. Fernández-Sánchez (2017) notes that a biclausal approach to right dislocation resolves the paradox elegantly: the subject is present in the elided content, but the clitic correlate is not.

(29) **Structural paradox for monoclausal approaches**

pro_i [lo] metió en la secadora, el suéter de Ana_i
it put in the dryer the sweater of A.

‘*She_i put it in the dryer, Ana_i’s sweater.’

Another option involves the use of non-canonical word orders in the post-verbal domain, as we see in (30). Inverting the order of *wh*-phrase and indirect object in (30) results in the *wh*-phrase being clause-final, allowing it to satisfy Contiguity without the need for Grouping.

³ We might now be wary about relying on intuitive judgements about intonation. I unfortunately must leave finding phonetic evidence for the lack of span marking in Spanish a topic for future research.

(30) Non-canonical word order renders the *wh*-phrase clause-final

- a. * *Yo le di qué a María*
I CL gave what to Mary

'What did I give to Mary?'

Reglero (2004), adapted

- b. *tú le diste a María el que?*
you CL gave to M. the what

'What did you give to Mary?'

Reglero (2004)

A further expectation of Spanish as a limited Grouping languages is that a similar restriction should hold for pied-pipers: the pied-piping element should have to be final in the pied-piped domain. The Agree relationship between Q and the *wh*-element cannot be satisfied by major Grouping for the same reason that the Agree relationship between C and the QP. As we see in (31), this expectation is borne out.

(31) Right-edge restriction on Spanish pied-pipers

- a. [*La estatua en el jardín de qué diosa*] *te ha dicho Juan que*
the statue in the garden of what goddess CL has said Juan that
había reconocido _____
had recognized

'[The statue in the garden of what goddess] did Juan tell you that he had recognized?'

- b. * [*La estatua de qué diosa en el jardín*] *te ha dicho Juan que*
the statue of what goddess in the garden CL has said Juan that
había reconocido _____
had recognized

'[The statue of what goddess in the garden] did Juan tell you that he had recognized?'

Uribe-Etxebarria (2002)

4.2.2 Bantu

In the previous subsection, we compared two left-headed, right-active languages: French and Spanish. The former has span marking associated with *wh*-in-situ, and allows major Grouping; the latter does not have span marking associated with *wh*-in-situ and does

not allow major Grouping. In this subsection, we compare two left-headed, right-active languages from a different language family: Chichewa and Zulu. Here, again, we will see that the former has span marking associated with *wh*-in-situ, and thus allows major Grouping, whereas the latter does not, and is a limited Grouping language.

4.2.2.1 Chichewa

I follow Richards (2016) in assuming that Chichewa is a left-headed, right active language. This should not be surprising—we have seen in the previous three chapters of this thesis that Bantu languages generally tend to be languages of this type.

As we see in (32), Chichewa allows *wh*-in-situ, and does not require its *wh*-phrases to be clause final. Given the generalization laid out previously in this chapter, this means that Chichewa allows major Grouping, and should therefore have some sort of span marking.

(32) ***wh*-phrase need not be adjacent to the verb—unrestricted Grouping**

- a. *A-ná-páts-a mw-aáná chiyáani*
9-Past-give-fv 1-child what

‘What did he give the child?’

- b. *A-ná-páts-a ndaáni zóováala*
9-Past-give-fv who 10.clothes

‘Who did he give clothes to?’

Downing (2008)

Downing, Mtenje, and Pompino-Marschall (2004) find that this is the case. They note that the presence of focus bearing elements—including *wh*-phrases—induces two effects on the realization of the sentence. The first is the insertion of a prosodic boundary immediately to the right of the *wh*-phrase, diagnosed by the application of penultimate lengthening. The second is suspension of downdrift within the phonological phrase that contains the foci or *wh*-phrase. In other words, the form of span marking for foci and *wh*-phrases in Chichewa is comparable to that seen for Mongolian in chapter 3—downstep is suspended for the span of the sentence in between the *wh*-phrase and complementizer that targets it for Agree.

4.2.2.2 Zulu

Zulu contrasts with Chichewa in much the same way that Spanish does with French. Recall from chapter 2 of this thesis that Zulu is a left-headed, right-active language, as the following syntactic tests for prosodic activity indicate.

(33) Syntactic tests suggest that Zulu is a left-headed, right-active language

- a. *Ngi-buze [ukuthi uPeter u-thenge-ni]*
1SG-asked that 1a.Peter 1a-bought-what.9

'I asked what Peter bought'

Sabel and Zeller (2006)

- b. *[Isiboneло sika-bani] oku-melwe si-si-landel-e*
AUG.7.example 7.ASSOC.1-1.who 17.REL-ought 1PL.S-7.O-follow-SUBJ

'[The example of who] ought we to follow?'

Richards (2017a)

- c. *A-ngi-wu-bon-i kahle umbala oluhlaza*
NEG-1sg.S-3O-see-NEG well AUG.3color 3REL-green

'I don't see the color green well'

C. Halpert (p.c.)

- d. *u-m-khumbi-m-khathi*
AUG-NPX3-3.ship-NPX3-3.firmament
'spaceship'

de Dreu (2008)

In Zulu, unlike Chichewa, *wh*-phrases that remain in-situ may not appear sentence medially, as we see in (34). This suggests that Zulu is like Spanish, in allowing only minor Grouping. If this is in fact the case, we should expect Zulu to not exhibit span marking of the sort exhibited in Chichewa.⁴

(34) No sentence medial *wh*-in-situ in Zulu

- **Ba-fundis-e-ni izingane*
2-teach-PREF-what 10.children

'What did they teach to the children?'

Buell (2009)

Downing (2008) finds that this is indeed the case. There, it is noted that Zulu has no particular prosodic signature associated with interrogative force. Furthermore, the presence of a *wh*-phrase or foci does not result in the suspension of downstep within the phonological phrase that contains it. The generalization that held for the Romance languages examined in this section appears to hold in Bantu as well: languages that have span marking allow major Grouping, whereas languages that do not have span marking do not allow major Grouping.

⁴ Zulu has been characterized as having a requirement that *wh*-phrases must appear in a position immediately after the verb. The theory developed in this chapter will account for this property as well.

Note, in addition, that Zulu makes use of a syntactic strategy to render sentences like (34) acceptable while leaving the *wh*-phrase in-situ. As we see in (35), right dislocation of the object that follows the *wh*-phrase, as diagnosed by the obligatory presence of a cross-referencing object marker on the verb and sharp prosodic break, allows the *wh*-phrase to remain in-situ. By evacuating this element from vP, the *wh*-phrase ‘coincidentally’ attains a position of Contiguity-prominence, allowing Contiguity to be satisfied for the Agree relationship between the *wh*-phrase and C.

(35) **Right dislocation co-occurs with *wh*-in-situ in Zulu**

Ba-zi-fundis-e-ni, izingane
2-100M-teach-PREF-what 10.children

‘What did they teach to the children?’

Buell (2009)

4.2.3 Recap

At the outset of this chapter, I noted that Grouping applies in heterogenous environments. One environment involves linear adjacency between the probe and goal, in which case either the probe or goal is manipulated by the Grouping Procedure. Another environment does not involve such adjacency—in these cases, elements which are neither the probe nor the goal are manipulated by the Grouping procedure, so that Contiguity between the probe and goal may be satisfied. I speculated that the latter sort of Grouping, which I termed ‘major Grouping’, could apply only in languages in which the ‘span’ of the sentence between the probe and goal was marked phonologically. In this section, I showed that this speculation appears to be borne out—languages like French and Chichewa have span marking and allow major Grouping, whereas languages like Spanish and Zulu lack span marking and disallow major Grouping.

4.3 ***Wh*-in-situ in Bùlì, and ‘almost at the end’ restrictions**

In the previous sections of this chapter, I posited a restriction on major Grouping, repeated in (36).

(36) **The limited Grouping generalization**

If a language does not display span marking for *wh*-phrases, then it does not allow major Grouping to satisfy Contiguity between C and the *wh*-phrase.

I showed that a number of languages conform to this generalization—these languages allow in-situ *wh*-phrases only when the in-situ *wh*-phrase is ‘coincidentally’ able to satisfy Contiguity. In this section, we will examine Bùlì, a Mabia language spoken primarily in Sandema, located in the north-east of Ghana.⁵ We will see that Bùlì is like Spanish and Zulu, in that it is a left-headed, right-active language which conforms to this generalization.

The main point of interest in this section comes from curious restrictions on in-situ *wh*-phrases in Bùlì, where in-situ *wh*-phrases are not allowed if they have a sister which is higher than them on the prosodic hierarchy. I will then show that the version of Contiguity assumed throughout this dissertation—which differs from that of Richards (2016)—captures these facts. Finally, I show that similar restrictions can be found in Zulu, and show that the theory proposed for Bùlì extends straightforwardly to these cases as well. Crucially, these facts militate against a potential counter-theory, in which the intervention effects discussed throughout this thesis have a syntactic source that ends up having a consistent effect on the prosody, rather than being a prosodic requirement proper.

4.3.1 An introduction to Bùlì, with diagnostics for prosodic activity

In this section, I will establish that Bùlì is a left-headed, right active language. Bùlì, canonically, has an SVO word order, as demonstrated in (37).

(37) **Transitive clause**

bí:ká	díg	lāmmú
child.DEF	cook.PST	meat.DEF

‘The child cooked the meat.’

Word order in Bùlì is quite rigid. The language lacks scrambling of any sort; furthermore, it also lacks “classical” A-movement phenomenon such as passive constructions and raising.

I suggest that Bùlì is a language with prosodic activity on the right. One argument for this comes from a process of rightward tone spreading, which is sensitive to the presence of phonological boundaries. The general schema for rightward tone spread in Bùlì is detailed in (38). As we see in (38), a lexical low tone spreads rightward onto a following lexical high tone. If there is only one high tone to the right of the low tone [say, the high tone is followed by anything other than a high tone, or is it the end of an utterance], then the underlying high tone surfaces as a L + H contour, schematized in (38a). If there are

⁵ Thanks to Abdul-Razak Sulemana for his help with this section.

two high tones in sequence to the right of the low tone, the medial tone is realized as L, but L tone does not spread onto the second underlying high TBU, as shown in (38b).

(38) **Tone spreading is rightward in Bùlì ...**

- a. L H → L L + H
- b. L H H → L L H

Tone spreading, crucially, is bounded by prosodic structure, which I will denote in the following examples using a “|”. (39) contrasts with (38)—we see that an underlying L tone fails to spread onto an H to its right if the relevant TBUs are separated by a prosodic boundary.

(39) **...and sensitive to prosodic structure**

- a. L | H → L | H
- b. L | H H → L | H H

A concrete instance of this can be seen in (40). Much of this section will deal with the prosodic structure of the VP in double object constructions, since it is here that this test can be most readily employed. However, at times, it will be necessary to posit prosodic boundaries for which there is no phonological evidence, since the lexical items involved do not bear proper tones for the test above to apply.

