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HOW TO MOVE A FOCUS:
THE SYNTAX OF ALTERNATIVE PARTICLES

A dissertation submitted in partial satisfaction of the
requirements for the degree of

DOCTOR OF PHILOSOPHY

in

LINGUISTICS

by

Andrew A. Hedding

September 2022

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Vice Provost and Dean of Graduate Studies

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2022

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Abstract

How to Move a Focus:

The Syntax of Alternative Particles

by

Andrew A. Hedding

In many languages of the world, the focus of a sentence—roughly, information that is new and not presupposed—must be displaced from its thematic position to another position within the clause. In many respects, this displacement resembles the movement of wh-words, also common in many of the world's languages. This dissertation investigates these phenomena, focusing especially on their behavior in San Martín Peras Mixtec. With novel data gathered through linguistic fieldwork, the dissertation addresses a series of questions that have been debated for many years within the linguistics literature: What motivates the displacement of foci? What is the formal relationship between the displacement of foci and the displacement of wh-words? What restrictions ought to be placed on the set of formal features that trigger movement?

In this dissertation, I advance the hypothesis that all syntactic movement of foci and wh-words happens indirectly. Specifically, I propose that a set of Alternative Particles—particles that take scope over elements that generate semantic alternatives—can be attracted in the syntax, moving foci and wh-words with them. Consequently, many syntactic similarities between wh-words and foci can be explained by the fact that they both must appear in the scope of Alternative Particles.

However, I also present evidence from San Martín Peras Mixtec that demonstrates two clear ways that the movements of wh-words and foci are not formally identical: (i) wh-words, but not foci, move within fronted constituents; (ii) wh-words must move

across more local foci when they co-occur within the same clause. I propose that these differences are explained, respectively, in the following ways: (i) wh-words, as a lexical class, can bear a formal syntactic feature that triggers their movement independent of Q Particles. Foci, which do not form a lexical class, do not bear a formal feature; (ii) Q particles bear a superset of the features borne by other Alternative Particles. In addition, I advance a theory of syntactic probing that leverages this distinct featural representation of Q Particles to account for the non-local movement of wh-words.

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Maziar Toosarvandani has been an incredible advisor to me. It is not an exaggeration to say that we have spent hundreds of hours together, and he has taught me a great deal, not only about syntax and fieldwork but also about being an academic. I have worked closely with Maziar since my first quarter in Santa Cruz, and he has taught me how to make an argument, format an abstract, write a grant proposal, structure a class, create job materials, and develop a meaningful relationship with a community

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Chapter 1

The Puzzle of Focus Movement

In response to a wh-question, only a small set of the theoretically possible answers are understood as being congruent. Other responses, though in principle possible, are infelicitous.

(1) *Where did you go hiking this weekend?*

a. I went hiking in **Big Basin**.

b. **The Pogonip**.

c. #Ursula made a mushroom risotto.

d. #*War and Peace* was written by Tolstoy.

Wh-questions introduce presuppositions, in particular, an existential presupposition (Karttunen and Peters, 1976; Karttunen, 1977; Haida, 2007, a.o.). The question in (1) presupposes that I participated in some hiking event this weekend and requests that I fill in some gap in my interlocutor's knowledge, specifically, *where* the event took place. Intuitively, (1c) and (1d) are not coherent responses, because they do not share the presupposition contained within the question (that some hiking took place), nor do they fill in the gap in the questioner's knowledge, as requested.

The bolded constituents in (1) are a type of FOCUS. Broadly speaking, they constitute the part of the answer that is not presupposed by the question and is filling in the gap in the questioner's knowledge (Jackendoff, 1972). The question asks me to select one (or more) of the many places where I could have gone hiking as my response. Intuitively, the focus makes an assertion that is interpreted relative to those other potential hiking spots (Halliday, 1967; Jackendoff, 1972; Chafe, 1976).

Since Rooth (1985, 1992), this intuition has been formalized by arguing that foci introduce a set of ALTERNATIVES: a set of semantic objects of the same semantic type as the focus, which could in principle replace the focus in a given sentence. In other words, the semantic contribution of the focus is not merely its ordinary denotation, but also another kind of meaning: a focus semantic value. This focus semantic value is a set of alternatives to the asserted focus. This set of alternatives is used to establish congruence, as well as other aspects of the interpretation of the sentence.

The notion of alternatives has also helped advance our understanding of how questions are interpreted. Since Hamblin (1973) and Karttunen (1977), questions have been understood as denoting sets of alternative propositions that could potentially answer the question. Thus, the question in (1) is interpreted as follows:

(2) ⟦Where did you go hiking this weekend?⟧ = {You went hiking in **Big Basin** this weekend, You went hiking in **The Pogonip** this weekend, You went hiking in **Wilder Ranch** this weekend…}

Much work since Rooth has argued that wh-words themselves introduce alternatives, which are the used by some operator to create the denotation of a question (Ramchand, 1997; Kratzer and Shimoyama, 2002; Beck, 2006; Cable, 2010; Kotek and Erlewine, 2016; Kotek, 2019).

The fact that foci and wh-words both generate alternatives is not the only corre-

lation between them. In some languages, (certain types of) foci must displace from their thematic position to some other place in the clause. In many languages, the position to which foci displace is apparently the same position to which wh-words displace (Horvath, 1986; Rochemont, 1978, 1986; Chomsky, 1977; Haida, 2007; Aboh, 2007; Rizzi, 1997; É. Kiss, 1998a; Croft, 1990, a.o.). This is the case in San Martín Peras Mixtec, the language that will be the main empirical focus of this dissertation. In this language, both wh-words (3a) and foci (3b) are displaced to a clause initial position.[1]

(3) a. Yóó shàshi chìchí?
who ate avocado
'Who ate the avocado'

b. **Maria** shashi rí
M. ate AML
'**Maria** ate it.'

Moreover, in many languages, wh-words and foci are signaled morphologically with an identical particle. For instance, in Samoan, both wh-words and foci are preceded by *o'*, which, descriptively, is a particle that marks alternative generating elements.[2]

(4) a. ʼO ā mea'ai na 'aumai e Pita?
ALT what food PST bring ERG P
'What food did Pita bring?'

[1] Throughout this dissertation, I write Mixtec examples using a working orthography which is based on the orthography developed by the Academy of the Mixtec Language (Ve'e Tu'un Savi). Working with a consultant, we adapted it in several ways to make it more similar to Spanish orthography. It differs from the IPA in the following ways: *ch* = tʃ, *j* = h, *ku* = k^w, *ñ* = ɲ, *r* = ɾ, *sh* = ʃ, *v* = β, *y* = j, *'* = ʔ, C*i*V = palatalized consonant, V*n* = vowel nasalization and *n*C = prenasalized consonant, V́ = high tone, V̀ = low tone, V̌ = rising tone, V̂ = falling tone. Mid tones are unmarked. I have transcribed tones to the best of my ability, but no doubt errors remain. Tonal transcriptions should be taken as preliminary.

[2] I use Leipzig Glossing abbreviations in interlinear glosses with the following additions: ACT = Active Voice, ALT = Alternative Particle, AML = Animal Noun Class Pronoun, AN = Animative, CL = Clitic, COMP = Completive Aspect, CONT = Continuative Aspect, EXH = Exhaustive, EXPL = Expletive, HORT = Hortative, LIQ = Liquid Noun Class Pronoun, PERF = Perfective, PN = Proper Name, POT = Potential Aspect, PRO = Pronoun, PRT = Particle, NEUT = Neutral Noun Class Pronoun, REL.CONT = Relative Continuous, REL.PERF = Relative Perfective, WOOD = Wooden Noun Class Pronoun.

b. ('O) **le** **talo** na aumai e Pita
ALT DET taro PST bring ERG P.
'Pita brought **the taro**.' Hohaus and Howell (2015): 70-71

So, there are clear semantic and syntactic similarities between wh-words and foci: both have been argued to generate alternatives, and in many cases, surface in identical syntactic positions. Moreover, some languages use the same morphological particle to mark both categories, suggesting that they form a unified class. Given these clear connections, a natural hypothesis is that wh-movement and focus movement are not actually distinct phenomena, but actually represent the same kind of syntactic operation, motivated for the same reason (Chomsky, 1976; Horvath, 1986; Bródy, 1990; Rizzi, 1997; Aboh, 2007; Aboh and Pfau, 2011; Aboh, 2016; Erlewine, 2018, a.o.). In particular, many researchers argue that both are forced to move because they bear (or must acquire) a formal [FOC] feature (Horvath, 1986; Rizzi, 1997; Aboh, 2004, a.o.). A similar line of work argues that wh-words are "inherently" or "formally" focused in some sense (Bošković, 2002; Haida, 2007; Erlewine, 2018). A version of this hypothesis is stated in (5).

(5) **The Identity Hypothesis**: The displacements of foci and wh-words are formally identical in the syntax. They move to the same syntactic position because their movement is driven by the same feature.

This hypothesis, while theoretically attractive, makes a number of theoretical claims and predictions which ought to be carefully considered. First, if both wh-words and foci move because they bear a [FOC] feature, then this implies that: (i) there exists a formal feature that uniquely identifies both wh-words and foci; (ii) this feature is visible in the syntax and is able to be manipulated by syntactic operations, assuming that syntactic displacement is driven by Agreement relationships between probes and

goals (Chomsky, 1995, 2000, a.m.o.). This is precisely the approach advocated for by a number of researchers: focused constituents bear a [FOC] feature and are directly attracted in the syntax (Horvath, 1986; Bródy, 1990; Rizzi, 1997; Aboh, 2010, 2016; Erlewine, 2018).

An alternative strand of research has rejected the notion that focused marked constituents can be marked with a feature (Szendrői, 2001; Reinhart, 2006; Fanselow, 2006, 2008; Horvath, 2007, 2010; Fanselow and Lenertová, 2011; Chomsky et al., 2019). In particular, these works argue for a more constrained theory of features, one which ties syntactic features to morphosyntactic properties. Concretely, the condition of Inclusiveness proposed in Chomsky (1995, 2000) predicts that the syntax will only be able to manipulate features that are present in the lexicon. More generally, this condition imposes a limitation on the kinds of syntactic objects that the syntax can manipulate, ensuring a more restrictive theory of movement. Under this criteria, wh-words are the type of syntactic object that ought to be able to be labeled with a feature, because wh-words are a morphosyntactic class of words that can be defined lexically.

(6) **Morphosyntactic class of "Wh-words" in English**

who, *what*, *where*, *when*, *which*, *why*, *how*, *whose*

The relative paucity of wh-words in English makes it plausible that their unique properties—for instance, a formal feature which triggers their movement—can be listed as idiosyncratic information in their lexical entries. This contrasts sharply with foci, which cannot be defined lexically, and must be defined with respect to the larger discourse. More concretely, any word or phrase can be focused, and consequently, there is no way to identify the set of focused words in the lexicon.

(7) Foci do not form a morpho-syntactic class.

Rejecting the theoretical commitment of the Identity Hypothesis forces an alternative approach; if foci cannot be marked with a syntactic feature, they must move in some other way. Broadly speaking, there are two main alternative views. The first, instantiated in Horvath (2007, 2010), maintains the proposal that displacement of foci is feature driven, put places the feature on some other syntactic object that can be defined lexically. In particular, Horvath (2007) notes that foci are only displaced in Hungarian when they are interpreted exhaustively (8a), and consequently proposes that displacement of foci is not due to their status as foci, but is due to syntactic movement of a lexical operator which triggers this particular interpretation. There are two consequences when this operator is not present: (i) there is no motivation to displace the focus; (ii) the focus is interpreted non-exhaustively (8b).

(8) *Context: Where did you go this summer?*

a. [OP **Olaszországban**] jártam __
EXH Italy.to went.I
'It was **Italy** where I went.'

b. Jártam **olaszországban**
went.I Italy.to
'I went to **Italy** (among other places)'

Adapted from É. Kiss (1998a): 249-250

Alternatively, a number of works have proposed a prosodic account of focus displacement, leveraging the fact that, in many languages, foci are pronounced with a distinct, non-canonical prosody or displaced to a position of prosodic strength (e.g. Zubizarreta, 1998; Büring, 2009; Féry, 2013).

According to these hypotheses, there is no need for foci to be visible to syntactic operations such as Agree. Under the phonological account, the movement happens outside the syntax, and under the semantic account, the target of movement is not

a focus, per se, but a lexical operator that scopes over a subset of foci. Thus, these approaches to focus displacement predict that all focus movement should be motivated by either phonological or interpretive factors.

In this dissertation, I will show that this prediction is not correct. In particular, through an in-depth investigation into San Martín Peras Mixtec, I will argue that the language moves foci syntactically, and argue that this displacement is not attributable to phonological or interpretive factors. That is, displacement of wh-words and foci form a true natural class of formal movements in the language. Consequently, theories of focus displacement that assume that all displaced foci must be phonologically prominent or interpreted exhaustively cannot be maintained.

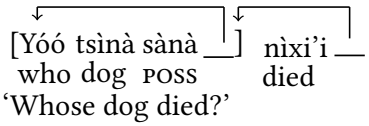
However, this investigation into the syntax of Mixtec will also provide evidence that the Identify Hypothesis cannot be maintained. Specifically, I will identify two empirical phenomena within the language which sharply distinguish wh-words and foci. First, wh-words must always front, even when a focus is structurally superior (9). Assuming that syntactic movement is subject to locality (e.g. Rizzi, 1990; Chomsky, 2000), this "preference" to move wh-words is unexpected if displacement of wh-words and foci were driven by the same feature.

(9) a. Ntsyâ rí kìtsǐ shǐn **Marta** __
which CLF animal bought M.
'Which animal did **Marta** buy?'