(40) **Tone spreading is boundary sensitive**

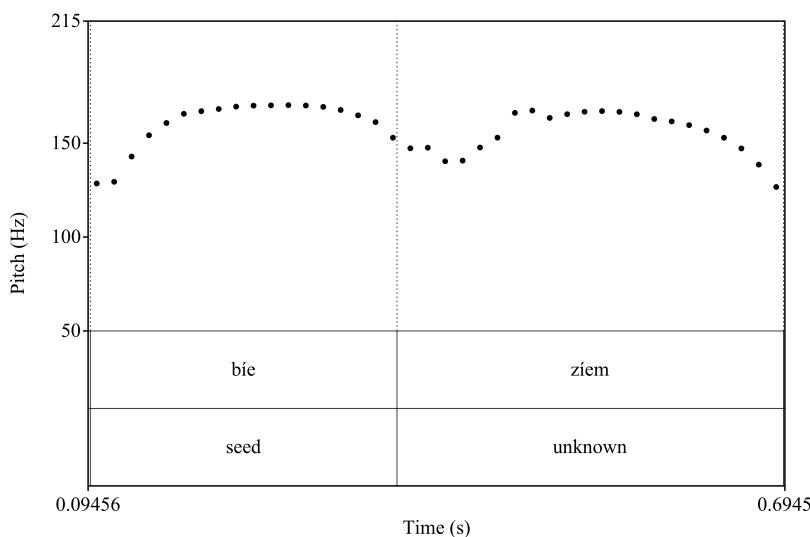
- a. nà:b ‘chief’; bí:k ‘boy’; bīaká ‘dog’
- b. Fì tè nà:b bǐ:k
2.sg give.pst chief boy
‘You gave the chief a boy.’
- c. Fì tè [nà:b bǐ:k] bīaká
2.sg give.pst chief boy dog.DEF
‘You gave the chief’s boy the dog.’
- d. Fì tè nà:b [bí:k bīaká]
2.sg give.pst chief boy dog.DEF
‘You gave the chief the boy’s dog.’

- e. *Fì tè [biaká nà:b] bí:k*
 2.sg give.pst dog.DEF chief boy
 ‘You gave the dog’s chief a boy.

In (40b), we see that the tone on the first object in a double object construction may spread onto the second object in such a construction. (40c) gives us another instance of tone spreading, this time within the first object, where tone spreads from *nà:b* onto *bí:k*. (40d) shows us that tone spreading from the first object into the second is blocked so long as the second object consists of more than one phonological word. Similarly, (40e) shows us that tone spreading across the right boundary in the first object onto the second object is also blocked.

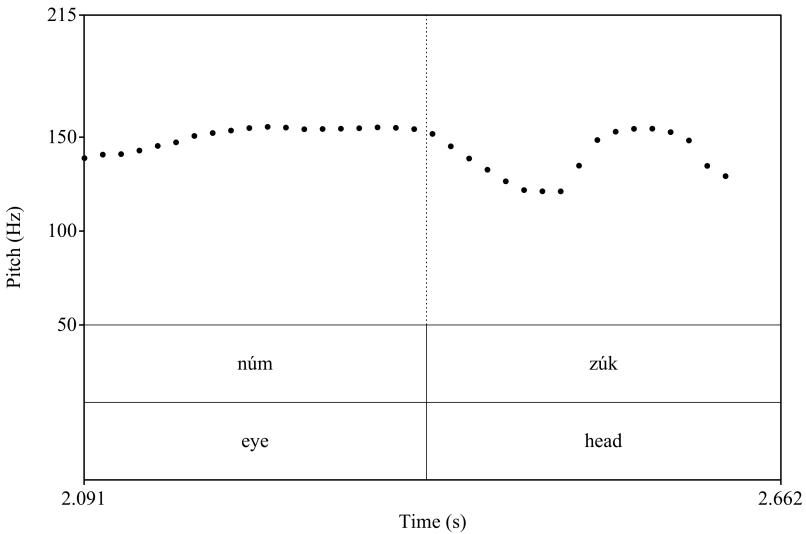
An additional argument for right-active edges in Bùlì comes from Norvin’s Test. We have seen before that languages with prosodic activity on the right tend to have relatively flat pitch peaks in DPs that contain two content words, whereas languages with prosodic activity on the left tend to boost the pitch peak of the leftmost element above that of the word on the right. As we see in (41), Bùlì displays the former sort of pattern, consistent with the analysis of it as a right-active language. (41a) was taken from a DP in subject position, whereas (41b) was taken from a DP in object position, showing that this property is not associated with DPs in particular places in a sentence.

- (41) a.



‘unknown seed’

- b.



‘traditional Bulsa monster’

One syntactic argument for prosodic activity being on the right in Bùlì comes from the lack of a left-edge restriction on pied-piped elements, as we see in (42). Pied-piping *wh*-phrases can appear at the left edge of the pied-piped phrase, as in (42a), but need not be, as we see in (42b). Throughout this thesis, we have seen that the lack of a left-edge restriction on pied-pipers is a reliable diagnostic for prosodically active right edges in a language.

(42) No left edge restriction on pied-pipers

- a. *ka* [*wān mātwā túa*] *ātì fí á-yā:lī*
KA who mother sister ĀTÌ you IMPFV-love

‘Whose mother’s sister do you love?’

- b. *ka* [*AJohn mātwā bwā:*] *ātì fí á-yā:lī*
KA John mother what ĀTÌ you IMPFV-love

‘John’s sister’s what do you love?’

Another syntactic argument for this analysis of Bùlì comes from the directionality of headedness in compound nominals. We have seen before that the headedness of compound nominals correlates with whether a language has prosodic activity on its left or on its right; languages that have left-headed compounds generally have prosodic activity on the right. As we see in (43), this diagnostic suggests that Bùlì is a language with prosodic activity on the right.

- (43) chí-káúk

‘Halbmond’ ‘moon + tail’ ‘crecent moon’

Schwarz (2005)

It is worth noting here that Schwarz (2005) notes Bùlì appears to have two types of N-N compounding, one which is left headed and one which appears to be right headed. However, Schwarz (2005) also notes that the apparently right headed form of compounding might not be compounding at all. The apparently right-headed form of compounding, according to Schwarz, is more or less analogous to a sort of associative or possessive construction independently attested in the language, if both the associator and associated happened to be indefinite. Evidence for this comes from the fact that both nominals in the right-headed form of compounding may bear number suffixes, and must obligatorily be suffixed with independent suffixes indicating their noun class, as seen in (44).

- (44) a. bīā-k zúk

‘Hundekopf’ ‘dog + head’ ‘dog-head’

- b. nà-límà kpāgī

‘Paramount Chief’ ‘Chief.PL leader’

Schwarz (2005)

However, in the left-headed form of compounding, the presence of such suffixes is banned on the nominal which does not head the compound.

- (45) *chíí-k káúk

Furthermore, the underlying tones of both elements in the compound is preserved in the putative right-headed compound, but is not in the left-headed type of compound construction.

4.3.2 Restrictions on *wh-in-situ* in Bùlì

We have now established that Bùlì is a left-headed language with prosodic activity on its right. We turn now to the question of whether it should be considered a language with limited Grouping, or a language with unrestricted Grouping. Our diagnostic for a limited Grouping language is one in which the prosodic structure of sentences involving foci and the prosody of sentences with in-situ *wh*-phrases is identical, if the only varying factor is whether one element is a *wh*-phrase or focal element.

As we see in (46), Bùlì is an optional *wh*-in situ language, as expected of a language with heads on the left and prosodic activity on its right. *wh*-phrases are obligatorily

preceded by the particle *ka*.⁶

(46) **Optional *wh*-in situ**

- a. *bí:ká dìg ká b^wā-á:*
child.DEF cook.PST KÁ what
‘What did the child cook?’
- b. *ká b^wā ātì bí:ká dìg-á: _____*
KÁ what ĀTÌ child.DEF cook.PST
‘What did the child cook?’

The same is true of focus marked phrases, as we see in (47). Here too, *ka* must precede the focused element.

(47) ***Ka* also marks focus**

- a. *bí:ká dìg ká lām*
child.DEF cook.PST KÁ meat
‘The child cooked meat.’
- b. *ká lām ātì bí:ká dìg-á: _____*
KÁ meat ĀTÌ child.DEF cook.PST
‘The child cooked meat.’

Clearly, in Bùlì, there is a syntactic similarity between sentences with in-situ foci and sentences with in-situ *wh*-phrases. Schwarz (2009) makes an interesting finding about the prosody of focus in Bùlì and other Gur languages, namely, that the language does not appear to make use of the prosody to mark focus at all. If this is the case, then we might expect Bùlì to exhibit limited Grouping, since the prosodic structure of a sentence with narrow focus and the prosodic structure of a sentence with an in-situ *wh*-phrase will be identical—in addition to being identical to the prosodic structure of a declarative sentence with broad focus. In other words: Bùlì lacks span marking, for both foci and *wh*-phrases, and should therefore be a limited Grouping language.

We expect the presence of a larger prosodic category to the right of an in-situ *wh*-word to render the sentence ungrammatical. As we see in (48), there are a set of manner adverbs

⁶ A long sentence final particle, -á:, appears sentence finally in Bùlì for both content questions as well as yes/no questions.

that clearly count as their own prosodic constituent, as they are obligatorily preceded by a prosodic break.

(48) Manner adverbs introduce a prosodic break

- a. *Fì dìg lām, nwúli-nwúli*
2.sg cook meat quickly

‘You cooked meat quickly.’

- b. *Fì dìg lām, nwúlí-nwúlí -à:*
2.sg cook meat quickly

‘Did you cook meat quickly?’

Interestingly, as we see in (49a), the presence of such an adverb blocks *wh*-in-situ. Fronting the *wh*-phrase results in grammaticality, as we see in (49b).

(49) Manner adverb blocks *wh*-in-situ

- * *Fì dìg ká bwā, nwúlí-nwúlí -à:*
2.sg cook KA what quickly

‘What did you cook quickly?’

- a. *Ká bwā átí Fì dìg ___, nwúlí-nwúlí -à:*
KA what ATI 2.sg cook _____ quickly

‘What did you cook quickly?’

In other words: Bùlì is indeed a limited Grouping language: *wh*-in-situ is allowed just in cases where the *wh*-phrase ‘coincidentally’ becomes clause final.

In Bùlì, however, the clause finality requirement seems somewhat relaxed. As we see in (50), an in-situ *wh*-phrase in Bùlì does not need to be strictly clause final. In a double object construction, either object may be a *wh*-phrase and remain in-situ. In the case of (50a), this leads to the *wh*-phrase not being sentence final.

(50) *wh*-phrase need not be sentence final.

- a. *Asouk tè [ká wān] [gbánka] -à:*
A. give KA who book.DEF

‘Who did Asouk give the book?’

- b. *Asouk tè AMari [ká bwā] -à:*

A. give M. KA what

‘What did Asouk give Mary?’

This contrasts with Spanish, as we see in (51).

- (51) * *Yo le di qué a María*

I CL gave what to Mary

‘What did I give to Mary?’