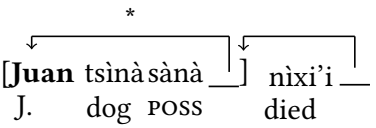
b. ***Marta ñá** shǐn __ ntsyâ rí kìtsǐ
M. she bought which CLF animal
Intended: Which animal did **Marta** buy?

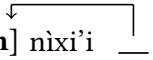
Additionally, I will show that San Martín Peras Mixtec also moves wh-words *within* a pied-piped constituent. So, though possessors normally follow possessa (10a), a wh-possessor that undergoes pied-piping will precede the possessa (10b)

(10) a. Nìxi'i tsìnà sànà Gloria
died dog POSS G.
'Gloria's dog died.'

b. 
[Yóó tsìnà sànà __] nìxi'i __
who dog POSS died
'Whose dog died?'

Once again, if displacement of foci were identical to the displacement of wh-words, we would expect the identical pattern when focused possessors pied-pipe. However, this is not the case. Foci cannot undergo movement within the pied-pipied constituent (11a) and instead must remain in-situ within the fronted constituent (11b).

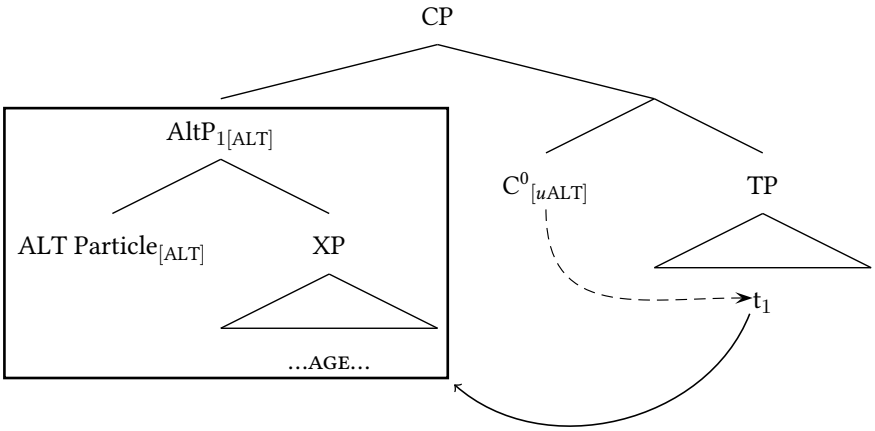
(11) a. 
*[**Juan** tsìnà sànà __] nìxi'i __
J. dog POSS died
Intended: **Juan**'s dog died.

b. 
[Tsìnà sànà **Juan**] nìxi'i __
dog POSS J. died
'**Juan**'s dog died.'

In light of these differences, it is worth asking: Can focus movement and wh-movement truly be reduced to a unified phenomenon cross-linguistically? And, if not, what is the best way to understand the connection between the two phenomena?

In this dissertation, I advance the position that focus displacement and wh-movement are, at their core, a unified phenomenon. While this intuition is not new, I argue that they are unified because both movements are "indirectly" caused by the movement of ALTERNATIVE PARTICLES that take scope over them. In both cases, these particles are sensitive to the alternatives generated by the wh-word or focus in their scope.

(12) Movement of Alternative Particles



While these particles presumably exist in all languages, in some languages, they have the idiosyncratic property that they must displace from their thematic position to a distinct position within the clause. The particles that undergo movement are a lexically defined class which are sensitive to the alternatives introduced by foci and wh-words. When these particles undergo phrasal movement, their entire scope, including the alternative generating element, will be displaced. However, it is important to note that these particles form a class, implying that individual members of the class can have unique properties.

This theory to explain focus and wh-displacement has a number of consequences related to the previous discussion. First, because the target of both focus and wh-movement are Alternative Particles, contextually-dependent foci need not be marked with a formal syntactic feature; the target of syntactic Agreement is a particle that can be defined lexically. This, in turn, allows us to maintain a more restrictive theory of Agreement which doesn't allow the syntax to directly see context-dependent notions such as focus. In fact, I will argue that the fact that foci are not directly marked with a feature explains why they don't move within a pied-piped possessive phrase in San Martín Peras Mixtec. Second, this theory correctly predicts that the interpretation

of displaced foci will vary, depending on the particular set of Alternative Particles that are targeted for movement within a particular language. Finally, though both wh-words and foci are in the scope of Alternative Particles, the theory allows for the possibility that they are in the scope of *distinct* Alternative Particles, which I will argue can account for the non-local movement of wh-words.

In what remains of this chapter, I will give some additional background on focus (§1.1), followed by an exploration into focus displacement in particular (§1.2). Then, I will outline in more detail the challenge faced by assuming a syntactic motivation for focus displacement (§1.3). Then, I will outline the core contributions of this dissertation (§1.4) and conclude with a brief commentary on methodology (§1.5).

1.1 Focus background

Investigations on "information structure"—and focus, in particular—go back to the early days of generative linguistics. For instance, early work on the phonology of English identified focus as an essential factor in determining the stress pattern of sentences (e.g. Halliday, 1967; Chafe, 1976). These early works considered focus to be essentially an optional way of signaling contrast or emphasis on a particular constituent.

Throughout this dissertation, I will assume that foci can be interpreted in-situ, as has been standard since the work of Rooth (1985, 1992). Under this analysis, any expression has two semantic values: an "ordinary" semantic value and a "focus" semantic value. The ordinary semantic value of an expression (notated $[\alpha]^{\circ}$) is its denotation, while the focus semantic value (notated $[\alpha]^{f}$) consists of the set of alternatives that is generated by replacing any focus generating element within that phrase with anything of the same semantic type.

(13) a. [**John** left]$^{\circ}$ = λw. John left in w

b. [**John** left]^{f} = λp$\exists$x[p = λw. x left in w]

= {that John left, that Bill left, that Amelie left...}

According to Rooth's theory, a special operator (~) adjoins to an expression containing a focus. The position where this operator adjoins determines the shape of the alternative set, and it introduces a variable which can be interpreted contrastively with an expression that has a denotation within the alternative set defined by the focus. Thus, in (14), when ~ takes scope over a DP, that DP can be interpreted contrastively with other DPs which replace the focus with a member of its alternative set.

(14) An ~[**American** farmer] met a ~[**Canadian** farmer]. Rooth (1992): 86

Early works on focus noted that certain patterns of focus (as identified by sentential stress) constituted "natural" responses to questions, while others would be infelicitous. For instance, as introduced in the previous subsection, the focus (as defined by the context question) must contain the most prominent pitch accent in the sentence in English (15a). Placing the pitch accent (represented with small caps) on a constituent that is not the focus (and not properly contained within the focus) will result in infelicity (15b) (Culicover and Rochemont, 1983; Rochemont, 1986).

(15) *Context: What did Laurie follow Ralph into?*

a. Laurie followed Ralph into the **BEDROOM**.

b. #LAURIE followed Ralph into the **bedroom**. Rochemont (1986): 11

This type of focus, which contributes new, non-presupposed information, contributing to a congruent answer, is most commonly referred to as INFORMATION FOCUS

(or alternatively, presentational focus). While information foci do implicitly contrast with the alternatives that they introduce, I will assume that a defining property of this type of focus is that this contrast is not made explicit. That is, any contrast between the focus (*bedroom*) and its alternatives (e.g., *kitchen, garden, living room*) is expressed via conversational implicature. Consequently, any exhaustive interpretation associated with the focus in (15) is defeasible, as in (16).

(16) *Context: What did Laurie follow Ralph into?*

Laurie followed Ralph into the **BEDROOM**. She also followed him into the **GARDEN**.

Intuitively, an information focus emphasizes that some property holds of that constituent, and implicates that the property does not hold of other similar constituents that are salient in the discourse (or can be imagined). This distinct account of focus interpretation posits that a focus operator (~) uses the denotation of focus, along with its alternative set, to derive the meaning of focus compositionally, without resulting to covert focus movement (*pace* Chomsky, 1976). Though the formalization of interpreting foci using the alternative sets they generate originates with Rooth, the idea that focusing some constituent makes an (implicit) contrast with respect to some set of salient alternatives is present in earlier work .

(17) *Where did you go hiking this weekend?*

I went to ~[**Big Basin**].

⇝ It is not the case that I went to {Henry Cowell, Butano, Wilder Ranch, Castle Rock…}

While Information Foci does not make any explicit reference to the other members of the set of alternatives that they introduce, other uses of focus do. For instance,

multiple members of an alternative set can be contrasted with one another within an utterance. This is the case in examples such as (18). This type of focus is called Contrastive Focus.[3]

(18) An **American** farmer was talking to a **Canadian** farmer. Rooth (1992): 80

Another type of focus explicitly contrasts the focus with some alternative that has been previous asserted, either by the speaker or by an interlocutor. In these cases, the focus "corrects" a statement that the speaker objects to, replacing the offending part of the sentence with an alternative. Following previous work, I will refer to this as Corrective Focus.

(19) *Context: Is it John who writes poetry?*

No, it is **Bill** who writes poetry. Jackendoff (1972): 229

Finally, as alluded to in the previous section, some languages use particular focus configurations to make assertions about the members of an alternative set via entailment. This is the case, for example, in Hungarian, where displacement of foci to a preverbal position entails an exhaustive interpretation.

(20) a. Hol jártál a nyáron?
where went.you the summer.in
'Where did you go in the summer?'

b. Jártam **olaszországban**
went.I Italy.to
'I went to **Italy** (among other places)'

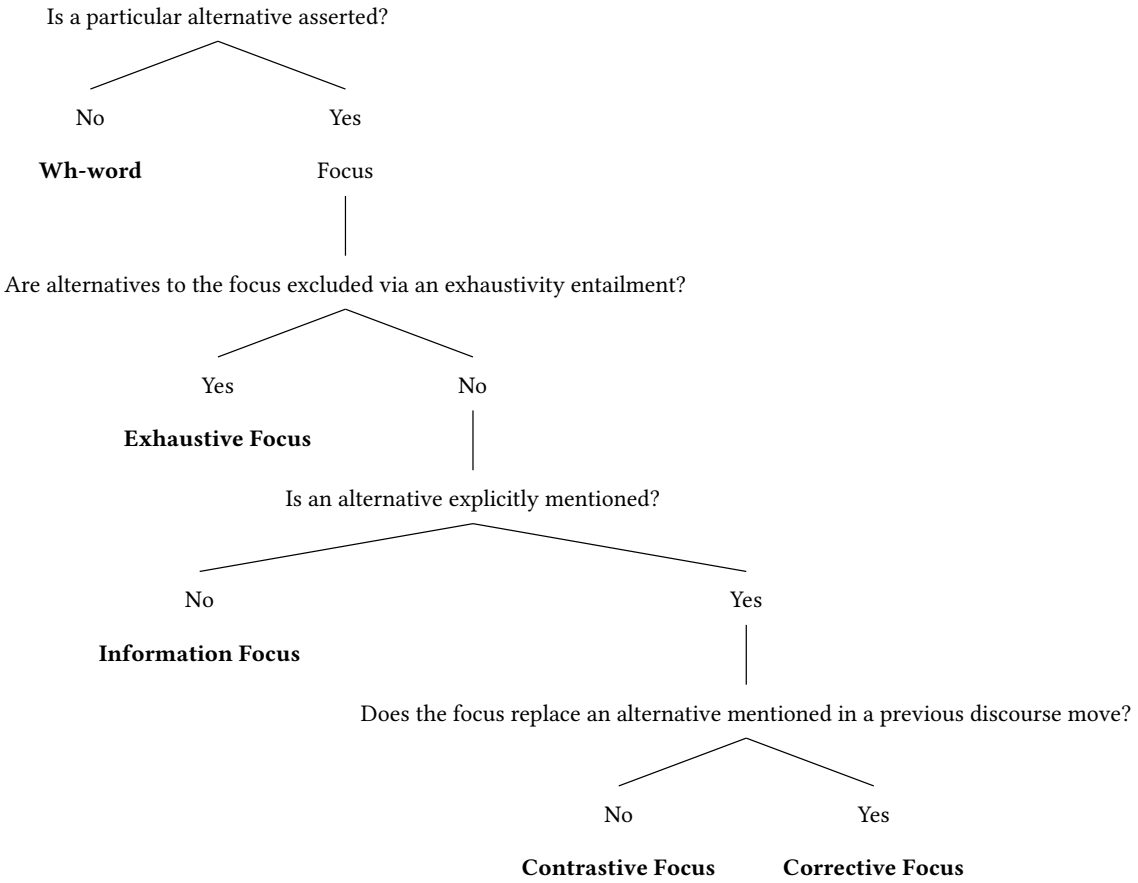
[3]The term Contrastive Focus is slightly misleading because all types of foci involve (implicit or explicit) contrast with other alternatives (Cruschina, 2021). Despite this fact, I will use the standard term throughout this dissertation.

c. **Olaszországban** jártam
Italy.to went.I
'It was **Italy** where I went.' É. Kiss (1998a): 249-250

Crucially, unlike Information Focus, this exhaustive interpretation is not derived via implicature, but is an entailment (É. Kiss, 2002; Horvath, 2007). In this case, though no alternatives are mentioned in the discourse, they are explicitly excluded via entailment. Following (Cruschina, 2021, a.o.), I refer to this as Exhaustive Focus (called Identificational Focus by É. Kiss, 1998).

In (21), I summarize my assumptions about the the way that alternative generating expressions are distinguished from one another.

(21) Distinguishing Alternative Generating Expressions



I assume that these categories are defined semantically and are orthogonal to any syntactic or phonological properties, such as displacement (*pace* É. Kiss, 1998a). That is, though certain types of focus are correlated with certain properties in some languages, these categories ought not be defined based on their syntactic behavior.

Another important phenomenon that will be particularly relevant to this dissertation are expressions that "associate" with focus (Jackendoff, 1972, a.m.o.). These words derive a part of their interpretation from the alternatives generated within their scope. Consequently, the meaning that they contribute to the sentence is dependent on what element is focused. One example of this type of expression is *only*. Despite the fact that the words are identical, (22a) and (22b) do not have the same truth conditions, as evidenced by the fact that (22a) is false in this context, while (22b) is true.

(22) *Context: Mary introduced Bill and Tom to Sue. There were no other introductions made.*

a. #Mary only [introduced **Bill** to Sue].

b. Mary only [introduced Bill to **Sue**]. Rooth (1992): 77

One important property of these focus-sensitive words is that there are often structural constraints on where they must appear with respect to the focus. For instance, if *only* is adjoined to the VP, the focus can occur on any constituent within the VP (23). *only* cannot, however, associate with a focus that is in subject position (i.e., that it doesn't c-command) (24).

(23) a. John only **gave** his daughter a new bicycle. (he didn't sell her one)

b. John only gave **his** daughter a new bicycle. (not to someone else's)

c. John only gave his **daughter** a new bicycle. (not his son)

d. John only gave his daughter a **new** bicycle. (not a used one)

e. John only gave his daughter a new **BICYCLE**. (not roller skates)

(24) *__JOHN__ only gave his daughter a new bicycle. (not Sam)

Adapted from Jackendoff (1972): 250

These types of focus—information focus, comparative focus, exhaustive focus, corrective focus, and association with focus—are the most commonly discussed in the literature. However, there are other phenomena relating to focus that have also been identified. One of these is "Verum" focus, which involves emphasizing the truth or falsity of a particular statement.

(25) *Context: Both cried on parting, and they promised to keep in touch.*

a. They **DID** keep in touch, through awkward telephone calls at first [...]

b. They did **NOT** keep in touch, not even through awkward telephone calls.

Samko (2016): 105

I assume that verum focus is not fundamentally different from other types of focus, but merely represents focusing (e.g., comparatively, correctively, etc.) a sentence's polarity value (Samko, 2016).

Another type of focus that has been mentioned in the literature is Mirative focus: focusing the most "surprising" part of an utterance. This is what Cruschina (2011, 2021) call "contrast against expectations."

(26) Non ci posso credere! **Due bottiglie** ci siamo bevuti!
not to.it can.I believe two bottles CL be.we drank
'I can't believe it! We drank **two bottles**!' Cruschina (2011): 120

Similarly, Hartmann and Zimmermann (2007b) report that speakers associated fronted foci (or parts of foci) as being particularly "surprising" or "unexpected." While cer-

tainly related to alternatives, I set Mirative Focus aside because it clearly also involves some calculus of speaker attitudes that is layered on top of a simple calculation of alternatives. For this reason, while certainly important to investigate, I will have nothing new to say about Mirative Focus in this dissertation.

1.2 Displacement of foci

In many languages, arguments in focus displace from their thematic position to a designated position within the clause. Take, for example, Mixtec languages, a family of languages spoken in Southern Mexico. In out of the blue contexts, Mixtec clauses are generally verb-initial. As an example, consider these data from San Martín Peras Mixtec (SMPM).

(27) a. Kotô Agustina chìchí
likes A. avocados
'Agustina likes avocados.'

b. Nìshika Juan yukŭ koni
walked J. forest yesterday
'Juan walked in the forest yesterday.'

However, in clauses that contain a focus, that focus must displace to a position before the verb. This can be seen, for instance, in the context of wh-questions. As outlined in the previous subsection, the word that directly responds to the wh-word to create a congruent answer is an Information Focus. In SMPM, information foci must displace to a preverbal position.

(28) *Context: What did the dog eat?*

Kôñù shìshì rí __
meat ate AML
'It (an animal) ate **meat**.'

A typologically diverse set of languages use displacement as a means of highlighting foci. Consider, for instance, some examples from Hungarian (Uralic), Aghem (Bantu), Samoan (Austronesian). In each of these languages, arguments in focus displace from their thematic position to a distinct position within the clause.

(29) a. El-dobtam az újságot
away-threw.I the newspaper-ACC
'I threw away the newspaper.'

b. **Az újságot** dobtam el.
the newspaper threw.I away
'It's the newspaper that I threw away.' Horvath (1995): 31

(30) a. Tɨ́-bvʉ́ tɨ̀-bɨ̀ghà mɔ̂ zɨ̀ kɨ́-bɛ́ ˡnɛ́
dogs two PST eat fufu today
'The two dogs ate fufu today.'

b. À mɔ̀ zɨ̀ **tɨ́-bvʉ́ tɨ̀-bɨ̀ghà** bɛ́ ˡkɔ́ nɛ́
EXPL PST eat dogs two fufu DET today
'The **two dogs** ate fufu today.' Hyman (2010): 96-97

(31) a. Na toso e Sione le maea
PST pull ERG S. DET rope
'Sione pulled the rope.'

b. 'O **le maea** na toso e Sione
ALT DET rope PST pull ERG Sione
'It was the rope that Sione pulled.' Calhoun (2015): 208-209

Despite the fact that focus displacement is a fairly common cross-linguistic phenomenon, there is no clear consensus about what motivates it. One common view is that focus displacement is a syntactic phenomenon, driven by a formal syntactic feature (Rizzi, 1997; Aboh, 2016; Kratzer and Selkirk, 2020, a.o.). A number of distinct facts have been leveraged to support this position. First, like wh-movement, focus displacement can proceed across multiple clauses. This is the case, for instance, in Basque. Both wh-words (32a) and foci (32b) can displace across several clause layers.

(32) a. Nork uste duzu [__ esan du-ela Mikelek [__ idatzi du-ela
who think AUX say AUX-that M. write AUX-that
eskutitza]]
letter
'Who do you think Mikel has said has written the letter?'

b. **Jonek** uste dut [__ esan du-ela Mikelek [__ idatzi du-ela
J. think AUX say AUX-that M. write AUX-that
eskutitza]]
letter
'It is **Jon** that I think Mikel has said has written the letter.'

Ortiz de Urbina (1999): 313

In addition, in Basque, the focus can surface in an intermediate position, suggesting that this movement is successive cyclic.

(33) a. Nik uste dut [**Mikelek** idatzi du-ela eskutitza]
I think AUX M. write AUX-that letter
'I think that it is **Mikel** that has written the letter.'

b. **Mikelek** uste dut [__ idatzi du-ela eskutitza]
M. think AUX write AUX-that letter
'I think that it is **Mikel** that has written the letter.'

Ortiz de Urbina (1999): 314

Second, in many languages, focus displacement is island sensitive. Assuming that islands diagnose syntactic movement, this fact has been leveraged to suggest that displacement must be syntactic. For instance, in Hungarian, displaced foci cannot leave a gap within a complex NP (34). In Italian, moved foci cannot cross a weak island, such as a wh-island (35).

(34) *__Marinak__ hallottam ⟨a hírt hogy János kölcsónadott 2000 dollárt.⟩
M. heard.I the news.ACC that J.NOM loaned 2000 dollar.ACC
Intended: It's to **Mary** that I heard the news that John had loaned 2000 dollars.

Horvath (2007): 116

(35) *__Ogni dichiarazione__ mi chiedo ⟨perché abbia ritrattato.⟩
every statement I wonder why has.3SG retracted
Intended: It's **every statement** that I wonder why s/he has retracted.

Cinque (1990): 10

In particular, various diagnostics have been used to argue that focus fronting is a type of Ā-movement. For instance, it can trigger weak crossover (36) and licenses parasitic gaps (37), both of which are classically considered to be diagnostics for Ā-movement (van Urk, 2015; Safir, 2019).

(36) ??**Gianni**$_i$ sua$_i$ madre ha sempre apprezzato __$_i$
G. his mother has always appreciated
Intended: His$_i$ mother has always appreciated **Gianni**$_i$.' Rizzi (1997): 290

(37) **Az osztálytársait** hívta meg János __ vacsorára még mielőtt
the classmates.his.ACC invited PRF J.NOM dinner.to even before
bemutatta volna __$_{pg}$ a szüleinek
introduced.3SG COND the parents.his.to
'It's **his classmates** that John had invited to dinner even before he would have introduced __$_{pg}$ to his parents.' Horvath (2007): 116

Most often, the view that focus displacement is syntactic is coupled with the claim that there is a designated functional head within the clause where displaced foci must move (Bródy, 1990; Rizzi, 1997).

An added benefit of a syntactic analysis of focus displacement is that it establishes a clear link between focus displacement and wh-movement, two phenomena that have long been argued to be similar. For instance, it has been long observed that foci and wh-words appear in the same surface position in languages when they both displace (Horvath, 1986; Rochemont, 1978, 1986; Chomsky, 1977; Haida, 2007; Aboh, 2007; Rizzi, 1997; É. Kiss, 1998a; Croft, 1990, a.o.). Examples of this surface similarity can be seen in the following examples from Basque (38), Mongolian (39), and Hausa

(40). In each case, the surface syntactic position of wh-words (*a* examples) is the same as the surface syntactic position of displaced foci (*b* examples).

(38) a. Eskutitza, nork irakurri du?
letter who read AUX
'Who has read the letter?'

b. Eskutitza, **Jonek** irakurri du?
letter J. read AUX
'**Jon** has read the letter.' Ortiz de Urbina (1999): 312

(39) a. Hen-ig Peter üns-sen be?
who-ACC P. kiss-PST Q
'Whom did Peter kiss?'

b. **Mari-g** Peter üns-sen
M-ACC P. kiss-PST
'Peter kissed Mary.' Onea and Guntsetseg (2011)

(40) a. Wáa ya-kèe kirà-ntà?
who 3SG-REL.CONT call-her
'Who is calling her?'

b. **Daudàa** ya-kèe kirà-ntà?
D. 3SG-REL.CONT call-her
'Dauda is calling her.' Hartmann and Zimmermann (2007b): 7

Moreover, as expected under the hypothesis in which foci and wh-words are in competition for a single syntactic position, in many languages it is not grammatical to move both simultaneously. This is the case, for instance, in Gungbe. In this language, both wh-words and focused constituents displace to a sentence initial position. However, they cannot both displace simultaneously, regardless of their order.

(41) a. *[**Wémà l**ɔ́]$_j$ mɛ́nù$_i$ wɛ̀ __$_i$ zé __$_j$?
book DEF who FOC took
Intended: Who took **the specific book**?

b. *Mɛ́nø$_i$ wɛ̀ [**wèmà lɔ́**]$_j$ __$_i$ zé __$_j$?
who FOC book DEF took
Intended: Who took **the specific book**? Aboh (2004): 239

Beyond this surface similarity, there are additional reasons to assume that wh-words and foci form a natural class. First, in many languages, both foci and wh-words are marked morphologically with the identical particle. This is the case, for example, in Miyara Yaeyaman (42), Samoan (43), and Gungbe (44). In each case, some particle—often called a focus particle—surfaces immediately adjacent to both foci and wh-words, suggesting a common core to their syntax.

(42) a. Taa=du suba tsukur-ee-ru?
who=DU soba make-RES-PRS
'Who made soba?'

b. **Jurie=n**=du tsukur-ee-ru
J.=NOM=DU make-RES-PRS
'**Yurie** made (soba).' Davis (2013): 30

(43) a. 'O ā mea'ai na 'aumai e Pita?
ALT what food PST bring ERG P.
'What food did Pita bring?'

b. 'O **le talo** na aumai e Pita
ALT DET taro PST bring ERG P.
'Pita brought **the taro**.' Hohaus and Howell (2015): 70-71

(44) a. Mɛ́nù wɛ̀ dà Àsíàbá?
who FOC marry A.
'Who married Asiaba?'

b. **Sɛ̀sínú** wɛ̀ dà Àsíàbá
S. FOC marry A.
'**Sessinou** married Asiaba.' Aboh (2007): 289

Finally, at their most basic, both wh-words and foci are related to the calculation of ALTERNATIVES. Wh-words introduce alternatives that are relevant to the interpre-

tation of a question (45a) as a set of propositions (45b) (Hamblin, 1973; Karttunen, 1977).

(45) a. Who makes the best mole in Oaxaca?

b. {Teresa, Vitorino, Gloria, Esteban…} makes the best mole in Oaxaca?

Foci, similarly, are most often analyzed as introducing a set of alternatives or the same semantic type (Rooth, 1992). The alternatives introduced by the focus are used by focus sensitive operators (such as ~, *only*, or *even*). This property of focus is utilized by Rooth to identify what makes a particular answer congruent in the context of a wh-question. For instance, in Rooth's system, (46a) is a congruent answer to the wh-question in (45a) because the meaning of the question is a subset of the focus semantic value of the answer (46b), which involves replacing the focus with the set of it and all of its alternatives.

(46) a. **Teresa** makes the best mole in Oaxaca.

b. {**Teresa**, Vitorino, Gloria, Esteban…} makes the best mole in Oaxaca.

In sum, there are syntactic, morphological and semantic correlations that have been identified between foci and wh-words. This lends some support to theories that argue that foci are displaced syntactically, as they can fairly straightforwardly explain the connection.

1.3 The puzzles of focus displacement

1.3.1 Non-syntactic correlations

Though a syntactic analysis of focus displacement has been widely adopted (especially in the cartographic literature on focus), it has also been widely challenged. Part of the analytical uncertainty arrises from the fact that displaced foci have been correlated with other, apparently non-syntactic, properties. First, displaced foci often move to prosodically prominent positions. This is true, for instance, of Hungarian. In Hungarian, the displaced focus of a sentence also receives main stress (marked here with small caps).

(47) **Marit** ismerte meg Józsi
M.Acc got.to.know prt J.
'It is **Mary** that Joseph got to know.' Szendrői (2001): 12

This is also the case in German, which allows both in-situ and ex-situ realizations of focus. Though there is variation as to whether the focus is displaced, it is consistently pronounced with a pitch accent. Put differently, the relationship between focus and stress remains constant, even when the focus appears in a non-thematic position.