Reglero (2004), adapted

In the following subsection, I will suggest that the difference between Spanish and Bùlì has to do with a particular Match-theoretic choice all languages must make.

4.3.2.1 An extension of the account

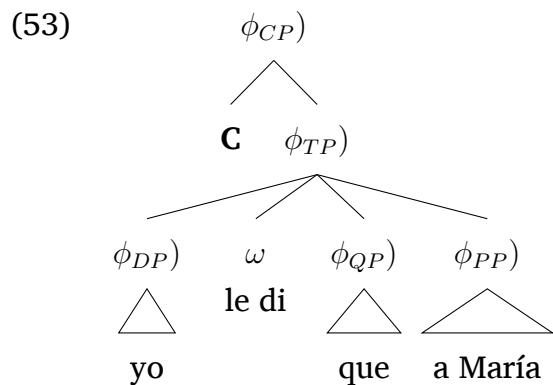
Previously, in this chapter, it was argued that the sentence in (52) is ungrammatical because it has a prosodic structure like (53), in which Contiguity between the *wh*-phrase and C is not respected.

- (52) * *Yo le di qué a María*

I CL gave what to Mary

‘What did I give to Mary?’

Reglero (2004), adapted



Since Spanish is a limited Grouping language, it is not possible to alter the prosodic structure in (53) in a way that will lead to Contiguity being satisfied.

Given what we have said so far, if the prosodic structure for a sentence like (54) has a comparable prosodic structure to (53), like (55), then we should expect the sentence to be

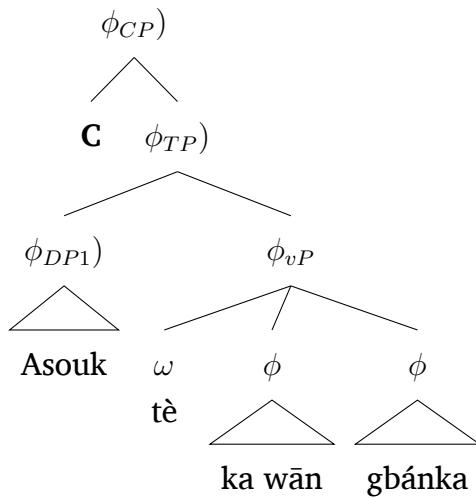
ungrammatical for the same reason that (52) was not allowed.⁷ This is clearly incorrect, since the sentence is judged acceptable.

- (54) *Asouk tè [ká wān] [gbánka] -à:*

A. give KA who book.DEF

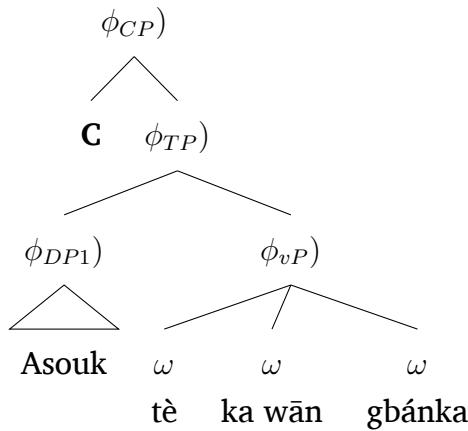
'Who did Asouk give the book?'

- (55)



I would like to suggest that the prosodic structure in (55) is indeed incorrect, and that the prosodic structure in (56) is what Bùlì instantiates. Crucially, in this structure, both objects map to phonological *words*, rather than phonological *phrases*.

- (56)



Given the structure in (56), and the definition of Contiguity assumed throughout this thesis, repeated in (57), we expect *wh-in-situ* to be allowed in these cases. In (56), there is

⁷ The approach to the syntax-prosody mapping assumed in this thesis predicts that languages with V-to-T movement, like Spanish, will have 'flatter' prosodic structures than those without, like Bùlì.

no other ϕ that lies between the *wh*-phrase and the prosodically active edge of ϕ_{CP} ; the *wh*-phrase is therefore Contiguity-prominent within ϕ_{CP} , although it is not at the linear edge of ϕ_{CP}

(57) **Contiguity *in toto***

a. *Contiguity*:

Goals must be *Contiguity prominent* within a ϕ that dominates a probe that Agrees with them.

b. *Contiguity prominent*:

G is *Contiguity-prominent* within ϕ_1 if no other ϕ lies between G and the prosodically active edge of ϕ_1 , and ϕ_1 dominates G .

We might now wonder: why should Bùlí allow a prosodic structure like (56) for its double object constructions, whereas Spanish does not? I would like to suggest that this reflects a parametric choice in terms of how languages deal with particular prosodic structures, in which a phonological phrase whose existence is dictated by Match Theory dominates only one phonological word, as in (58).

(58) **Prosodic structure of interest**



Much work in the prosodic literature [Mester (1994); Selkirk (2000); Ito and Mester (2007); Selkirk and Elordieta (2010); Elfner (2012); Ito and Mester (2015)] suggests that structures of the sort in (58) are dispreferred.

(59) **BinMin**

Avoid unary branching prosodic structure.

Match Theory thus runs into a conflict with this dispreference for unary branching prosodic structure whenever an XP dominates only one phonologically overt terminal: if Match Theory is followed strictly, a unary branching ϕ will be created; if binarity is to be satisfied, Match Theory must be violated. I would like to suggest that this creates a choice point: in languages like Bùlí, Match Theory is violated to avoid the creation of a structure like (59); in languages like Spanish, Match Theory is never violated in this way.

Recall that facts about tone spreading suggest that the proposed prosodic structure is on the right track: tone spreading may take place between objects, so long as both of the objects consist of a single word. If tone spreading cannot cross a ϕ boundary, this is what we expect: in the cases where tone spreading is blocked, as in (60d-e), there will always be a ϕ boundary present, blocking tone spreading.

(60) **Tone spreading is boundary sensitive**

- a. nà:b 'chief'; bí:k 'boy'; bīaká 'dog'
- b. *Fì tè nà:b bǐ:k*
2.sg give.pst chief boy
'You gave the chief a boy.'
- c. *Fì tè [nà:b bǐ:k] bīaká*
2.sg give.pst chief boy dog.DEF
'You gave the chief's boy the dog.'
- d. *Fì tè nà:b [bí:k bīaká]*
2.sg give.pst chief boy dog.DEF
'You gave the chief the boy's dog.'
- e. *Fì tè [bīaká nà:b] bí:k*
2.sg give.pst dog.DEF chief boy
'You gave the dog's chief a boy.'

If the analysis put forth in this section is on the right track, then we should expect sentence medial *wh-in-situ* in Bùlì double object constructions to be blocked when the second object consists of two or more phonological words. As we see in (61), this expectation is borne out. When the second object is phonologically heavy, either the *wh*-phrase must be clefted, as in (61b), or the phonologically heavy element must be clefted, as in (61c).

(61) **Larger second object forces fronting**

- a. * *Fì tè [ká wān] [gbán kpion] -à:*
2SG give KA who book big
'Who did you give a big book?'

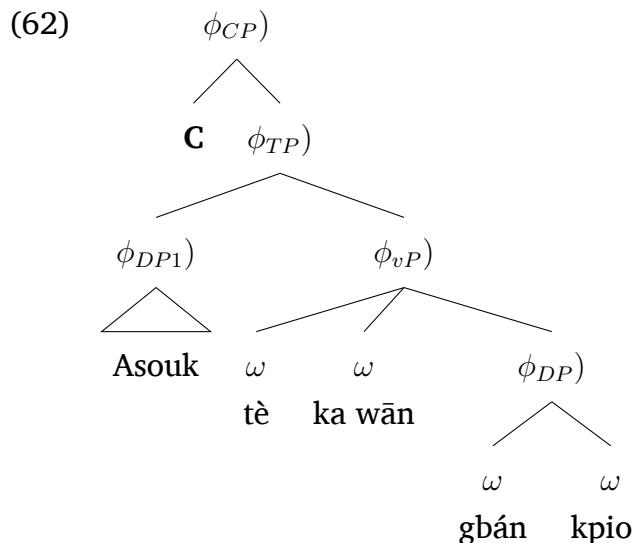
- b. *ka wan ātì fi te* _____ *gban kpion -à:*
KA who ATI 2SG give book big

‘Who did you give a big book?’

- c. *kā gbán kpion ātì fi tè wān -à:*
KA book ATI big 2SG give who

‘Who did you give a big book?’

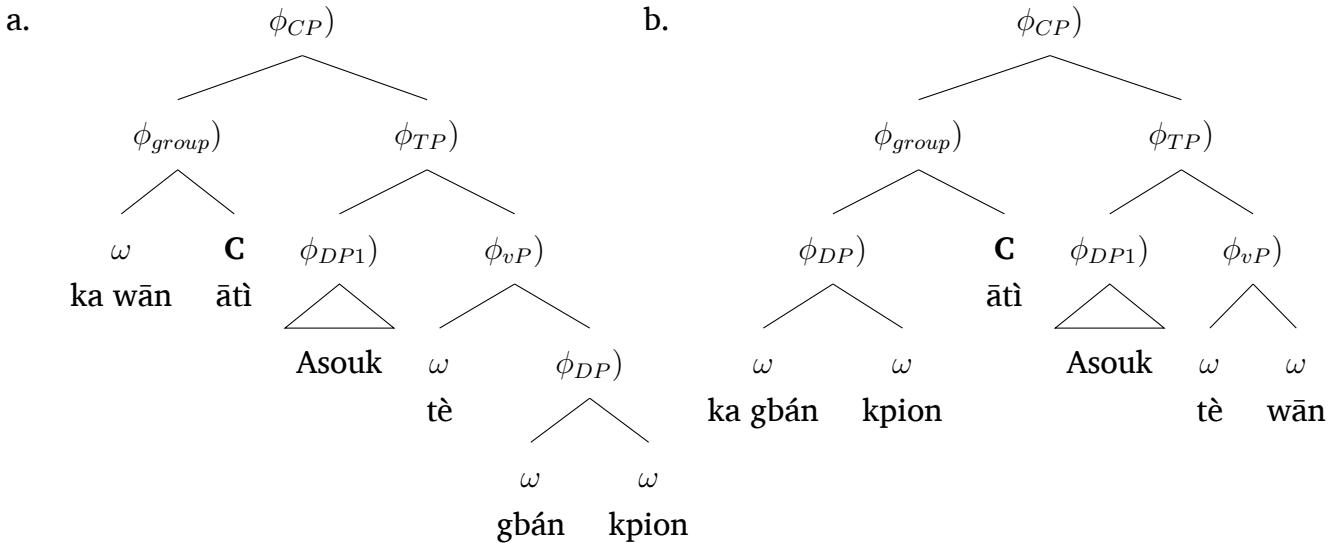
Under the theory presented so far, we expect (61a) to have a prosodic structure like (62). In (62), the in-situ *wh*-phrase is not Contiguity-prominent in ϕ_{CP} : ϕ_{DP} prevents it from being prominent.⁸



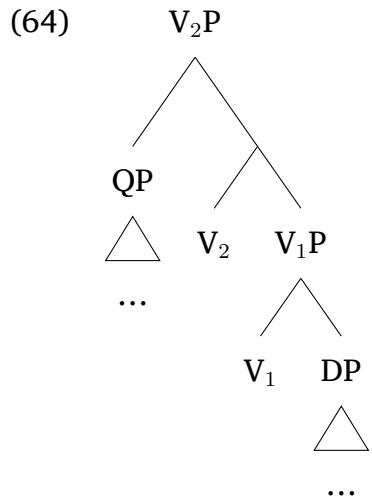
Clefting, either of the *wh*-phrase, as in (63a), or of the other object, as in (63b), will create a prosodic structure in which the in-situ *wh*-phrase may satisfy Contiguity. In both cases, the *wh*-phrase is Contiguity-prominent in ϕ_{CP} , since it is at the right edge of ϕ_{CP} .

- (63)

⁸ It is important for the theory at hand that phrases marked with *ka* should not count as ϕ . In other words, *ka* is a prosodic clitic of some sort, rather than constituting a full-fledged lexical word, which would presumably map to ω .



These facts are accounted for straightforwardly under the sort of theory developed in this thesis: the prosodic weight of a constituent here is clearly what determines whether or not something is an intervener.⁹ This would be unexpected under a possible alternative theory, in which the status of an element as an intervener is the result of some syntactic requirement that ends up having a consistent effect on the prosodic realization of the sentence. This sort of theory would, in configurations like those in (64), be able to determine whether or not DP dominates two lexical words, or only one lexical word, in order to determine its status as an intervener.



⁹ We have seen comparable effects throughout this thesis. In chapter 1, we saw that prosodically light experiencers did not count as interveners in raising for left-headed, right active languages. Likewise, in chapter 2, we saw that prosodically light adverbs could appear between a fronted *wh*-object and verbal complex in Romance languages.

The status of the second object as an intervener in Bùlì, then, seems to be determined not by any particular syntactic status, but rather by its prosodic weight.

4.3.2.2 The effect of Equal Sisters

In the previous subsection, we saw that prosodic requirements like BINMIN allow *wh*-phrases to remain in-situ in Bùlì even when they are not strictly clause final. The satisfaction of BINMIN, in languages like Bùlì, creates a prosodic structure in which Contiguity may also be satisfied. We might now wonder if Contiguity and prosodic requirements like BINMIN ever come into conflict. If they do, this would provide us with further evidence that the correct theory of these sorts of effect is one that makes reference to a purely prosodic requirement—Contiguity—rather than some requirement that is strictly syntactic, but with consistent prosodic consequences.

Facts like (65) suggest that Contiguity and prosodic requirements like BINMIN do come into conflict. In (65), we see that a *wh*-phrase cannot remain in-situ sentence medially when it is phonologically heavy.

(65) Larger first object forces fronting

- a. *Asouk tè [ká wān bí:k] [lām] -à:
A. give KA who child meat

“Whose child did Asouk give meat?”

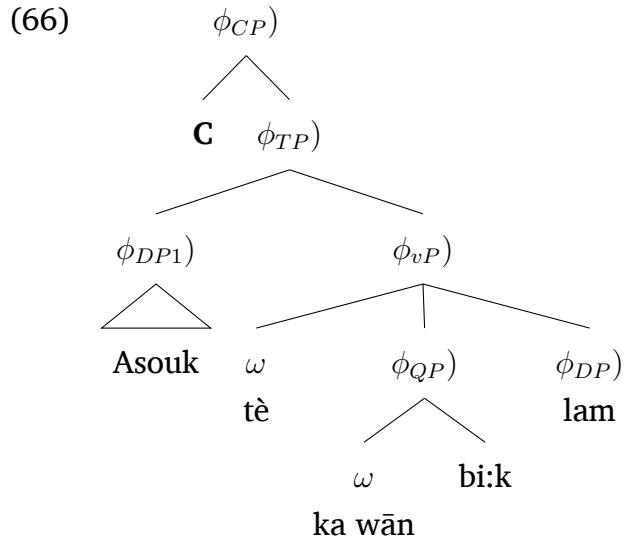
- b. ka wan biik ati Asouk te _____ lam -à:
KA who child ATI A. give meat

“Whose child did Asouk give meat?”

- c. ká lām átì Asouk tè wān bí:k -à:
KA meat ATI A. give who child

“Whose child did Asouk give meat?”

This would suggest that (65a) has a prosodic structure like (66). The in-situ *wh*-phrase, in such cases cannot remain in-situ, because there is a ϕ which appears to its right.

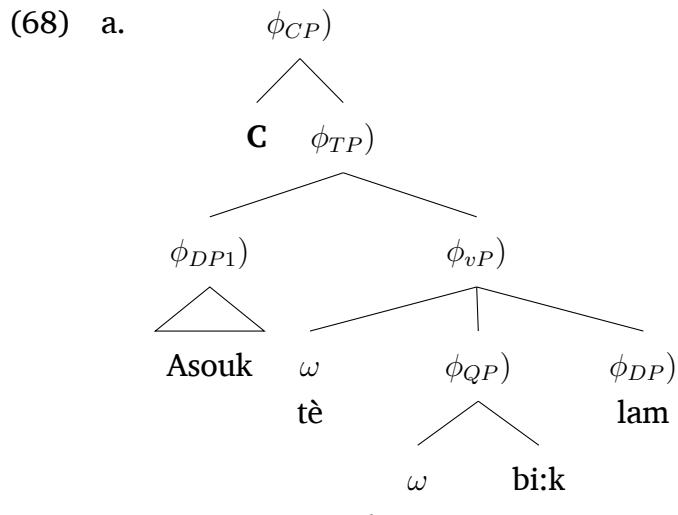


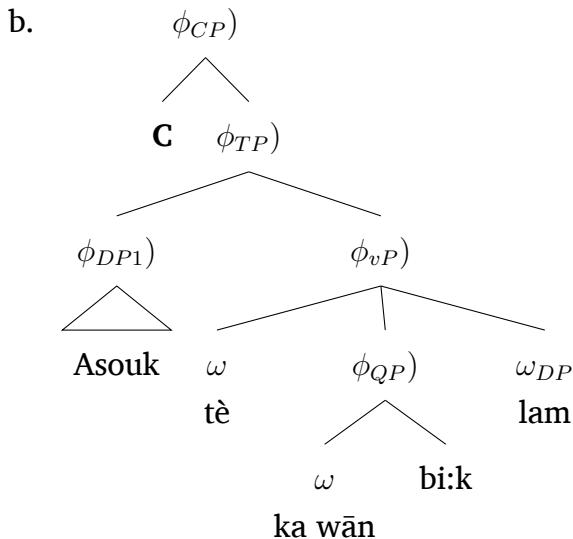
We might now wonder: why is BINMIN violated in (66)? ϕ_{DP} dominates only one overt terminal, in violation of BINMIN. I would like to suggest that this can be seen as the influence of another prosodic well-formedness requirement: EQUALSISTERS [Myrberg (2013)]. EQUALSISTERS is a requirement that prosodic phrases be ‘balanced’—when possible, sisters under a prosodic node should match in category.

(67) EqualSisters

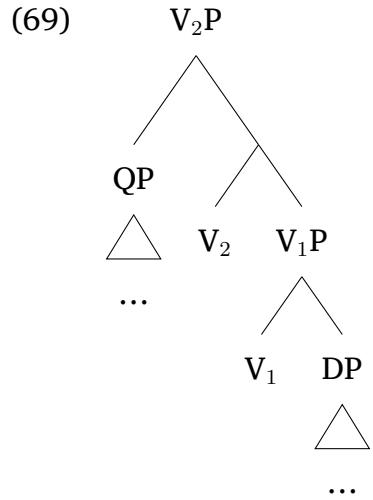
The sisters of a ϕ must also be ϕ

More specifically: the need to satisfy EQUALSISTERS must be more important than the need to satisfy BINMIN. As a result, the prosodic structure in (68a), which satisfies EQUALSISTERS is preferred over the prosodic structure in (68b), which satisfies BINMIN. We will want (68b) to be ruled out, since this would incorrectly predict that the *wh*-phrase should be able to remain in-situ in such sentences.





These facts, again, pose a serious challenge to a possible alternative theory which locates the cause of this effect squarely in the syntax. Such a theory, for a configuration like (69), would need a mechanism to examine the DP to ensure that it does not dominate more than one lexical word—to capture the facts discussed in the previous subsection. This mechanism would also need to be able to examine the QP, to ensure that it too does not dominate more than one lexical word, to capture the facts discussed here.



A prosodic theory—like the one I have developed—leads us to expect there to be such distinctions. Match Theory, alongside the version of Contiguity assumed throughout this thesis leads us to expect there to be distributional differences that are determined purely by the prosodic weight of the constituents involved.

The theory I have developed, however, does raise several questions. Among them are: Why is the verb, *tè*, not also mapped to a ϕ ? What is the mechanism that allows Match

Theory to be violated for unary branching ϕ in some cases, but not others? The following subsection will provide an answer to these questions.

4.3.3 Match theory, prosodic requirements, and demotion

In this section, we have been entertaining the idea that prosodic well-formedness requirements might interact with Contiguity in interesting ways—either enabling *wh*-phrases to remain in-situ when we might not expect them to be able to, as in (70a); or by preventing them from remaining in-situ when we might expect them to, as in (70b).