(48) *Context: What did you see there?*

a. Wir haben **eine laWIne** gesehen!
we have an avalanche seen
'We saw **an avalanche**!'

b. **Eine laWIne** haben wir __ gesehen!
an avalanche have we seen
'We saw **an avalanche**!' Fanselow and Lenertová (2011): 172

Considering that foci are also prosodically prominent in languages where they are not systematically displaced, such as English, this correlation between focus and

prosodic stress has led to various hypotheses that propose explicitly that focus must be stressed (or "most prominent"), or that the focus of a sentence ought to be determined based on the prosody of any given utterance (Szendrői, 2001; Reinhart, 2006; Büring, 2009; Büring, 2015). The strength of this correlation (at least in the languages which have been extensively investigated) has lead many researchers to argue for an alternative explanation to explain focus displacement: the need for foci to appear in a position that is prosodically prominent in some sense. In some languages, this has been argued to be a the position that receives phrasal stress (Hungarian). In other languages, such as Chicheŵa, it may involve insertion of a prosodic boundary so that the focus can appear in a prosodically prominent position.

(49) *Context: What happened?*

(Anaménya nyumbá ndí mwáála)$_{\varphi}$
he.hit house with rock
'He hit the house with a rock.'

(50) *Context: What did he hit with the rock?*

(Anaménya **nyuúmba**)$_{\varphi}$ (ndí mwáála)$_{\varphi}$
he.hit house with rock
'He hit **the house** with a rock.' Féry (2013): 705

In addition to these prosodic confounds, focus displacement often displays certain interpretive characteristics which can make it susceptible to alternative analyses. For instance, in Hungarian, displaced foci are interpreted exhaustively, while in-situ foci are not. This can be seen by comparing the following dialogues. In (51b), the speaker contradicts the claim that Peter is the only person that John introduced to Mary. While this claim is not directly asserted, the felicity of (51b) is taken as an indication that the the exhaustive interpretation of focus is part of the at-issue contribution of displaced foci.

(51) a. János **Pétert** mutatta be Marinak __
J. P.ACC introduced VM M.-to
'As for John, it was Peter that he introduced to Mary.'

b. Nem, Zoltánt is bemutatta neki
no Z.ACC also introduced to.her
'No, he also introduced Zoltan to her.' É. Kiss (2002): 79

This can be contrasted with the dialogue in (52). In this case, (52b) is infelicitous because in-situ foci do not have an exhaustive interpretation. Consequently, (52b) does not actually contradict the claim made in (52a) and is thus infelicitous.

(52) a. János bemutatta Marinak **Pétert**
John introduced M.-to P.ACC
'John introduced Peter to Mary.'

b. #Nem, Zoltánt is bemutatta neki
no Z.ACC also introduced to.her
'No, he also introduced Zoltan to her.' É. Kiss (2002): 79

Leveraging this interpretive difference between displaced and non-displaced foci, Horvath (2007, 2010) argue that focus movement is not about focus, per se, and is in fact represents exhaustive identification. Put differently, if displacement of foci can be systematically correlated with a interpretive property (such as exhaustivity), then an alternative explanation to syntactic displacement emerges: foci are displaced not because they are foci, but because they receive a particular interpretation.

In sum, though there are syntactic diagnostics that suggest that focus displacement is an Ā-movement (like closely associated wh-movement), there are prosodic and interpretive confounds that complicate this claim. First, there is a tendency for foci—even displaced foci—to be prosodically marked or made prominent in some way. Second, in some languages, focus displacement triggers a clear interpretive effect.

1.3.2 A non-lexical formal feature?

A purely syntactic analysis of focus displacement presents an additional puzzle: how are foci "visible" to syntactic operations, allowing them to be moved syntactically. Under an Attraction model of syntactic displacement, movement is triggered by formal features (Chomsky, 1995). When uninterpretable by the interfaces, these formal features—which represent idiosyncratic properties of lexical items—must be checked by syntactic operations. (53) illustrates this relationship. Here a syntactic head (H) that bears an uninterpretable feature enters into an Agreement relationship with some goal (G) which bears a corresponding feature.

(53) $H^{\circ}_{[uF]} \quad G_{[F]}$

Thus, under an analysis of syntactic displacement of foci that directly targets constituents that are semantically focused, constituents that are semantically focused must bear a formal feature that is visible to the Agree mechanism (Aboh, 2010, 2016; Erlewine, 2018, a.m.o.).

It is crucial to point out that this formal feature marking foci, if it exists, is not a lexical feature. Any word or phrase can be focused in the right context, and there is no sense in which focused marked constituents form a morpho-syntactic class. Instead, focus is a notion that is dependent on context. As an illustration, the same string of words (*Mary bought a book about bats*) can have one of at least five distinct underlying focus structures, depending on the context in which it is uttered.

(54) a. *Context: What did Mary buy a book about?*
Mary bought a book about **bats**.

b. *Context: What kind of book did Mary buy?*
Mary bought a book **about bats**.

c. *Context: What did Mary buy?*

   Mary bought **a book about bats**.

d. *Context: What did Mary do?*

   Mary **bought a book about bats**.

e. *Context: What been happening?*

   Mary bought a book about bats. Selkirk (1995): 554

Moreover, the focus status of a phrase cannot be reduced to the focus status of one particular word within that phrase. For instance, as argued by Fanselow (2006), the focused DP in (55) is not focused due to any of its component parts being focused. Instead, the entire DP is focused due to the way that the entire sentence is interpreted with respect to the context.

(55) *Context: What did you see?*

I saw **a small yellow book**. Fanselow (2006): 139

This is different from formal features which are tied directly to individual lexical items, such as [WH] features. If complex wh-phrases like (56) bear a formal feature, then it is clear that the source of that feature is a particular subpart of that complex expression, namely the wh-word *which*.

(56) [Which$_{wh}$ of your brothers]$_{wh}$

This point—that a formal [FOC] feature is not borne by a particular lexical item—presents additional problems given a particular theory of the role that syntax plays in the computation of language. Within the Minimalist Program (Chomsky, 1995, 2000), the role of language is to connect two cognitive systems: a sensorimotor system and a conceptual system. These systems are connected by way of a computational mecha-

nism which makes linguistic expressions using a set of linguistic features and some set of syntactic operations. Specifically, the syntax can organize a set of lexical items into linguistic expressions in such a way that they are "legible" to both systems. One way of significantly minimizing the computation complexity of this task (and thereby making it a more "optimal" solution to task of connecting these two systems), is restricting the types of objects that the computational system is able to manipulate. Specifically, Chomsky (1995, 2000) proposes that the optimal solution to the problem of connecting these two cognitive systems would conform to a Condition of Inclusiveness; that is, syntactic operations are not able to introduce any information into the computation beyond what is already present within the lexical items it is manipulating.

As many authors have pointed out, including a formal feature marking foci within the syntax would violate this condition (Szendrői, 2001; Reinhart, 2006; Fanselow, 2006, 2008; Horvath, 2010; Fanselow and Lenertová, 2011; Chomsky et al., 2019). Put differently, if we assume that such a thing as a formal focus feature exists, then we must augment our theory to allow the computational mechanism to include information from the surrounding context. This not only substantially increases the complexity of the computation, but it may result in unintended empirical consequences. If, however, there is a way to avoid including information about foci in the syntax (i.e., by assuming a mapping algorithm between the phonological realization of focus and its interpretation), then this would be a simpler and more theoretically attractive solution (Reinhart, 2006).

One technical solution to this problem would be to assume that focus features are "optional" features which are assigned arbitrarily to lexical items in the numeration, thus avoiding this concern (Aboh, 2010; Cruschina, 2011). However, as pointed out in Reinhart (2006), this solution runs into several problems. First, focus is a concept that operates at the level of the entire sentence. Consequently, simply assigning a

[FOC] feature to a lexical item would be encoding information about the way that that lexical item relates to the entire sentence, and also with the surrounding discourse context. Moreover, if there is a way to encode focus phonologically or semantically without resorting to a feature, then adding the feature would merely be a meaningless diacritic which expresses redundant information.

This line of reasoning led Horvath (2010) to propose the hypothesis in (57).

(57) **The Strong Modularity Hypothesis for Discourse Features**

No information structure notions—i.e., purely discourse-related notions—can be encoded in the grammar as formal features; hence no "discourse-related features" are present in the syntactic derivation. They are only available outside the computational system.

Horvath (2010): 1349

According to this hypothesis, notions such as formal focus features should be eliminated from the grammar. However, as Horvath (and others) recognize, this move is only possible if all instances of focus displacement can be correlated with either a phonological or interpretive effect.

In summary, assuming that foci are simply marked with a formal feature, like, for instance wh-words, is not an innocent assumption. In fact, it would significantly enhance the capabilities of the syntactic operations, allowing them to access information that is not present on lexical items, but that can only defined relative to a larger discourse. Consequently, if there is a way to encode the notion of focus without resorting to a formal feature, then this would be a theoretically preferable position.

1.3.3 Language background

Though my view will remain broad throughout this dissertation, the main language under investigation will be San Martín Peras Mixtec. San Martín Peras Mixtec (ISO: JMX)—known as Tu'un Sávi or Tu'un Ndá'vi by speakers—is an Otomanguean language spoken by approximately 12,000 people in western Oaxaca, Mexico, near the border with the state of Guerrero (Instituto Nacional de Estadística y Geografía, 2020). There is considerable variation between Mixtec languages and there is no consensus on how many distinct varieties there are (Campbell, 2017). Ethnologue lists 52 distinct ISO codes for Mixtec languages (Eberhard et al., 2020), but the Mexican government recognizes 80 distinct varieties (Instituto Nacional de Lenguas Indígenas, 2008), a number roughly equivalent to the results of a dialect survey conducted in the 60s-70s (Egland and Bartholomew, 1983). The term "San Martín Peras Mixtec" serves as a catch-all for the variety of Mixtec is spoken in the municipality of San Martín Peras, located within the district of Juxtlahuaca. As of 2020, approximately 97% of residents of the municipality over the age of 3 speak an indigenous language[4] and approximately 62% speak Spanish (Instituto Nacional de Estadística y Geografía, 2020). According to a recent report from the Mexican government, the variety of Mixtec spoken in San Martín Peras is not in immediate risk of language loss (Embriz Osorio and Zamora Alarcón, 2012). However, it should be noted that there are more granular differences in the way people speak depending on the town they are from within the municipality, and the language situation in each town may be different depending on a variety of circumstances.

In addition to speakers living in Oaxaca, there is a sizable diaspora population of speakers of Mixtec languages living in other parts of Mexico and throughout the United States, especially on the West Coast. Within Mexico, Mixtec speakers often

[4]While the census does not specify which indigenous language(s) the residents speak, I assume that it in the vast majority of cases, the residents speak Mixtec.

migrate for work, often to work in agriculture or in large Mexican population centers such as Mexico city (Velasco Ortiz, 2005; Mines et al., 2010; Bax, 2020). Outside of Mexico, there are large populations of indigenous Oaxacans living on the West Coast of the United States (especially in California). According to estimates within the last 15 years, there are likely between 100,000-350,000 indigenous Oaxacans living in California (Kresge, 2007; Escala Rabadán and Rivera-Salgado, 2018). Among Indigenous Mexican farmworkers in California, over 50% are speakers of some Mixtec language (Mines et al., 2010). While I have not been able to find precise figures about the number of speakers of Mixtec languages (or speakers from San Martín Peras in particular), there are large populations of speakers of the language living in several cities along California's Central Coast including Watsonville, Oxnard, Santa Maria, and Salinas (Mendoza, 2020).

According to Josserand (1983), San Martín Peras Mixtec forms part of the Southern Baja dialect group. Other studies on the languages in this dialect group include North and Shields (1977) and Shields (1988) on Silacayoapan Mixtec, Hills (1990) on Ayutla Mixtec, and Carroll (2015) on San Juan Ixpantepec Nieves Mixtec. Additionally, there has been some work on other varieties of Mixtec spoken within the Southern Baja region that are not explicitly classified by Josserand, including Cisneros (2019, 2020) on Cuevas Mixtec and Caballero et al. (2021) on San Juan Piñas Mixtec. Aside from my own work described in this dissertation and related publications, other investigations into San Martín Peras Mixtec include Mendoza (2020), Peters (2018), Ostrove (2018, to appear-a, to appear-b) and Eischens (2021a, 2021b, 2021c, to appear).

The data in this dissertation come primarily from two sources. First, much of the data come from two consultants originally from the municipality of San Martín Peras that have lived in California for many years. My primary U.S.-based consultant is originally from Ahuejutla, a town of 1200 people approximately 10 miles north of the

town of San Martín Peras. In addition, some of the data in this dissertation comes from several residents of Ahuejutla, gathered during a field trip to the town in 2019. The other U.S.-based consultant that I worked with is originally from the town of San Martín Peras. All data in this dissertation was elicited using Spanish.

1.4 The organization and contributions of this dissertation

In this introductory chapter, I have outlined my general assumptions about focus and its relationship to wh-words. In particular, I have shown that foci and wh-words seemingly displace to the same syntactic position, are often marked with identical particles, and are both interpreted via the calculation of alternatives. In addition, I have outlined two significant problems posed by a syntactic account of focus displacement: displaced foci are often correlated with other phonological and interpretive properties, and assuming that the movement of foci is driven by a formal syntactic feature requires a significant expansion of the theory of syntactic movement. However, if we do *not* adopt a syntactic account of focus displacement, we are left with an unsatisfactory explanation of the connection between focus and wh-words.

In Chapter 2, I advance a theory of focus movement which posits that it is driven by a syntactic need of a class of particles sensitive to alternatives. In particular, I propose that this class of particles are those that take scope over foci and are targeted for Ā-movement by a left-peripheral head. This account suggests a novel solution to the "Inclusiveness Problem" of focus movement. In particular, it does not depend on labeling of foci within the syntax nor targeting them directly. Rather, it relies on the semantic requirement that Alternative Particles have an alternative generating element within their scope. In addition, this account of focus movement allows us to

more clearly understand its connection to wh-movement, which has also been argued to be indirect movement of wh-word that surfaces in the scope of some particle that is sensitive to the alternatives that it generates (Cable, 2010). Thus, under the account that I advance in this chapter, focus movement and wh-movement form a natural class.

This chapter makes several contributions to our understanding of focus movement, and the way that syntactic operations interact with discourse notions such as focus. In particular, it advances a novel understanding of the role that focus alternatives play in syntactic operations. Under the account put forward in this dissertation, lexical items that are sensitive to focus alternatives are marked with a formal feature which signals that fact.

In Chapter 3, I test the predictions of this account using novel data from San Martín Peras Mixtec. After providing some necessary background on the language, I show that several properties of focus in the language can help us understand the "core" of focus displacement. First, the language fronts all types of foci, not just foci that are interpreted exhaustively. Second, phonological evidence suggests that foci do not move in order to be realized in a position of prosodic prominence. These two facts demonstrate that focus movement in the language is not triggered by prosody or interpretation, and consequently, I propose that it is a purely formal syntactic movement.

The first contribution of this chapter is empirical. Outside my own work, there have been few systematic investigations into the way information structure is realized in Mixtecan languages (Macaulay, 1996; Ostrove, 2018; DiCanio et al., 2018, are notable exceptions). More generally, the formal theoretical literature on focus has concentrated on a handful of well-described European languages, especially Hungarian and Italian. As I will demonstrate in chapter 3, Mixtec displays important properties which distinguish it from better-studied European languages. Beyond the inherent benefit of investigating an understudied languages, I will show that Mixtec instanti-

ates a language where focus movement is due to a purely formal need of the syntax. Though focus displacement has prosodic and interpretive properties, I will argue that these are not the main motivations for focus movement in the language. This has clear implications for our theory of focus movement, and information structure more generally.

In Chapter 4, I use language internal evidence from San Martín Peras Mixtec and show that constituents marked as foci do not move within a pied-piped constituent, unlike wh-words. This phenomenon shows a clear contrast between the two categories, and also provides independent evidence that foci are not directly marked with a formal feature.

This chapter provides direct evidence against the hypothesis that wh-words and foci are formally identical phenomena. Moreover, it provides positive evidence in favor of the claim that wh-words can be identified with a feature, while foci cannot.

In Chapter 5, I explore in more depth the interaction between focus movement and wh-movement, cross-linguistically, and in SMPM in particular. In that chapter, I propose a solution to a "Locality Problem" that arises if we assume that wh-movement and focus movement are a completely unified phenomenon. In particular, I advance a theory to explain why wh-words always move when they are in competition with foci, even when the focus is more local to the probing head.

This chapter contributes to our understanding of the relationship between focus movement and wh-movement. This is particularly important, given recently theories that propose that wh-movement is a type of particle movement. In this chapter, I propose that wh-movement ought to be thought of as a subtype of focus displacement: both are triggered by the syntactic needs of particles that take scope over them and are sensitive to alternatives. In addition, I demonstrate that these two phenomena cannot be completely collapsed, as evidence from Mixtec shows. In order to account for

the movement pattern of Mixtec, this chapter advances a particular understanding of the syntactic Agreement mechanisms and how they interact with feature geometries. Specifically, I argue that valuation is delayed until all match relationships are established, a way of economizing over syntactic operations. In the process, this chapter provides an additional example of the way that syntactic displacement is sensitive to geometries of features.

In Chapter 6, I summarize the conclusions of the dissertation and look to the future.

1.5 Methodological commentary

Focus is a notion that is inherently tied to context. Foci are used to make congruent discourse and to make reference to alternative propositions present in the Common Ground. For this reason, investigating focus—and, in fact, all types of information structure—through linguistic fieldwork requires care. Moreover, while studying naturally occurring examples of focus provide a window into information structure, elicitation is also an essential tool to gather negative evidence and determine which types of focus constructions are ungrammatical (Aissen, to appear).

In this dissertation, I have gathered judgements about focus in several distinct ways. The most common way was by establishing an explicit context and then eliciting grammaticality or felicity judgements relative to that context. In some instances, I asked how a Spanish sentence would be translated into Mixtec in the given context, and in other instances, I explicitly asked whether a Mixtec sentence that I provided would be grammatical and/or felicitous in the context. Given the importance of context to understanding what constituents are in focus (and the type of focus present within a sentence), to the extent possible I have provided the contexts that were used when eliciting these data.

An additional method of data elicitation used images of objects to prompt partic-

ular responses to wh-questions. For instance, I would ask a wh-question in Mixtec such as *What did Maria buy at the store?*, then I would show an image of an object to prompt a response. While similar to a translation task, this type of picture task is a bit more naturalistic, as it involves no prompt in the contact language.

Finally, I elicited semi-naturalistic speech by having speakers extemporaneously narrate stories, using storyboards designed to elicit particular focus constructions (Littell, 2010a,b; TFS Working Group, 2011; Grubic, 2014). To do this, I narrated the story in Spanish to the speaker while showing the storyboard pictures. Then I asked the speaker to narrate the same story again in Mixtec, using the pictures of the storyboard as a prompt.

Chapter 2

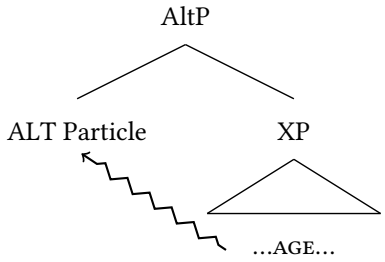
A Theory of Alternative Particles

My aim is this chapter is to propose a general theory of focus and wh-movement which unifies these two phenomena. Specifically, I claim that wh-movement and focus movement are not separate phenomena, but are in fact members of a broader natural class of movements that target Alternative Particles: words which are sensitive to the alternatives generated within their scope (see Branan and Erlewine, 2020, for an independently developed proposal along similar lines). In particular, these particles require alternatives as part of their semantic composition, and consequently, they must have an alternative generating element (AGE) within their scope. This class of Alternative Particles includes Q (a particle that must c-command wh-words), and several distinct particles that create different focus interpretations. This builds on the ideas of Horvath (2007) and Cable (2010), who argue in favor of indirect movement of exhaustive foci and wh-words, respectively, and takes seriously the idea that perhaps these two types of indirect movements can be unified in some way (Cable, 2010; Horvath, 2013). However, unlike previous proposals to unify these phenomena as particle movement, my account explicitly incorporates movement of non-exhaustive foci and investigates the way in which Q particles and other Alternative Particles form a non-uniform class. Finally, taking seriously the criticisms leveled against a formal

syntactic feature marking semantic foci, I link wh-words and foci using their shared property of alternative generation.

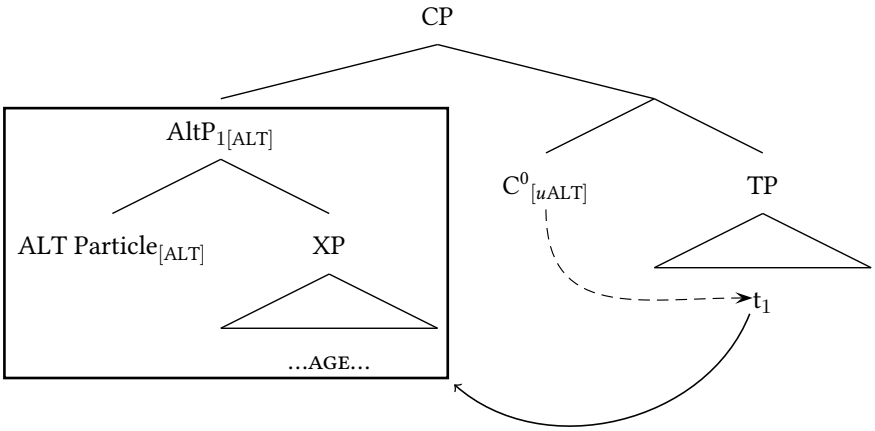
I assume that when an AGE is in the scope of an Alternative Particle, the alternatives that it generates will "project" until they are merged syntactically with some semantic object which can use those alternatives as part of their semantic composition, namely an Alternative Particle. Following Kotek (2019), I use a squiggly arrow to indicate the area in which alternatives project.

(1) Alternative Sensitivity



Furthermore, I claim that Alternative Particles bear a formal syntactic feature [ALT] which can trigger their movement in some languages. If a language has a probe that bears an uninterpretable [ALT] feature, it will initiate a search for Alternative Particles, and enter into syntactic Agreement with the phrase headed by the particle. In the case that this head also bears an EPP feature, this Agree relationship will cause the entire phrase headed by the Alternative Particle (including the AGE that it c-commands) to undergo Internal Merge.

(2) Movement of Alternative Particles



This approach unifies the movements of wh-words and foci as a natural class, but allows for the possibility that they may be different in some respects. Specifically, I will claim that wh-words move when they are in the scope of the Alternative Particle Q (Cable, 2010), and that foci will be displaced when they are in the scope of one of several Alternative Particles which contribute to the way that the focus is interpreted. This approach captures the intuition that the core similarity between wh-words and foci is that they both generate alternatives. In addition, I will argue that it straightforwardly allows us to capture two additional similarities between them: (i) wh-words and foci displace to the same syntactic position in languages where both most move; (ii) both are capable of "pied-piping" when they move. Moreover, this analysis does not require positing a formal feature that is context-dependent—it only necessitates a feature that can be assigned to members of a class that is lexically determined. However, because foci and wh-words appear in the scope of different Alternative Particles, the differences that we find between these phenomena can be attributed to differences in the syntactic or semantic behavior of Alternative Particles, which bear the formal feature that triggers movement. Specifically, in chapter 5, I will argue that Q bears a superset of the movement features associated with other Alternative Particles, which

accounts for the fact that wh-words will move across more local foci.

In the following section, I describe the details of this proposal in more depth, followed by a discussion of the intellectual history of this idea. Specifically, in §2.2, I focus on two individual instances of proposals of this type: Cable (2010) on wh-movement and Horvath (2007) on movement of exhaustive focus. In addition to highlighting the similarities between these previous proposals and my own, I will show that neither of these two proposals (nor their mere intersection) can completely account for the patterns of focus movement found cross-linguistically. Then in §2.3, I show what implications this analysis has for the Cartographic approach to focus movement. Finally, in §2.4, I summarize and discuss some predictions of this analysis that will be explored more concretely in chapter 3.

2.1 A unified theory of Alternative Particles

Many languages use designated particles to signal the presence of focus. Descriptively, these words immediately precede or follow constituents that are interpreted as foci. (3) illustrates an example of this phenomenon in Somali. In this language, the constituent that immediately precedes *ayaa* is interpreted as the focus of the sentence. Constituents preceding the focus are interpreted as topics.

(3) a. **Cali** ayaa ninkii lacagtii siiyey
C. AYAA man.the money.the gave
'**Cali** gave the money to the man.'

b. Cali **ninkii** ay-uu lacagtii siiyey
C. man.the AYAA-he money.the gave
'Cali gave the money to **the man**.'

c. Cali ninkii **lacagtii** ay-uu siiyey
C. man.the money.the AYAA-he gave
'Cali gave **the money** to the man.' Saeed (1984): 78

In Somali, as in some other languages, the same particle that marks foci is also used to mark wh-words.

(4) a. Maxay ayaa Axmed xiisagelinaya?
what AYAA A. interest
'What will interest Axmed?'

b. Kuma ayaa la kulmi doonaa?
who AYAA-she with meet will
'Who will she meet?' Saeed (1984): 151

This apparent similarity between constituents marked as foci and wh-words has provided evidence for the claim that wh-words are "inherently" focused in some sense (Gunter, 1966; Rochemont, 1978; Culicover and Rochemont, 1983; Horvath, 1986; Sabel, 2000; Bošković, 2002; Aboh, 2016; Erlewine, 2018). As outlined in Chapter 1, I assume that wh-words are "focused" in the sense that they introduce alternatives. Under this slightly altered framing, we might call particles like those in (3-4) "Alternative Particles." That is, they are particles that are sensitive to alternative generating elements like foci and wh-words.

While the same particle marks foci and wh-words in some languages, in other languages, there are morphologically distinct Alternative Particles that mark each. For instance, in Sinhala, there are two distinct Alternative Particles that mark wh-words and foci. *də* is a Q particle that co-occurs with wh-words, while *tamay* co-occurs with foci.

(5) a. Chitra monəwa də gatte?
C. what ALT.Q bought-SCOPE
'What did Chitra buy?' Kishimoto (2005): 3

b. Chitra **ee** **potə** tamay kieuw-e
C. that book ALT.FOC read-SCOPE
'It was **that book** that Chitra read.' Kishimoto (2005): 11

In this chapter, I argue that particles of this type should be viewed as a natural class. In addition to a Q particle and a particle that triggers a "neutral" focus interpretation, there are also Alternative Particles that trigger exhaustive or additive interpretations.

(6) **A lexical class of Alternative Particles**

Q, NEUTRAL particle, EXHAUSTIVE particle, ADDITIVE particle

As suggested by their name, the common semantic core of Alternative Particles is that they use the alternatives generated within their sister as part of their semantic composition. Consequently, Alternative Particles need some alternative generating element within their scope to be properly interpreted. However, as I will show, the precise way that these particles use the alternatives present in their sister can be different. In the following subsections, I will sketch the shared semantic and syntactic properties of this class of particles in more detail.