- (70) a. *Asouk tè [ká wān] [gbánka] -à:*
A. give KA who book.DEF

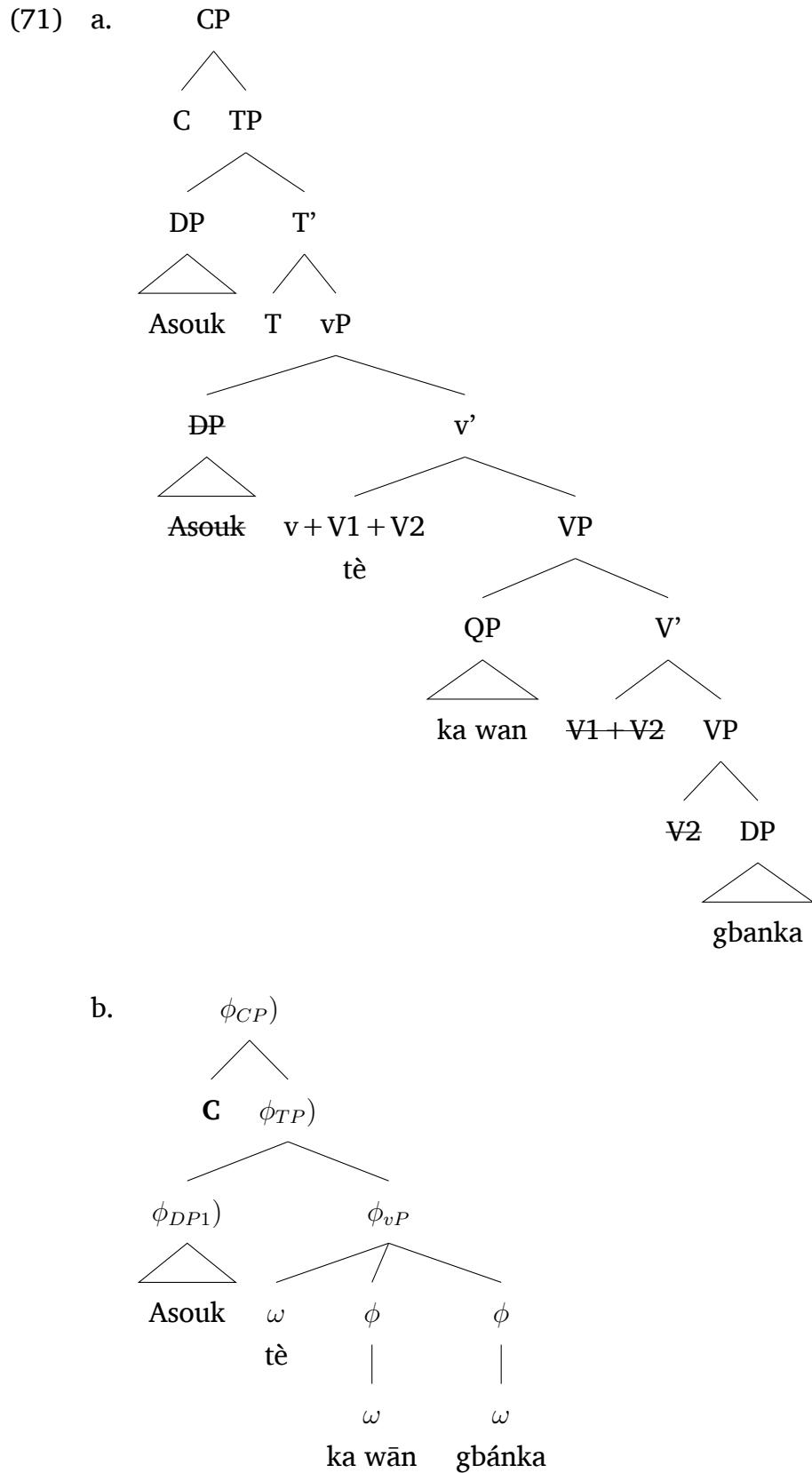
‘Who did Asouk give the book?’

- b. **Asouk tè [ká wān bí:k] [lām] -à:*
A. give KA who child meat

“Whose child did Asouk give meat?”

It was suggested that, in the case of (70a), that a prosodic requirement, BINMIN, results in both the *wh*-phrase and object that follows it being mapped to ω ; as a result, the *wh*-phrase is able to be Contiguity-prominent without being ϕ -final. In the case of (70b), a different prosodic requirement, EQUALSISTERS, required both the *wh*-phrase and object that follows it to map to ϕ ; as a result, the *wh*-phrase is not able to be Contiguity-prominent even though it is followed by a single phonological word, comparable to the *wh*-phrase in (70a).

In this section, I will attempt to construct a theory that can make sense of these interactions. I would like to suggest that these cases all involve an opaque interaction: a prosodic structure which conforms to Match Theory is first generated, as in (71); further prosodic operations alter this structure so that it can conform with BINMIN and EQUALSISTERS. At this level of representation—one in which Match Theory is fully respected—for instance, given a syntactic structure like (71a), the prosodic structure for (70a) will look like (71b).



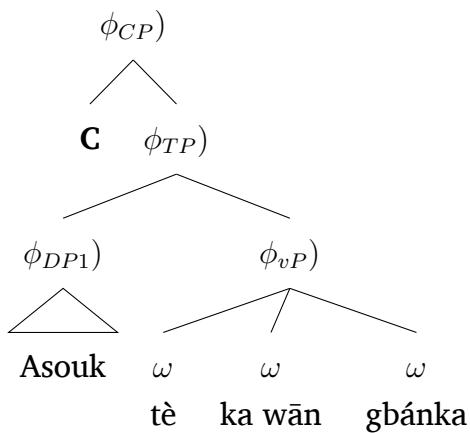
(71b) is good under Match Theory, but does not satisfy BINMIN. I suggest that an operation of Demotion takes place so that this may happen, as formulated in (72).

(72) Demotion

Substitute a ϕ with the ω that it dominates.

After Demotion has applied to both of the objects, the correct prosodic structure emerges, with the aforementioned consequence for the Contiguity relationship between C and the *wh*-phrase.

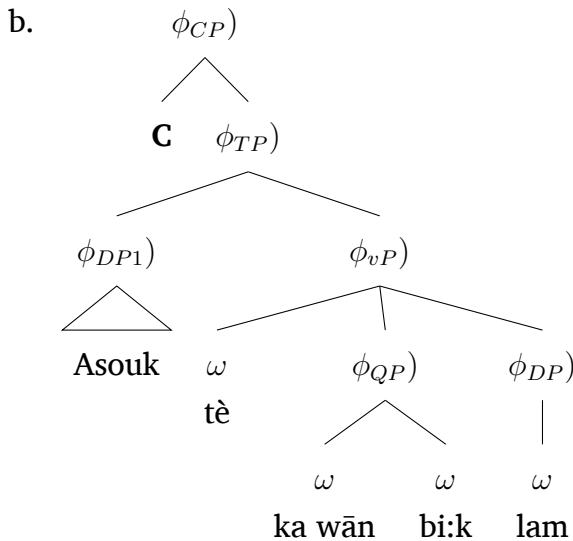
(73)



Consider now a comparable prosodic structure for (74a), given in (74b). (74b) is good under match theory, but does not satisfy BINMIN. However, here Demotion is blocked. Demoting ϕ_{DP} would result in an [additional] violation of EQUALSISTERS, and is therefore ruled out.

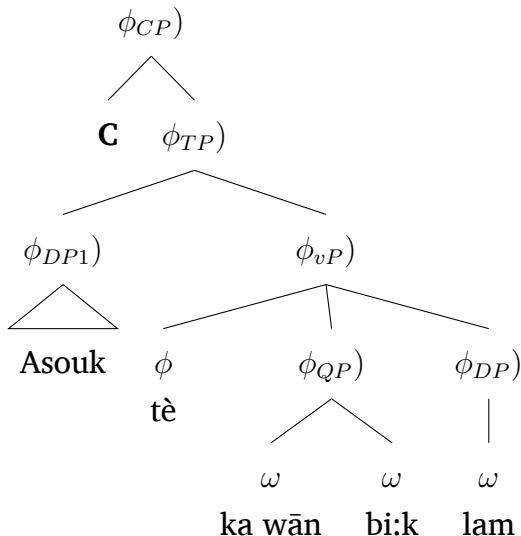
- (74) a. *Asouk tè [ká wān bí:k] [lām] -à:
 A. give KA who child meat

“Whose child did Asouk give meat?”



It is worth mentioning here that EQUALSISTERS will always be violated whenever the sister of a verb consists of two or more phonological words: this sister will always map to a ϕ , but the verb will map to an ω , resulting in EQUALSISTERS being violated. However, the derivational approach assumed correctly rules out a prosodic structure like that in (75), where the verb has been ‘promoted’ into a ϕ . This structure would not have any EQUALSISTERS violations. The structure in (75) cannot be generated under the theory presented here, since there is no way of ‘promoting’ an ω into a ϕ : EQUALSISTERS blocks the application of Demotion in Bùlì, but there is no corresponding promotion operation it may trigger.

(75) Impossible prosodic structure



4.3.4 Almost sentence final restrictions in Zulu

So far, this section has dealt with restrictions on *wh*-in-situ in limited Grouping languages. We have seen, in languages like Bùlì, that *wh*-in-situ appears to be tolerated in cases where the *wh*-phrase is not strictly final in the prosodic phrase which contains it. I argued that this resulted from two factors: the particular definition of Contiguity assumed throughout this thesis, and an operation of Demotion, which turns unary branching ϕ into ω .

It is worth noting that Zulu exhibits *wh*-in-situ phenomenon that are comparable to those that we saw in Bùlì. As we saw earlier in this chapter, in-situ *wh*-phrases in Zulu required elements that follow them to be right-dislocated. However, as we see in (76), this requirement appears to be lifted when the element that follows the *wh*-phrase is also a *wh*-element.

(76) **In-situ *wh*-phrases can follow in-situ *wh*-phrases**

U-zo-nik-a bani ini
2S-FUT-give-FV 1.who 9.what

“Who will you give what?”

Buell (2009)

Likewise, as we see in (77), an indefinite may also follow an in-situ *wh*-phrase without needing to be right-dislocated.

(77) **Indefinites can follow in-situ *wh*-phrases**

U-zo-thwal-is-a bani itafula
2S-FUT-carry-CAUS-FV 1.who 5.table

“Who will you help carry a table?”

Buell (2009)

Note that making the constituent which follows the *wh*-phrase larger results in ungrammaticality, as we see in (78).

(78) **Constituent size matters**

**U-zo-thwal-is-a bani leli tafula*
2S-FUT-carry-CAUS-FV 1.who 5.that 5.table

“Who will you help carry that table?”

Buell (2009)

The account proposed for Bùlì extends straightforwardly to the cases we are examining here. In the case of multiple *wh*-questions and indefinites, Demotion applies so that BINMIN might be satisfied, creating a prosodic structure in which the *wh*-phrase[s] satisfy

Contiguity without being phrase-final. In the case of (78), Demotion cannot apply to (*leli tafula*) ϕ , since that ϕ dominates more than one ω .

Zulu has a restriction similar to that which we saw in Bùlì, where the presence of a large prosodic constituent in the VP seemed to rule out *wh*-in-situ.

(79) **Mismatch restriction in Zulu**

- a. * *Ba-fundis-e izingane ini?*
2-teach-PERF 10.children what
“What did they teach the children?”
- b. *Ba-zi-fundis-e ni izingane*
2-10-teach-PERF what 10.children
“What did they teach the children?”

Buell (2009)

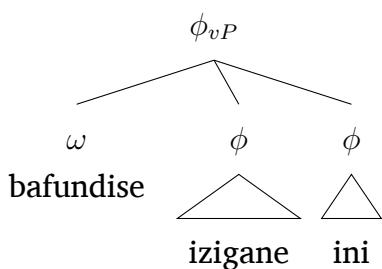
I would like to suggest that this reflects a restriction on Demotion in Zulu, given in (80).

(80) **Zulu restriction on Demotion:**

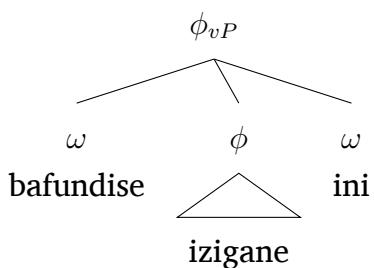
Apply Demotion only to *wh*-phrases and indefinites

In (79a), Demotion cannot apply to both the in-situ *wh*-phrase and definite object, since it would violate the restriction in (80). Nor could it apply to only the in-situ *wh*-phrase: this would turn a structure like (81a), into a structure like (81b), which is *worse* in terms of EQUALSISTERS.