2.1.1 The semantics of Alternative Particles

The core semantic similarity between Alternative Particles is that they are sensitive to and use the alternatives generated somewhere within their sister as part of their semantic composition. This idea is not new—it has long been observed that certain words "associate" with focus alternatives. This association not only restricts the position of focus within the clause, but it also affects the interpretation: the same string of words can have truth-conditionally distinct meanings based on which element the particle associates with (e.g. Jackendoff, 1972). As an illustration, consider the fact that the position of focus is generally free within a sentence. That is, given the appropriate context, each of the words in (7) can be focused to create a congruent

response.[1]

(7) a. *Context: Who gave his daughter a new bicycle?*

JOHN gave his daughter a new bicycle.

b. *Context: How did John connect his daughter and a new bicycle?*

John **GAVE** his daughter a new bicycle.

c. *Context: Whose daughter did John give a new bicycle to?*

John gave **HIS** daughter a new bicycle.

d. *Context: Which of his family members did John give a new bicycle to?*

John gave his **DAUGHTER** a new bicycle.

e. *Context: What kind of bicycle did John give his daughter?*

John gave his daughter a **NEW** bicycle.

f. *Context: What new thing did John give his daughter?*

John gave his daughter a new **BICYCLE**.

Adapted from Jackendoff (1972): 250

However, certain words can restrict the position of focus when they are present in a sentence. One such word is *only*. If *only* is adjoined to the VP, then the focus must appear somewhere in the VP. The subject cannot be interpreted as the focus (8a).

(8) a. *__JOHN__ only gave his daughter a new bicycle. (not Sam)

b. John only **GAVE** his daughter a new bicycle. (he didn't sell her one)

c. John only gave **HIS** daughter a new bicycle. (not to someone else's)

d. John only gave his **DAUGHTER** a new bicycle. (not his son)

e. John only gave his daughter a **NEW** bicycle. (not a used one)

f. John only gave his daughter a new **BICYCLE**. (not rollerskates)

[1] Because focus in English requires prosodic prominence on the focus, I mark foci in these examples with bolding (signifying focus) and small caps (signifying prominence).

Adapted from Jackendoff (1972): 250

The focus must be in the scope of *only*; that is, *only* must c-command the focus (Jackendoff, 1972; Tancredi, 1990; Aoun and Li, 1993, a.o.). However, any constituent within the scope of *only* can be interpreted as the focus. Intuitively, this is the case because in order to for *only* to be interpreted, it needs to make reference to alternatives that are present within its scope, and these alternatives must be generated by some constituent that is focused. Put differently, the word *only* is interpreted in a different way in each sentence in (8), because it is quantifying over a different set of alternatives.

Specifically, a sentence with *only* has an at-issue entailment that all the alternatives introduced by the focus within its scope are false (i.e., that the focus is interpreted exhaustively). Under a Roothian view of focus, these alternative propositions are created by replacing the focus within the scope of *only* with something of the same semantic type (9a). In addition, the prejacent of *only* is backgrounded in some way, perhaps as a presupposition (Horn, 1969).

(9) John only [gave his daughter a new **bicycle**]

   a. Entails: ¬{John gave his daughter a new car, John gave his daughter a new scooter, John gave his daughter a new skateboard…}
   b. Prejacent: John gave his daughter a new bicycle

Crucially, negating these alternative propositions is part of the at-issue entailment of the meaning of *only*. A continuation that rejects the entailment leads to a contradiction (10a), but the exhaustivity entailment goes away under negation (10b) or in a question (10c).

(10) a. John only gave his daughter a new **BICYCLE**, #and he also gave her some rollerskates.

b. John did not only give his daughter a new **BICYCLE**. ↛
John did not give his daughter rollerskates.

c. Did John only give his daughter a new **BICYCLE**? ↛
John did not give his daughter rollerskates.

Thus, *only* is a word that has a meaning intimately tied to alternatives, which are generated by the focus within its scope. It uses those alternatives as a part of its at-issue meaning. The prejacent is also entailed; it is just not clear if it is presupposed or backgrounded in some other way.

(11) $[\![\text{only}]\!] = (\alpha)(\beta)(w) = 1$ iff for all p such that $p(w) = 1$ and p $\in \alpha$, $p = \beta$

Kotek (2019): 87

Other Alternative Particles use the alternatives generated within their scope in different ways. For instance, *even* also uses alternatives as part of its meaning, but instead of asserting that alternative propositions are false, it presupposes that another alternative besides the asserted one is true. That is, a sentence like (12) presupposes that there is at least one other person that likes Mary (Karttunen and Peters, 1979).[2]

(12) Even **BILL** likes Mary.

Once again, it is clear that this presupposition is part of the entailed meaning of *even* because it is not cancelable.

(13) Even **BILL** likes Mary, #but no one else does.

Karttunen and Peters (1979): 13

[2] *Even* also seems to presuppose that its asserted prejacent is "unlikely" in some sense. So, (12) also seems to presuppose that *Bill* is unlikely (or the least likely) to like Mary (see also, König, 1991; Toosarvandani, 2010).

However, this meaning is presupposed, rather being an at-issue entailment, as it survives embedding within presupposition holes.

(14) a. Does even **Bill** like Mary?

b. If even **Bill** likes Mary, then all is well.

Karttunen and Peters (1979): 13

So, like *only*, *even* uses the alternatives created by the focus within its scope as part of its meaning. Though the way that the alternatives are used is different, they are still integral to the meaning of *even*.

One evident difference between *only* and *even* noted in Jackendoff (1972) is that *even* can associate with a focus that it does not c-command, as in (15). Recall that this is not possible with *only* (16).

(15) *Context: Maria is a notoriously picky eater. In support of my claim that pineapple is a universally-adored fruit, I state:*
Maria even likes pineapple.

(16) *Context: Most of my friends and I are picky eaters, but Maria will eat just about anything. After a trip to Oaxaca, she developed a taste for the guanábana fruit, but none of the rest of us like it.*
***Maria** only likes guanábana.

Following Erlewine (2014), I assume that, despite appearances, *even* actually associates with the lower copy of the subject (in spec-*v*P) which it *does* c-command. *Only* is not able to associate in the same way due to the way that it uses the alternatives in its scope. *Only* asserts the negation of the alternatives to its prejacent, so, according to Erlewine (2014), this would cause compositional problems if *only* could associate with the lower copy of the subject and then compose with the moved subject in spec-TP.

A third particle that requires the alternatives generated in its scope is Q (Beck, 2006; Cable, 2010). In particular, the role of Q is to convert the alternatives generated within its scope to convert those alternatives into an ordinary semantic value. This conversion allows the alternatives to be interpreted as part of the question meaning. However, Q is crucially distinct from other Alternative Particles because it can completely ignore the ordinary semantic value of its sister. This is important to the system proposed in Beck (2006) and Cable (2010), because it allows wh-words (which are hypothesized to have no ordinary semantic value) to appear within the scope of Q.

Finally, there is the ~ operator proposed in Rooth (1992). This operator introduces a variable, and restricts its reference to a subset of the alternatives in its scope. This semantic variable is interpreted relative to the alternatives present within the scope of ~. Specifically, the variable is restricted to a subset of the focus semantic value of the phrase it takes scope over. Additionally, the value of the variable must contain the ordinary semantic value of the constituent that ~ takes scope over, as well as some other element. Consequently, ~ uses alternatives to establish an anaphoric relationship between the focus and a discourse antecedent, such as a question or another focus marked constituent. In this dissertation, I refer to this anaphoric usage of alternatives as a NEUTRAL focus meaning.

In additional to this presuppositional meaning, the ~ operator can also trigger implicatures, derived via Gricean reasoning. For instance, responses to wh-questions with a focus marked constituent are often interpreted as exhaustive answers, due to Grice's Maxim of Quantity (Grice, 1975).

(17) *Where did you go hiking this weekend?*

I went to ~[**Big Basin**].

⇝ It is not the case that I went to {Henry Cowell, Butano, Wilder Ranch, Castle

Rock…}

However, this implicature is easily cancelable without leading to a contradiction.

(18) *Where did you go hiking this weekend?*

I went to ~[**Big Basin**], and in fact, I also went to ~[**Wilder Ranch**].

In summary, we have seen that there are a number of linguistic expressions which rely on Alternatives to be semantically composed. That is, these particles use the alternatives generated within their scope as part of their entailed or presupposed meaning.

(19) Alternative Sensitivity

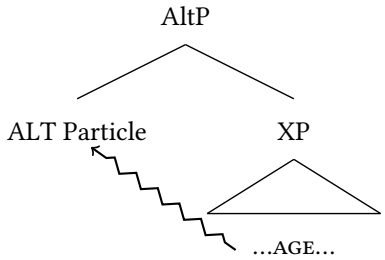


Table 1.2 summarizes the types of uses I have described above, though this should not be interpreted as a complete list of the way that natural language expressions can use alternatives. Additionally, as I have noted above, the precise way that these particles use the alternatives generated in their sister are not identical.

	Ordinary Semantic Value	Focus-Semantic Value
Q	Ignores	Coverts to Ordinary Semantic Value
EXHAUSTIVE	Backgrounded	Asserts as false
ADDITIVE	At-issue	Presupposes that at least one alternative is true
NEUTRAL	At-issue	Anaphoric and Implicature

Table 2.1: Alternative Particles

This lexical class includes several particles which are known to be sensitive to alternatives. Because these particles require alternatives as part of their semantic composition, they must have an AGE within their scope in order to be properly interpreted.

2.1.2 The morphosyntax of Alternative Particles

Movement of Alternative Particles

As outlined in the previous section, there is a robust cross-linguistic generalization that wh-words and foci displace to the same surface syntactic position. Given the tight semantic connection between these categories, I believe that the strongest hypothesis is that this syntactic correlation is not coincidental, but in fact reflects that movement of Question particles and other Particles sensitive to focus alternatives form a natural syntactic class. Specifically, I propose the hypothesis in (20).

(20) All Alternative Particles bear (at least) the formal syntactic feature [ALT]

Depending on the language, this feature present on Alternative Particles may or may not be targeted for movement. Additionally, it is important to note that this hypothesis does not preclude the possibility that some of the particles can be marked with features in addition to [ALT]. In fact, as I will argue in Chapter 5, there is good evidence that Q particles must be marked with a superset of features of other Alternative Particles.

While the particular label of the formal feature is not of great importance, some words on why I have adopted the novel label [ALT] rather than the more common [FOC] are in order. First, implementations using the feature [FOC] assume that it is a feature that labels focused constituents. For instance, (Rooth, 1985, 1992) uses semantic focus-marking of constituents as an important part of his theory of alternative semantics. Briefly, the focus semantics of an expression are calculated by replacing any focused marked constituents with a variable. Similarly, theories that attempt to

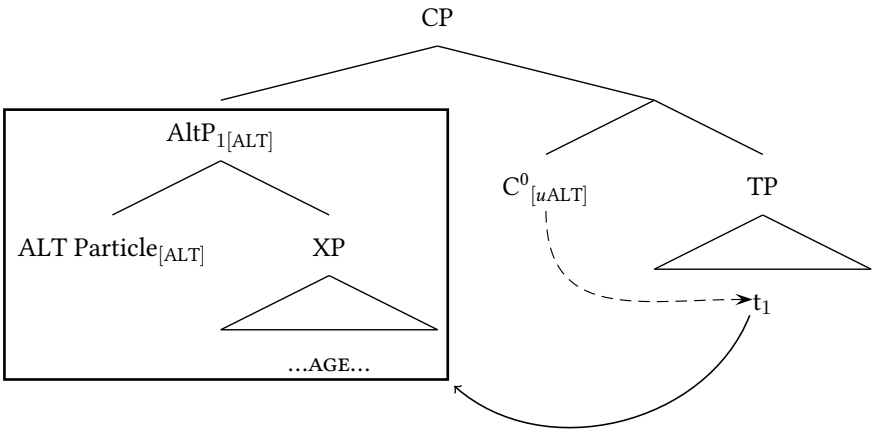
derive focus fronting syntactically often assume a formal syntactic feature that marks focus-marked constituents (e.g. Aboh, 2016). This contrasts with the [ALT] feature, which I argue marks Alternative Particles, not focus-marked constituents. So, while I am still committed to some semantic mechanism of focus-marking in order to generate alternatives, the formal syntactic feature that I argue for here is used to identify particles that are sensitive to those alternatives, not constituents that generate alternatives themselves.

Second, I choose the label [ALT] instead of [FOC] because I believe it more clearly captures the intuition of what unifies foci and wh-words. While there is a history of assuming that wh-words are inherently focused in some sense (e.g. Horvath, 1986; Bródy, 1990; Rizzi, 1997; Aboh, 2007; Erlewine, 2018), this is not an uncontroversial position. In particular, some work has tried to define foci in terms of prosodic prominence (e.g., Reinhart, 2006; Büring, 2015), and is well known, wh-words do not receive the same prosodic prominence as foci in English Culicover and Rochemont (1983), unless they are echo questions, leading Erteschik-Shir (1986) and Beck and Reis (2018) to argue that only echo question wh-words are focused. As the difference in prosodic realization of wh-words in echo and non-echo questions is orthogonal to my main point, I believe the name [ALT] avoids this potential problem by highlighting the fact that wh-words are alternative generating, sidestepping the question of whether they are always "focused" in the same way. For what it is worth, my interpretation of the literature is that when wh-words are claimed to be "inherently focused," what is most often meant is that they generate alternatives, like foci, not that they are always realized in the same way as foci. For this reason, I think it is more accurate to unify foci and wh-words as alternative generating constituents, rather than claiming that wh-words are a special type of focus.

When particles bearing [ALT] enter into an Agree relationship with a head that

has an uninterpretable [ALT] feature and bears an EPP feature, then the entire phrase headed by the particle will be attracted. One possible head that may bear this uninterpretable feature cross-linguistically is C, though other heads may bear an uninterpretable [ALT] feature in other languages. For instance, some languages may have a "low" position for Alternative Particles immediately above *v*P (Jayaseelan, 2001; Belletti, 2004; Collins and Essizewa, 2007).

(21) Movement of Alternative Particles



Because Q and other particles which scope over foci all bear the same syntactic feature, we expect that they will be attracted by the same head. Consequently, languages which move both foci and wh-words are predicted to move them to the same position.

The position of Alternative Particles

I assume that there are certain restrictions on the types of constituents that Alternative Particles can merge with syntactically. For instance, Cable demonstrates that in Tligit, Q particles cannot merge in between a preposition and its complement (22a), nor between D and its complement (22b), nor to the right of the matrix predicate, a

position that can be plausibly analyzed as the complement of C or Infl (22c).

(22) a. *Aadóo sá teen yeegoot?
who Q with you.went
Intended: Who did you go with? Cable (2010): 44

b. *Daakw sá keitl asháa?
which Q dog it.barks
Intended: Which dog is barking? Cable (2010): 45

c. *Daa iyatéen sá?
what you.can.see.it Q
Intended: What can you see? Cable (2010): 58

In order to capture this empirical generalization, Cable (2010) proposes that Q particles cannot intervene between a functional head and a phrase that it selects for. Specifically, he proposes the following condition on the placement of QPs.

(23) **The QP-Intervention Condition**:

A QP cannot intervene between a functional head F and a phrase selected by F

Cable (2010): 57

According to Cable's analysis, this Condition holds due to the distinct selectional properties of heads. In particular, he assumes that functional heads select for a particular syntactic category (c-selection), while lexical heads select for a semantic type (s-selection) (see Grimshaw, 1979, 1981; Pesetsky, 1982). Because QPs are always the same semantic type as their sister, then they should be able to be selected by any head that engages in s-selection. However, because functional heads select for particular syntactic categories, they do not select for QPs.

While this generalization captures the empirical facts of Tlingit, it may be too strict to be used cross-linguistically. For instance, in order to account for languages that allow preposition stranding, like English, Cable is forced to stipulate that prepositions

are a lexical, rather than functional category in English. Moreover, though the condition in (23) predicts that a determiner will not be fronted to the exclusion of the noun that it selects for. However, it has been known since Ross (1967) that the constraint on Left Branch Extraction is not universal. For instance, many Slavic languages, such as Polish, allow extraction of wh-determiners.

(24) Która Jan przeczytał [__ książkę]?
which J. read book
'Which book did Jan read?' Citko (2006): 226

One way to deal with this potential issue is to leverage the generalization that languages that allow Left-Branch Extraction also tend to not have overt determiners (Uriagereka, 1988; Corver, 1992; Bošković, 2005). Consequently, if these languages lack a functional head D, then this may allow them more flexible QP placement. However, as summarized in Köylü (2021), the correlation between lacking articles and allowing Left Branch Extraction is not perfect, as there are several languages that lack articles and yet do not allow Left Branch Extraction. Additionally, several languages that *do* have overt determiners allow possessor extraction, such as Hungarian (Szabolcsi, 1984) and Greek (Horrocks and Stavrou, 1987).

Additionally, while in Tlingit the Q particle cannot be clause final (22c), there are languages that allow for pied-piping of entire clauses. For instance, in Basque, embedded wh-words can undergo long distance wh-movement (25a) or they can pied-pipe the entire embedded clause (25b).

(25) a. Se pentzate su [$_{CP}$ __ idatzi rebela Jonek]?
what you-think written has J.ERG
'What do you think Jon wrote?'

b. [$_{CP}$ Se idatzi rebela Jonek] pentzate su __?
what written has J.ERG you-think
'What do you think Jon wrote?' Arregi (2003): 117-118

Assuming that this clausal pied-piping is driven by movement of a QP, then this suggests that it is possible for a Q particle to take a CP as its sister, despite this configuration being ungrammatical in Tlingit (22c).

So, while the QP-Intervention Condition seems to be a firm empirical generalization for the placement of Q Particles in Tlingit, it is not clear if it can be generalized to all cases of wh-movement in all languages. Furthermore, this condition doesn't seem to describe the placement of other Alternative Particles besides Q. In fact, cross-linguistically, Alternative Particles can attach to a broad range of syntactic constituents. Take, for instance, the particle *-cocha* in Korean, which can attach to DPs (26a), PPs (26b), VPs (26c), and CPs (26d).

(26) a. Yeonghee-ka **chopap**-cocha mek-ess-ta
Y-NOM sushi-even eat-PST-DECL
'Yeonghee even ate **sushi**.'

b. Dayphyoca-ka **New York-eyse**-cocha wa-ss-ta
representatives-NOM N. Y.-from-even come-PST-DECL
'Representatives came even **from New York**.'

c. Mary-ka **chayk-ul ilk-ki**-cocha ha-ess-ta
M.-NOM book-ACC read-KI-even do-PST-DECL
'Mary even **read a book**.'

d. Chelswu-ka **Yeonghee-ka cwuk-ess-ta ko**-cocha malha-ess-ta
C.-NOM Y.-NOM die-PST-DECL COMP-even say-PST-DECL
'Chelswu even said **that Yeonghee died**.' Aoyagi (2006): 362-363

Though the Alternative Particle *cocha* does not trigger overt movement within the syntax, the fact that it can attach to a wide range of syntactic constituents suggests that it is likely not restricted to the complement of a lexical head.

Similar evidence comes from the language Sinhala. In this language, an Alternative Particle that associates with foci can also appear at the clause edge. As expected given the proposed semantic restriction on Alternative Particles, it must take a focus within

its scope, but focus can be interpreted on various constituents within the clause.

(27) a. **Ranjit** ee potə kieuw-a tamay
R. that book read-DEFAULT ALT.FOC
'**Ranjit** read that book.'

b. Ranjit **ee** **potə** kieuw-a tamay
R. that book read-DEFAULT ALT.FOC
'Ranjit read **that book**.'

c. Ranjit ee potə **kieuw-a** tamay
R. that book read-DEFAULT ALT.FOC
'Ranjit **read** that book.' Adapted from Kishimoto (2005): 11

To summarize, cross-linguistic evidence suggests that both Q Particles and other Alternative Particles can attach to a wide range of syntactic constituents. One possible restriction on the placement of QPs comes from Cable (2010): Q particles cannot intervene between a functional head and its complement. However, while this condition captures the empirical generalization of Q placement in Tlingit, it is not clear if it can be extended to capture all possible placements of Alternative Particles. Q particles seem to occasionally intervene between functional heads and their complement, as do other Alternative Particles.

Overt and covert

The theory of focus displacement advanced in this chapter proposes that all focus movement can be reduced to movement of Alternative Particles. However, many languages are able to move focus without any phonologically overt particle. Nonetheless, cross-linguistically, the various meanings associated with focus—exhaustivity, additive, comparative, and neutral—can be realized with and without an overt morphological reflex. While it should not be surprising that meaning-contributing heads can be phonologically null, it is worth demonstrating this explicitly for Alternative Particles,

so as to make the case stronger that all focus displacement is associated with some realization of an Alternative Particle.

As we have seen, Tlingit realizes Q overtly (28a), as does Sinhala. However, other languages clearly do not realize Q overtly, such as English (28b).

(28) a. Wáa [sá] sh tudinookw i éesh?
how ALT.Q he.feels your father
How is your father feeling? Cable (2010): 3

b. [Q] How is your father feeling?

The same general pattern applies to other Alternative Particles. For instance, as we have seen, Hungarian is claimed to have a null Alternative Particle which triggers an exhaustive interpretation.

(29) [Ø **Mari** Pesten lakó fiát] hívták fel
ALT.EXH M.NOM Pest-on living son.hers.ACC called.3PL up
'They called up **Mary**'s son living in Pest.' Horvath (2007): 130

Compare this to the pattern in Hausa. In Hausa, foci can be realized in a displaced position, with or without an overt particle.

(30) **Àgoogo** (nèe) Dèelu takèe sô
watch ALT D. 3SG.REL.CONT want
'Deelu wants **a watch**.' Hartmann and Zimmermann (2007a): 244[3]

However, as Hartmann and Zimmermann (2007a) note, focus displacement with and without the particle is not interpreted identically. If the focus is interpreted as non-exhasutive, then using the particle is infelicitous. For instance, a displaced focus followed by a particle cannot be followed up by a continuation.

[3]While the particle is not shown as optional in the original example, the authors state that it is optional on page 245.

(31) **Àkân teebùr** (*nee) sukà sâ lìttàttàfai, dà kuma **cikin àkwàatì**
upon table ALT.EXH 3PL.REL.PERF put books and also inside box
'They put the books **on the table**, and also **inside the box**.'

Hartmann and Zimmermann (2007a): 251

So, while in Hungarian this meaning is expressed via a phonologically null Alternative Particle, in Hausa, this particle is overt. In both languages, however, the particle and its associate can be displaced.

Additive particles may also have overt and covert morphological forms across languages. For instance, English instantiates the overt additive particle *even*, as in (32).

(32) Even **Bill** likes Mary.

In addition, *even* can be combined with the exclusive particle *just* to create a "minimal sufficiency" reading.

(33) Even just **one** can will make Patrick happy.

Panizza and Sudo (2020): 2

According to a recent analysis in Panizza and Sudo (2020), there is also a covert version of *even* which accounts for cases where the minimal sufficiency reading arrises in sentences with only the exhaustive particle *just*.

(34) Just **one** cat will make Patrick happy.

Finally, there are overt and covert versions of the "neutral" focus particle, which triggers both informational focus and comparative focus readings. Once again, English exemplifies the case with no overt morphology. In sentences with both informational focus (35a) and comparative focus (35b), no overt particle appears.

(35) a. *Where did you go hiking this weekend?*

I went hiking in ~[the **Pogonip**].

b. ~[An **American** farmer] met ~[a **Canadian** farmer].

However, there are languages that realize this particle overtly. One example is Somali, a language with a phonologically overt Alternative Particle (Saeed, 1999). Somali uses an overt Alternative Particle to mark information focus (36), as well as comparative focus (37).

(36) a. Y-àa yimí?
who-ALT came
'Who came?'

b. **Cáli** bàa yimí?
C. ALT came
'**Cali** came.' Saeed (1999): 192

(37) a. Ama **Cali** ayaa[4] soo qaadi ama **Faarax** ayaa soo qaadi
or C. ALT it bring or F. ALT it bring
'Either **Cali** will bring it or **Faarax** will bring it.' Saeed (1984): 89

b. Tól iyo fardó, **tól** bàa-n doortay
kinfolk and horses, kinfolk ALT-I choose
'(Of) kin and horses (i.e., wealth), I choose **kin**.' Saeed (1999): 233

Crucially, unlike in Hausa, the particle does not seem to trigger an exhaustive interpretation. For instance, the following examples are possible, which suggest an non-exhaustive interpretation.

(38) a. **Soomaaliyád** bàa-d tahay
Somali.FEM ALT-you are
'You are **a Somali woman**.' Saeed (1999): 190

[4]Saeed (1984) states that *baa* and *ayaa* are "exactly equivalent" (pg. 78) except for the ways that they participate in various phonological rules.

b. Cáli báan bixín
C. ALT.NEG left.NEG
'**Cali** didn't leave.' Saeed (1999): 235

In summary, there is no inherent need for Alternative Particles to be realized overtly or covertly. Each of the different Alternative Particles that I have proposed in this section has an overt and a covert variant, when looking cross-linguistically.

	Overt	Covert
Q	Tlingit	English
EXHAUSTIVE	Hausa	Hungarian
ADDITIVE	English	English
NEUTRAL	Somali	English

Table 2.2: Morphosyntactic Realization of Alternative Particles

While this result is not particularly surprising, it lends support to the claim that all displaced foci are associated with some Alternative Particle, even if that particle is not phonologically realized.

2.1.3 Syntactic focus marking

This alternative analysis of focus displacement is theoretically appealing, because it allows us to avoid labeling focus marked constituents with a formal syntactic feature. According to the morphosyntactic theory of Alternative Particles outlined in above, Alternative Particles are marked with a formal feature which triggers their movement and require an AGE within their scope to be properly interpreted. However, it is important to note that the second requirement is semantic, not syntactic. That is, the requirement to have a focus within their scope boils down to a requirement for their semantic composition: Alternative Particles use the alternatives generated in their scope as part of their semantic composition, and consequently, if an Alternative Particle surfaces without an AGE within its scope, the result will be uninterpretable.

This view of focus sensitive particles allows us to make a strong hypothesis about the way that foci are marked syntactically.

(39) **The featural representation of AGE**

Non-lexicalized alternative generating elements are not marked with a formal syntactic feature.

This is essentially a restatement of Horvath (2010)'s Strong Modularity Hypothesis, and allows us to maintain the strong claim that information structure notions that are dependent on context (such as focus) are not directly manipulated by the syntax. Some more direct evidence for this claim using evidence from San Martín Peras Mixtec will be provided in chapter 4.

However, the account proposed above still allows indirect manipulation of foci by the syntax, mediated by Alternative Particles. This is important, because it allows us to understand how foci are moved syntactically, without being referenced directly by the syntax.

2.2 Prior approaches to Alternative Particles

In the previous chapter, I highlighted several clear syntactic and semantic correlations between wh-words and foci. First, a coherent discourse can be created by following a wh-question with an answer that replaces the wh-word with a focus marked constituent. This congruence obtains because of the shared presuppositions of wh-questions and focus marked answers. Second, in many languages, both foci and wh-words are displaced from their thematic position to a different position within the clause. Moreover, cross-linguistic evidence suggests that in languages where both displace, they consistently displace to the same surface position. Finally, both foci

and wh-words introduce alternatives, and appear in the scope of operators which use those alternatives as part of their semantic composition. These striking similarities have lead to many researchers arguing that wh-movement and focus movement are essentially a unified phenomenon (Chomsky, 1977; Horvath, 1986, 1995; Bródy, 1990; Rizzi, 1997).