(81) a.



b.



The option in (79b), then, is preferred because it results in a structure in which EQUALSIS-TERS, BINMIN, and Contiguity all are satisfied.

If this analysis is on the right track, then we should expect that a larger *wh*-phrase with the same order as the ungrammatical (79a) should be grammatical. And indeed, as we see in (82), this is the case.

(82) **Constituent size matters**

Ba-nik-e uSipho mali ni?
2-give-PERF 1.Sipho 9.money what

“How much money did they give Sipho?”

Buell (2009)

Zulu, then, is a limited Grouping language like Bùlì. It allows *wh*-in-situ only when the *wh*-phrase is ‘coincidentally’ able to become Contiguity-prominent. These languages are unlike Spanish in that their mapping of syntax to prosody is considerably more flexible, allowing these coincidences to arise more often than in the Spanish case.

4.4 Recap and discussion

4.4.1 Recap

This chapter dealt with limited Grouping languages, and when they do and do not allow *wh*-in-situ. The first and second sections dealt with why languages would differ in whether or not they allow Grouping to be utilized to satisfy Contiguity. There, we saw that there were two types of Grouping: minor Grouping, which targets probes and goals that are linearly adjacent, and major Grouping, which targets elements that are neither probes nor goals, at a distance. I noted that some languages seemed to lack major Grouping, and suggested that the lack of major Grouping was tied to a lack of span marking of the sort examined in chapter 3.

(83) **The limited Grouping generalization**

If a language does not display span marking for *wh*-phrases, then it does not allow major Grouping to satisfy Contiguity between C and the *wh*-phrase.

An examination of Spanish, French, Chichewa, and Zulu showed that this generalization is indeed borne out. French and Chichewa have span marking and allow major Grouping, whereas Spanish and Zulu lack span marking and do not allow major Grouping.

The second part of this chapter dealt with restrictions on clause medial *wh*-phrases in limited Grouping languages. We saw in the first part of this chapter that languages like Spanish do not allow clause medial *wh*-phrases: any elements that follow the *wh*-phrase in question must be right dislocated. However, a closer examination of other limited Grouping languages, such as Bùlì and Zulu, revealed that the restriction appears to require the *wh*-phrase not to be followed by prosodically heavy elements. In both Bùlì and Zulu, we see that phonologically light elements are exceptionally permitted to follow in-situ *wh*-phrases. I argued that this was a result of prosodic well-formedness requirements, and operations used to satisfy them, interacting with Contiguity. In some cases, operations motivated by these prosodic well-formedness requirements created a structure which is Contiguity compliant; in other cases, operations blocked by these prosodic well-formedness requirements block the creation of a structure which is Contiguity compliant.

The facts discussed in the latter part of this chapter are reminiscent of facts discussed in chapters 1 and 2 of this thesis. In chapter 1, for instance, we saw that prosodically light experiencers, such as clitics, could be raised across in left-headed, right-active languages. Since the clitic experiencer in (84b) does not map to a ϕ , it will not have the same effect on Contiguity relationships as the lexical experiencer in (84a).

(84) Raising across cliticized dative acceptable in right-active languages

- a. * Jean semble à Marie avoir du talent.
- b. Jean lui semble avoir du talent.

Likewise, in Chapter 2, we saw that phonologically light adverbs could appear between a fronted *wh*-object and the verbal complex in some Romance langauges, as we see in (85).

(85) Light adverbs may appear between the *wh*-phrase and verb

- a. *¿A quién ya has besado?*
who already have kissed
'who have you already kissed?'
- b. * *¿A quién siempre has besado?*
who already have kissed
'who have you already kissed?'

Ordóñez and Olarrea (2006)

The idea here was much the same: the adverb in (85a) does not map to a ϕ , and therefore does not disrupt the Contiguity relationship between the *wh*-phrase and verbal complex.

In contrast, the adverb in (85b) does map to a ϕ , and therefore does disrupt the Contiguity relationship between the *wh*-phrase and verbal complex.

4.4.2 Discussion

The facts and analysis presented in this chapter are of particular interest to the development of a theory of Contiguity. One of the core assumptions of Contiguity Theory, as presented in Richards (2016), is that two trees are constructed in parallel: a syntactic tree, and a prosodic tree. Contiguity serves as a principle of mediation, so that the two trees might ‘talk’ to each other. Syntactic operations, such as movement, might be motivated to improve the status of the prosodic tree with respect to Contiguity. Likewise, under the theory advanced by Richards (2016), prosodic operations like Grouping might also be motivated to improve the status of the tree with respect to Contiguity. The facts in this section, however, suggest a different view of the architecture: while syntactic operations like movement might be motivated to improve the Contiguity-theoretic status of the prosodic tree, prosodic operations like major Grouping and Demotion cannot be.

If the generalization laid out at the start of this chapter is correct [and the facts presented in this chapter suggest that it is], then the need to satisfy Contiguity cannot be a motivating factor for major Grouping. Were this the case, the generalization would not hold: we would have no reason to expect Spanish or Zulu to behave differently from French or Chichewa. Likewise, we might expect Demotion to be able to apply in Spanish in much the same way that it does in Zulu and Bùlì, solely to satisfy the Contiguity-theoretic needs of an in-situ *wh*-phrase. Prosodic operations, such as major Grouping and Demotion, appear to be motivated by purely prosodic or phonological needs, such as the creation of a domain for span marking, or to satisfy well-formedness requirements like BINMIN and EQUALSISTERS. It is only coincidental that they produce prosodic structures that allow *wh*-phrases to satisfy Contiguity without movement to a privileged position.

Conclusion

We're done. In this chapter, I'll first present a short summary of the crucial results of the thesis. I then note some consequences of this thesis for the Contiguity-theoretic approach to word order puzzles, and, building on some of the results of chapter 2 present an argument from learnability for this approach. Finally, I discuss why grammatical relationships like Contiguity might be required to be preserved, and present a list of topics for future research.

The thesis in a nutshell

In this thesis, I presented some arguments for a restriction on the opaque satisfaction of Contiguity, given in (1), and explored some of the consequences of the theory developed in pursuit of these arguments.

(1) **Contiguity Preservation:**

A goal G must satisfy Contiguity for a probe P with which it agrees in every spellout domain that contains both P and G .

In chapter 3, I provided a more specific implementation of this requirement, repeated in (2).

(2) **Contiguity Preservation:**

- a. A Contiguity Domain D for a probe-goal pair $\langle P, G \rangle$ must be preserved in every spellout domain that contains both P and G .
- b. *Contiguity Domain:* A Contiguity Domain D is a phonological phrase in which G satisfies Contiguity for P in D , and D immediately dominates either P or G .
- c. A domain D is preserved iff \exists a Contiguity domain D' that has the same immediate dominance relationships between P and G .

I argued that a number of intervention effects—bans on the presence of an element between two points in a clause—arose as a result of the violation of (1-2). These effects, then, were shown to be prosodic in nature—they are syntactic problems only insofar as the prosody is determined by the syntax.

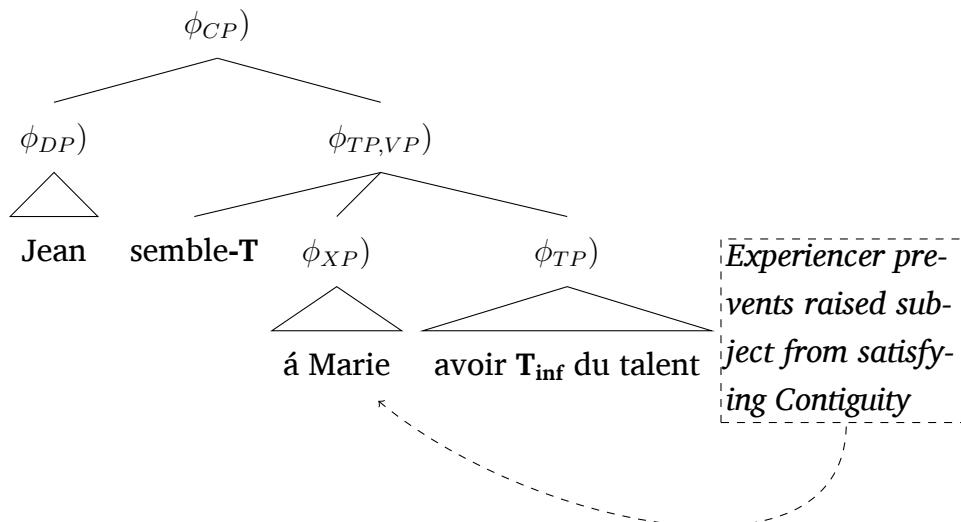
Chapters 1 and 2 showed that A-movement operations are restricted by (2) in left-headed, right-active languages. In these languages, shown in chapter 1, raising a subject across an experiencer is banned because it illicitly breaks a Contiguity relationship between the embedded verbal complex and the subject, as schematized in (4).

- (3) **Jean semble á Marie avoir du talent.*

J. seems to M. to.have of talent

‘Jean seems to Marie to be talented.’

(4)



There too, we saw that it was not the syntactic status of the experiencer in (3) which caused the effect. I showed that any element which maps to a phonological phrase is banned from the position the experiencer occupies in (3). Furthermore, I showed that altering the prosodic status of the experiencer in (3)—either through cliticization, or through overt displacement—causes the effect to disappear.

As we learned in chapter 2, however, A-movement that results in the embedded verbal complex being separated from the subject by a phase boundary is not subject to this restriction. Since the lower verbal complex is not in the same phase as the subject after hyperraising, the Contiguity relationship between the subject and verbal complex may

safely be broken. This contrast between regular raising and hyperraising is demonstrated by the Brazilian Portuguese examples in (5).

- (5) a. * *Os alunos parecem pro professor [____ terem estudado para a prova]*
 the students seem-3pl to.the teacher have-3pl-INF studied-3pl for
 the exam

‘The students seem to the professor to have studied for the exam.’ Moreno and Petersen (2017)

- b. *Os alunos parecem pro professor [que ____ estudaram para a prova]*
 the students seem-3pl to the teacher that studied-pl for
 the

‘The students seem to the professor that they studied for the exam.’ S. Fong, F. Kobayashi, N. Kobayashi (p.c.)

This highlighted a particular feature of the effects discussed throughout this thesis: they disappear in certain biclausal environments. The theories developed throughout this thesis capture this straightforwardly: Contiguity Preservation demands that a Contiguity relationship be maintained in the phase it is created in, but may safely be destroyed thereafter.

Chapters 3 and 4 show that operations on the prosodic tree are also subject to Contiguity Preservation. In right-headed, left-active languages like Japanese, foci and *wh*-phrases are subject to a distributional restriction, as we see in (6).

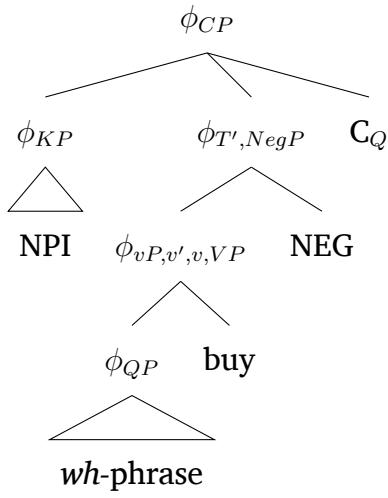
- (6) a. * *Dare-mo nani-o kawa-nakatta-no?*
 anybody what-sc acc buy-NEG.PAST-Q
- b. *Nani-o dare-mo ____ kawa-nakatta-no?*
 what-sc acc anybody buy

‘What didn’t anybody buy?’

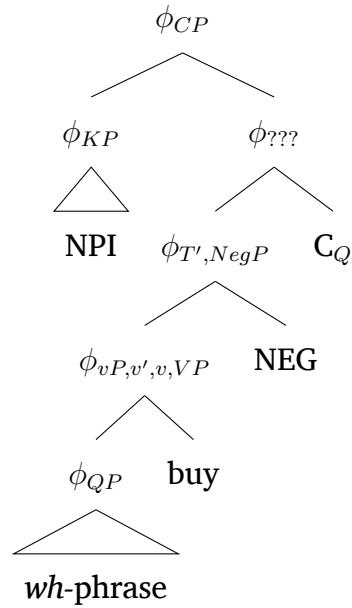
In these languages, I argued, focus bearing elements and *wh*-phrases both must satisfy Contiguity with respect to the verbal complex. I suggested that modifying the prosodic tree through an operation called Grouping might allow these sorts of elements to be licensed anywhere in the clause. The configuration in (6a) is ruled out because Grouping to satisfy

the needs of the *wh*-phrase destroys the configuration in which the NPI satisfies Contiguity, as schematized in (7). Grouping in (7) is thus blocked for the same reason that raising across an experiencer is blocked in left-headed, right-active languages.

(7) a.



b.



I further show that the presence of a phase boundary between the element that triggers Grouping for the *wh*-phrase in cases like (6) results in the amelioration of the effect. In (8), Grouping takes place so that the *wh*-phrase may satisfy Contiguity. This Grouping operation takes place in a different phase than that in which the NPI satisfies Contiguity for its licensor. As a result, the configuration in which the NPI satisfies Contiguity for its licensor in (8) may safely be destroyed, since the destruction of this configuration takes place in a different phase of the derivation.

- (8) *Ne-nun [amuto mues-ul ilkci-anh-ass-ta-ko] sayngakha-ni*
 you-top anyone what-sc acc read-neg-past-dec-comp think-Q

‘What do you think that no one read?’

The rest of chapters 3 and 4 are dedicated to developing a theory of when Grouping can apply more generally, and how phonological differences between languages allow us to predict exactly when this distributional restriction arises.

In other words, this thesis can be seen as an argument for opaque interactions in a particular model of syntax, in which the prosodic representation is built earlier than is normally assumed. Operations that can in principle result in surface satisfaction of Contiguity are blocked in cases where they disrupt a Contiguity relationship, but only if this disruption takes in the same domain that the relationship was formed.

Consequences for Contiguity Theory

The theory developed in this dissertation builds heavily on the results of Richards (2016). It differs, however, in at least two respects. The first has to do with the definition of Contiguity and Contiguity-prominent assumed throughout, repeated in (9).

(9) *Contiguity in toto*

a. *Contiguity*:

A Goal must be *contiguity prominent* within a ϕ that dominates a probe that Agrees with it.

b. *Contiguity prominent*:

G is *contiguity prominent* within ϕ_1 if no other ϕ lies between G and the prosodically active edge of ϕ_1 , and ϕ_1 dominates G .

This differs from the definition of Contiguity given in Richards (2016).

(10) *Classic Contiguity in toto*

a. *Contiguity*:

If α Agrees with β , α and β must be dominated by a single prosodic node, within which β is Contiguity-prominent.

b. *Contiguity prominent*:

For a particular node F , an element X dominated by F has Contiguity-prominence within F just in case:

i. X has no sister that is higher on the prosodic hierarchy than X ,

and

ii. X is not linearly separated from a prosodically active edge of F .

Much of the discussion in chapters 1-3 could be translated freely from one definition to the other with minimal modification. However, the discussion of Bùlì in chapter 4 militates against the defintion from Richards (2016) in (10). There, we saw cases of *wh*-phrases satisfying Contiguity, even when they failed to be Contiguity-prominent given the clause in (10a.ii.).

It is worth now turning the the phonological literature, where a technology has been developed, called Generalized Alignment [], to describe these sorts of requirements. The general form of ALIGN is shown in (11).

(11) ALIGN (ACat1, Edge1, ACat2, Edge2, SCat)

The Edge1 of every ACat1 coincides with the Edge2 of some ACat2. Assess a violation mark for every SCat that intervenes between edges that fail to coincide.

Contiguity, then, could be seen as a particular sort of ALIGN constraint, where the relevant categories and edges are goals, and ϕ that dominate them and their probe. Special attention should be paid to the notion of SCat in (11)—this provides the key to understanding the difference between the definition in Richards (2016) and the definition assumed throughout this dissertation. The definition in Richards (2016) would leave the SCat unspecified—any category that appears between the goal, and active edge of the ϕ which dominates it and its probe, should prevent Contiguity from being satisfied. The definition in this thesis would specify the SCat as ϕ , allowing smaller categories to separate the goal from the active edge of the ϕ , and the active edge of the ϕ that dominates it and its probe, while still allowing Contiguity to be satisfied.

A second difference between the theory developed in this thesis and the theory developed in Richards (2016) is that the theory developed here dispenses with Contiguity-adjunction. Contiguity-adjunction, for Richards (2016), is a rebracketing operation defined in (12).

(12) **Contiguity-adjunction** Take a pair of adjacent prosodic nodes and make one of them a daughter of the other.

Richards (2016)

Much of the work done for Richards (2016) by Contiguity-adjunction was done in this thesis through applications of Grouping between adjacent heads; this is of course contingent on the definition of Contiguity also assumed throughout this thesis. For Richards (2016), a goal might satisfy Contiguity if its probe is Contiguity-adjoined to it; for the theory developed in this thesis, Grouping of a probe and adjacent goal should suffice for Contiguity satisfaction.¹⁰ It is interesting, given all this, to reflect on some of the results of chapter 4—there, we saw that there were two types of Grouping, which I termed major and minor Grouping. Major Grouping could act long-distance, and was contingent on the presence of span marking in a language. Minor Grouping may apply only when the elements affected by Grouping were linearly adjacent, and was not contingent on the presence of span marking. One possibility is that this tells us something about the existence of Contiguity-adjunction. The results are suggestive of a world where Grouping may apply only when it ‘feeds’ span marking; Contiguity-adjunction would ‘take over’ for what we called minor Grouping.

¹⁰ Provided the probe is not itself a ϕ .

A third difference has to do with Grouping. Grouping, for Richards (2016), is presented as a strategy that languages might generally have to satisfy Contiguity. In Chapter 4, I show that Grouping is contingent on span marking in a language: languages that lack span marking cannot Group to satisfy Contiguity. Grouping, then, is not a strategy that languages generally have. The question remains open as to whether or not limited Grouping languages are more or less common than languages with unlimited Grouping.

Learnability

The theory advanced in this thesis has interesting consequences for the learner.¹¹ Considerable work in the field of acquisition has found that children are sensitive to prosodic boundaries from a very young age, and that this knowledge might be used in the acquisition of the syntactic structure that the prosodic structure is derived from. If this theory is on the right track, it paints a different picture of what the acquisition task must be. Not only can the learner discern phrase structure [] and word category [] from phonological properties, but a number of facts about word order independent from phrase structure proper would be encoded in the speech stream. The information that determines whether or not a language allows *wh-in-situ*, for instance, would be available to the learner without the need to actually ‘hear’ an in-situ *wh*-phrase. This would presumably lessen the difficult of the task of acquiring language—what would commonly be called ‘feature strength’ for a language would be determined for the language as a whole by, among other things, the relative prominence of content words in a DP that dominates two overt terminals—which determines generally where probes and goals may gao—and the presence or absence of span marking—which determines the set of possible solutions for Contiguity.

It appears to be the case that this is generally correct: child learners of languages with obligatory *wh*-fronting [such as English, Dutch, and German] do indeed acquire this property of *wh*-questions quite early. Likewise, child learners of languages with optional *wh*-fronting [such as French and Japanese] learn the placement of *wh*-phrases quite early—that is to say, learners of these languages do not pass through a stage in which *wh*-movement is obligatory. Note of course that this does not necessarily mean that the child necessarily has adult-like proficiency in *wh*-question production early—merely that the parts of adult-like proficiency determined solely by Contiguity are acquired quite early.

With this in mind, it is worth comparing some differences in the acquisition paths of *wh*-questions in English and Italian. Both of these languages have something in common,

¹¹Thanks to Athulya Aravind and mitcho for independent discussions of this issue.

at least on the surface: a fronted *wh*-object must appear next to a verb, and the subject cannot appear at the front of the sentence.

- (13) a. What will John make?
b. * What John will make?
c. *Cosa fa Gianni*
what makes G.

‘What does Gianni make?’
d. * *Cosa Gianni fa*
what G. makes

‘What does Gianni make?’

It is worth now reflecting on the difference between subject-auxiliary inversion in English and subject-verb inversion in Italian in terms of how they should be treated given the theory developed in this thesis. In chapter 2, we saw that subject-verb inversion in languages like Italian was a consequence of Contiguity and Contiguity Preservation. In left-headed, right-active languages like Italian, the subject cannot appear between the *wh*-phrase and verb in sentences like (13b), because this illicitly breaks a Contiguity relationship between the *wh*-phrase and verbal complex. However, subject-auxiliary inversion in English is not determined by Contiguity more generally—left-headed, left-active languages do not generally have subject-auxiliary inversion of the sort displayed by English. In other words, subject-auxiliary inversion is not a consequence of Contiguity or Contiguity Preservation.¹² If this is indeed the case—that subject-verb inversion in Italian is determined by Contiguity, whereas subject-auxiliary inversion in languages like English is an idiosyncratic property of some lexical item—then we might expect the acquisition paths of the two constructions to be markedly different. More specifically, we should expect very young learners of Italian to display adult-like proficiency with respect to subject-verb inversion in *wh*-question production, but we should have no such expectation of young learners of English with respect to subject-auxiliary inversion.

And indeed, this is what we find. Guasti (1996, 2000) examines the production of interrogatives in very young learners of Italian [1;7—2;10]. She finds that out of 130 questions with an overt subject and a non-subject *wh*-phrase, almost all sentences involve the displacement of the subject to either a left or right peripheral position. This is what we

¹² For a theory of subject-auxiliary inversion amenable to the phonologically informed approach to word order puzzles adopted in this thesis, see Richards (2016).

expect if the distribution of subject and *wh*-phrase is determined solely by Contiguity and Contiguity Preservation in Italian—see the discussion of this in §2.3. Furthermore, the 5 counterexamples where the subject is not displaced, and appears between the *wh*-phrase and verbal complex, the *wh*-phrase is the reason question word *per che*—again, as expected, given the theory developed in §2.3.

In contrast, as demonstrated by Guasti (2000), English learning children display *wh*-fronting, but take some time to acquire subject-auxiliary inversion. Again, this is something that we should not be surprised by: *wh*-fronting in English is consequence of Contiguity, but auxiliary inversion is a property ideoyncratic to the language. Unlike subject-verb inversion in Romance, we should not expect the trajectory of the acquisition of auxiliary inversion to mirror the trajectory of the acquisition of *wh*-fronting.

Why are Relationships Preserved?

This thesis has discussed the effects of a particular restriction on opacity, the starting formulation of which is given in (14).

(14) Contiguity Preservation

Contiguity relationships must be preserved within the domain in which they are created.

I argued that this is a particular instance of a more general restriction on opacity, given in (15).

(15) Relationship Preservation

Grammatical relationships must be preserved within the domain in which they are created.

It is worth now considering why this more general restriction should hold—that is to say, why should relationships be preserved once they have been formed?

One possibility is that (15) might hold is that it reduces the number of possible following steps at each point in the derivation. Suppose we are in a world where Merge operations are generally unconstrained: they need not extend the tree and might potentially target any node. This presents the computational system with a wide variety of possible derivational steps at each point in the derivation. Requirements like (15) could potentially go a long way in cutting down the number of possible derivational steps.

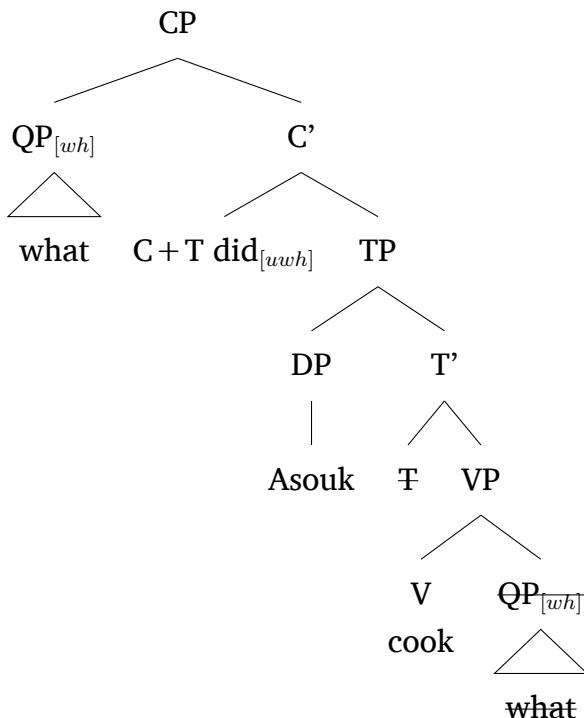
Another possibility is that (15) holds for reasons of something like economy. If the establishment of grammatical relationships is in some sense costly—perhaps because

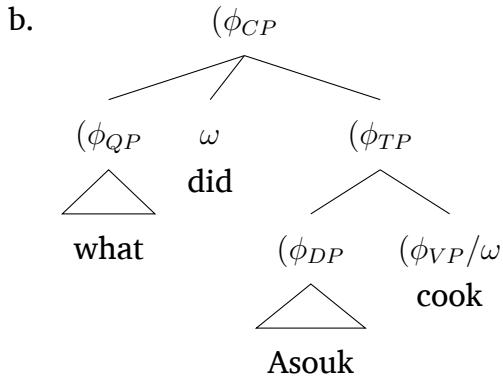
the operations involved in the establishment of these relationships has a cost—then the disruption of these relationships might be dispreferred. Under this view, we have an architecture which, when anthropomorphized, is quite susceptible to the ‘sunk cost fallacy’ [Aronson and Mills (1959)]. Requirements like (15) might hold either because the cost involved in establishing a grammatical relationship shouldn’t be wasted, or because the cost involved in establishing a grammatical relationship more than once might be intolerably uneconomical.

What are prosodic trees?

All of the work presented in this thesis involves the notion of a *prosodic tree*, like that in (16a) which is in some sense derivative from the *syntactic tree* in (16a). Well-formedness conditions on prosodic trees, as we have seen, can motivate operations on both syntactic and prosodic trees.

(16) a.





This of course raises questions like: what is the nature of the prosodic tree? and how is the prosodic tree derived from the syntactic tree? Throughout the thesis, I assumed that the form of the prosodic tree was determined by the syntactic tree as a result of Match Theory, repeated below.

(17) **Match Theory**

Bennett, Elfner, and McCloskey (2016)

- Given a maximal projection X in a syntactic representation S, where X dominates all and only the set of terminal elements a, b, c, ..., n, there must be in the phonological representation P corresponding to S a ϕ -phrase that includes all and only the phonological exponents of a, b, c, ..., n.
- Terminal elements map to ω .

As noted in Lee & Selkirk (ms.), there are two roles which Match Theory plays in the grammar, which are not obviously consistent:

- Generative: Match is the original source of the constituents that make up a phonological representation.
- Evaluative: Match is a faithfulness requirement between the syntactic structure and the output phonological representation [assuming an optimality-theoretic approach to determining phonological representations].

There are advantages to both approaches: the former approach affords us a simpler theory of the phonological representation proper, since Match ‘takes care’ of the translation of the syntactic structure to the phonological representation. The latter approach allows us to account for mismatches between the syntactic structure and the output of the phonological structure: markedness constraints in the phonology could outrank Match constraints, leading to a divergence between the syntax and the prosody.

Lee & Selkirk argue for a model in which Match is generative rather than evaluative. Under this approach, Match is part of the principles of Spell-out. The prosodic tree, under this approach, is generated at certain punctuated points of the derivation—this prosodic tree then serves as the input for the phonology proper. A set of input-output faithfulness constraints then takes over for the evaluative function of Match. This differs from an approach where Match is evaluative—there, the syntactic representation would serve as the input for the phonology proper. This approach, in essence, proposes three levels of representation: a syntactic representation, an intermediate prosodic representation, the output of phonology.

This model gives us a way of understanding what the prosodic trees discussed throughout this thesis are. One of the intuitions behind Contiguity theory is that requirements like Contiguity do not hold of the final phonological representation—rather, they are in some sense requirements of a ‘rough draft’ of this final phonological representation, which may be subject to later revision. The model sketched by Lee & Selkirk gives us a way of understand what this ‘rough draft’ is: it is the prosodic tree generated through Match theory and other principles of Spell-out, which serves as the input for phonology proper. Requirements like Contiguity hold not of the final phonological representation, but rather of the intermediate prosodic representation generated by Match. Movement operations in the syntax and operations on prosodic trees, like Grouping, are therefore not motivated by needs of the final phonological representation, but by requirements enforced at Spell-out: that part of the syntactic derivation where the input for phonology proper is derived from the syntactic structure.

Topics for further work

This dissertation has investigated lots of data from a variety of languages. In this section, I will detail some potential avenues for future work, on a more or less chapter by chapter basis. In chapter 1, it was established that raising across experiencers was constrained in some languages but not others, and that this was the result of Contiguity Preservation. The languages involved in this discussion were primarily Indo-European; one avenue for future research would involve verifying that the analysis holds outside of this language family. In the discussion of Icelandic in chapter 1, I suggested that languages could potentially have both left- and right- active ϕ —in some cases, co-occurrence restrictions arise when two right-active ϕ compete to be aligned with the same edge. If that suggestion is on the right track, then we might expect to be able to find other instances of this, where restrictions on the cooccurrence of two elements in the same domain arise for the same reason.

In chapter 2, use was made of the fact that Contiguity imposes a slightly looser restriction on the placement of goals that have moved near their probes. In more canonical approaches to feature checking, when goals move, they must move to the specifier of the phrase headed by their probe—at the time I am writing this, this means that goals which have moved must [immediately] precede their associated probe. In the approach I adopted in chapter 2, this isn’t necessarily the case. Goals may move to a position either immediately following or immediately preceding their probe, and in fact appear to prefer to move to an immediately *preceding* position if no other factors intervene. If this approach is on the right track, we should expect to find many more cases of movement ‘almost to the edge’.

In chapter 3, I argued that certain co-occurrence restrictions on focus bearing elements and *wh*-phrases arise because of an irresolvable competition for prosodic edges. I argued that the set of elements subject to these sorts of restrictions have something in common: they both trigger ‘span marking’ of some sort, where the part of the sentence between the element in question and the verbal complex is prosodically marked in some way. Towards the end, I discussed recent work by Kotek (2017); Erlewine and Kotek (2017), which expanded the set of known interveners in Japanese, and noted that these elements tended to be scope-rigid. If the analysis put forth in chapter 3 is right, then we should expect these elements to display span marking, at least in cases where they take the sort of scope which Kotek (2017); Erlewine and Kotek (2017) show to correspond with the presence of the co-occurrence restriction.

In chapter 4, I noted the presence of ‘weight effects’ in languages like Bùlì and Zulu. Certain word orders appear to be licit or illicit based on whether certain constituents consist of a single prosodic word, or two or more prosodic words. If these truly are categorical weight effects, then we should hope that these effects are relatively widespread. A task, then, would be to find and catalogue these effects outside of these two languages.

There are at least three more general questions that have been left unanswered. One question has to do with the notion of headedness, adopted without question throughout this dissertation. We have seen that the distribution of goals in the utterance is determined by Contiguity, a sort of alignment requirement that holds at the syntax-prosody interface. The hope has been that this correlates with certain phonological properties, such as the placement of boundary tones, and the relative prominence of two elements relative to each other in a constituent that contains just those two elements. We might further hope that some other alignment requirement—or perhaps set of alignment requirements—might just as well be able to capture the distribution of heads, or more specifically, probes, in the utterance. One future goal, then, involves the development of such a theory that not only

captures the notion of headedness using such tools, and the discovery of the phonological properties that determine the particular choices a language must make in deciding where it may place heads.

A second question has to do with the properties of languages that are verb initial. The vast majority of languages that this thesis has dealt with are either verb final or verb medial. This is in part a result of the paucity of data from these languages that involve the sorts of phenomena investigated throughout this thesis. However, we have seen throughout this dissertation that the relative linear ordering of arguments and the verbal complex determines a number of properties about any given language. Another future goal, then, involves an investigation of these phenomena in these sorts of languages. One possibility might be that the lack of relevant data arises as a result of the initiality of the verbal complex in these languages—the phenomena of interest in this dissertation might never arise in these languages as a result of the placement of the verbal complex to the left of all potential goals.

A third question has to do with the status of syntactic locality constraints like Shortest or Relativized Minimality. These sorts of requirements force the grammar to choose one element over another in cases where two elements could potentially undergo movement to a particular landing site. Chapters 1-3 developed arguments against extensions of these sorts of constraints to account for the problem of raising across experiencers and the Hoji/Beck effect. We might now wonder about the status of ‘core’ arguments for these constraints, and whether or not they too could be captured by a theory like that developed in this thesis.

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