However, recent proposals about the trigger for displacement of each category has "problematized" their relationship. One example of this problematization comes from the theory of wh-movement and pied-piping advanced in Cable (2010). In that book, Cable argues wh-movement is actually indirect: overt wh-movement actually represents the attraction of a phrase headed by a Question Particle. Cable argues that wh-words must be contained within QPs, and consequently, they move, indirectly, when QPs are attracted. Cable argues that wh-words must appear in the scope of Q-particles because they are semantically deficient. Specifically, wh-words introduce alternatives, but they do not denote anything (Beck, 2006). This semantic deficiency forces them join compositionally with some element that can use the alternatives they generate in order to create a well-formed semantic derivation.

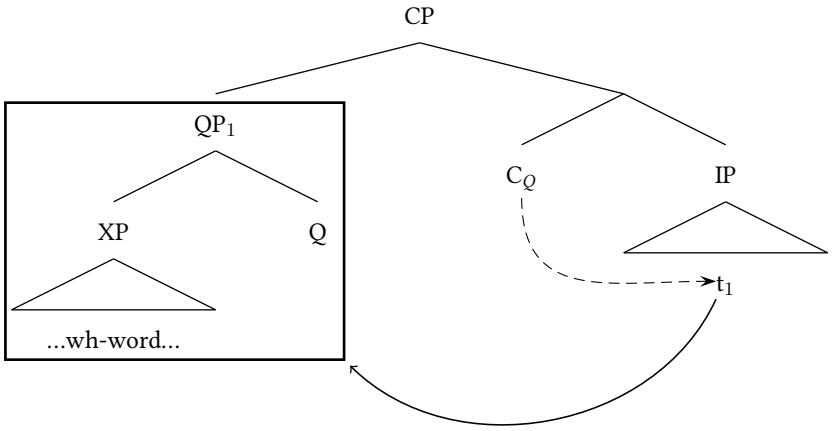
Cable's theory is, in large part, intended to explain pied-piping. In particular, if wh-words are targeted directly for movement, then why can larger constituents that *contain* a wh-word sometimes move? Cable posits that the relationship between the moving element and the constituent bearing the feature targeted for movement is, in fact, isomorphic; apparent cases of pied-piping result when the Q particle is sister to a constituent that *contains* a wh-word.

In the conclusion of his book, Cable briefly considers the possibility that other instances of pied-piping, such as pied-piping that occurs when foci move, are also triggered by particle movement. Specifically, Cable suggests that a Q-like particle that takes scope over foci may be attracted in some languages, triggering movement

of foci. In particular, Cable points to an analysis by Horvath (2007) that argues that "focus-movement" in Hungarian actually targets an operator which takes scope over some foci and triggers an exhaustive interpretation. According to Horvath's analysis, when the exhaustive operator is targeted for movement, its entire c-command domain will also move, including any foci that it c-commands.

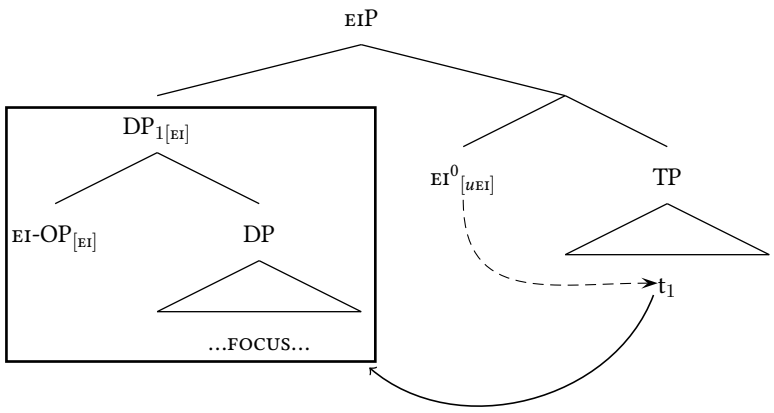
It is clear that the analysis of wh-movement proposed in Cable (2010) and the analysis of focus movement in Horvath (2007) are remarkably similar. Each proposes that displacement is not triggered directly, but rather is caused by the syntactic needs of a (potentially null) operator that takes scope over the wh-word or focus. That is, instead of the syntax targeting these categories directly for movement, it actually targets syntactic phrase which must *contain* these categories. When one of these operators is targeted for syntactic movement, it will also move its entire c-command domain, including either the wh-word (40) or exhaustive focus (41).

(40) Movement of Q Particle



Cable (2010): 38

(41) Movement of Exhaustive Identification Operator (EI-OP)



Horvath (2007): 130

While I believe these analyses are on the right track, neither can completely account for displacement of foci cross-linguistically. In her analysis, Horvath attempts to divorce the notion of "focus" from the phenomenon of "focus-movement" and instead proposes that exhaustivity is the crucial driver of movement in the language. This tack, while perhaps empirically adequate for Hungarian, cannot account for the full range of focus-displacement phenomena found cross-linguistically. First, as I will show, there are languages that move non-exhaustive foci, and thus Horvath's theory cannot be applied cross-linguistically. Second, while assuming both types of displacement are a type of particle movement is one step towards making these movements a natural class, it doesn't offer any clear explanation for why they consistently displace to the same syntactic position. The robust syntactic correlation between focus displacement and wh-movement suggests that both are driven by attraction of a single feature. However, according to Cable's account, QPs are attracted via a [Q] feature and according to Horvath's account, the exhaustivity operator is attracted via a [EI] feature. Understanding these phenomena as a natural class forces a reconsideration of what motivates their movement.

2.2.1 Question Particles (Cable, 2010)

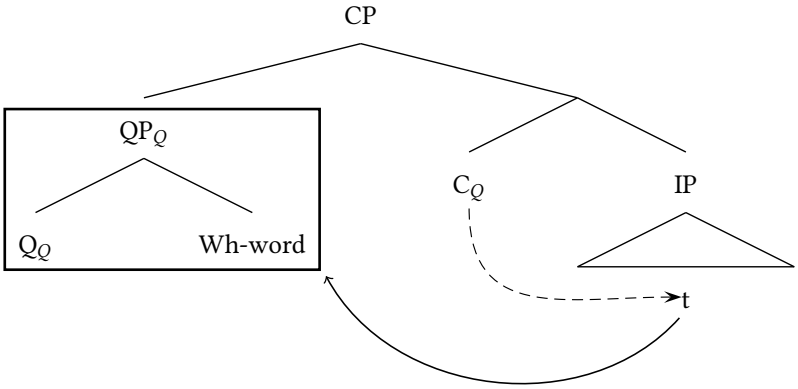
Cable (2010) seeks to answer a question that has plagued researchers investigating wh-movement since Ross (1967): why can wh-words pied-pipe when they move? That is, if wh-words themselves are the target for movement, then why are both sentences in (42) fully grammatical?

(42) a. Who(m) did you speak [to __]?

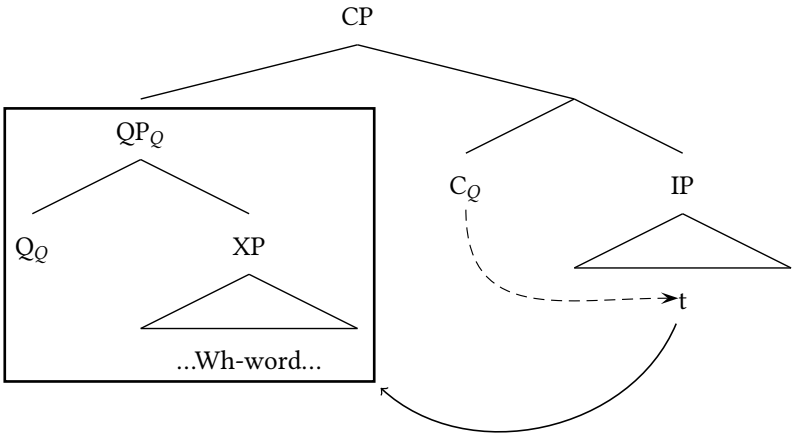
b. [To who(m)] did you speak __?

Cable's central hypothesis is that, contrary to previous analyses, displacement of wh-words is not triggered by a particular property of wh-words. Instead, it is Q(uestion) Particles which bear a special syntactic property: a formal feature feature [Q]. When C enters into an agreement relationship with the phrase that is headed by this Q particle, it attracts it. This attraction also moves all the the elements that are c-commanded by the Q-particle. Under Cable's theory, the difference between "wh-movement" and "pied-piping" reduces to two distinct structural relationships that are possible between the Q particle and the wh-word that it c-commands. When the Q particle is sister to a wh-word, movement of QP will only trigger movement of Q and the wh-word (43a). However, when Q is sister to some XP that contains a wh-word, then movement of QP will front not only the wh-word, but also the containing XP (43b). This latter pattern can descriptively be called "pied-piping."

(43) a. Wh-Movement without pied-piping



b. Wh-Movement with Pied-Piping



Importantly, under this theory, the term "pied-piping" is a misnomer. That is, the constituent that is targeted for movement and the constituent that move are always isomorphic. The constituent that is targeted for movement, however, can be different sizes, depending on what type of constituent the Q particle takes as a sister. Consequently, Cable's theory rejects theories of pied-piping which rely on distinct syntactic operations, such as "feature percolation" (e.g. Grimshaw, 2005).

Cable finds empirical support for this hypothesis in the Na-Dene language Tlingit. In this language, fronted wh-words are followed by an overt question particle *sá*.

(44) Daa [sá] i éesh al'óon?
what Q your father he.hunts.it
'What is your father hunting?' Cable (2010): 7

Importantly, this particle need not be adjacent to a wh-word. Instead, it can follow larger constituents that *contain* a wh-word, resulting in "pied-piping."

(45) a. [Aadóo yaagú] [sá] ysiteen?
who boat Q you.saw.it
'Whose boat did you see?'

b. [Aadóo teen] [sá] yeegoot?
who with Q you.went
'Who did you go with?' Cable (2010): 8

Thus, in this language, the relationship between a wh-word and the Q-particle is transparent in a way that it is not in other languages where the Q particle is not morphologically realized (like English). It is apparent, morphologically, that the Q-particle always c-commands the entire pied-piped constituent, including the wh-word.

If it is QPs that move, not wh-words themselves, then there must be at least two conditions on the structural relationship between Q particles and wh-words: (i) wh-words must *always* appear in the scope of Q particles; (ii) Q particles must always take scope over wh-words. If these conditions did not hold, then we would expect wh-words to occasionally resist movement, or for QPs to occasionally move without containing wh-words, neither of which is attested. In order to account for these conditions, Cable proposes a semantics for wh-words and Q-particles based on Rooth (1992)'s theory of focus alternatives. In this account, wh-words introduce alternatives (Ramchand, 1997; Kratzer and Shimoyama, 2002), and Q-particles introduce a choice function that takes those alternatives as an argument. Moreover, he follows Beck (2006) in arguing that the *only* role of wh-words is to introduce the alternatives that will be used in the denotation of the question. That is, wh-words have no denotation

of their own. In other words, wh-words have a focus semantic value, but no ordinary semantic value. The semantic contribution of the word *who*, for instance, is to introduce a set of humans, but it doesn't denote anything.

(46) a. $[\![who]\!]^{\circ}$ = Undefined

b. $[\![who]\!]^{f}$ = { x: human(x) }

The fact that wh-words do not have an ordinary semantic value makes them semantically "deficient." Consequently, they must appear in the scope of some operator that can interpret the alternatives that they generate and convert them to an ordinary semantic value. If they do not, then the entire expression will not have an ordinary semantic value, causing it to be uninterpretable.

(47) **Principle of Interpretability**

An LF must have an ordinary semantic interpretation. Beck (2006): 16

Furthermore, because wh-words have no ordinary semantic value, they must appear in the scope of an operator that is *indifferent* to ordinary semantic values. Cable follows Beck in arguing that the Q particle is the only operator that satisfies these demands. That is, Q is sensitive to the alternatives generated by its sister, but does not use the ordinary semantic value of its sister at all. By hypothesis, Q particles are the *only* operator sensitive to alternatives that is insensitive to the ordinary semantic value of its scope. Consequently, wh-words must be in the scope of Q particles in order to be properly interpreted (Beck, 2006). Even if a wh-word were to appear in the scope of another operator that is sensitive to the alternatives that it generates (like *only*), it could not be interpreted because any other operator besides the Q particle would make some reference to the ordinary semantic value of its scope. Consequently, wh-words cannot surface within the scope of other focus sensitive particles.

The reverse restriction also holds: Q particles cannot surface without a wh-word in their scope. According to Cable's analysis, this is due to a requirement that semantically interpretable elements within a sentence not be "superfluous." Because Q only makes reference to focus semantic value, two different foci of the same semantic type within its scope would be interpreted identically.

(48) a. [**Frank** Q] = f({Frank, Bill John, Fido…})

b. [**Bill** Q] = f({Frank, Bill John, Fido…}) Cable (2010): 75-76

Consequently, this means that Q particles cannot take scope over other alternative generating constituents, such as foci. Because foci have an ordinary semantic value (denotation) in addition to a focus semantic value (alternatives), a Q particle that takes scope over a focus will be "superfluous" and therefore excluded on grounds of economy.

According to Cable's theory, the Q particle takes the focus semantic value of its sister and converts it to an ordinary semantic value that can be interpreted by higher operators. Specifically, he proposes that Q takes the alternative present in its sister as an argument and introduces a variable over choice functions which is existentially bound. Choice functions take a set as an argument and return a member of that set (50) (Reinhart, 1997).

(49) Semantics of Q

$[\![Q_i]\!]^g$ = g(i) ∈ D_{cf}

Cable (2010): 67

(50) Examples of Choice Functions

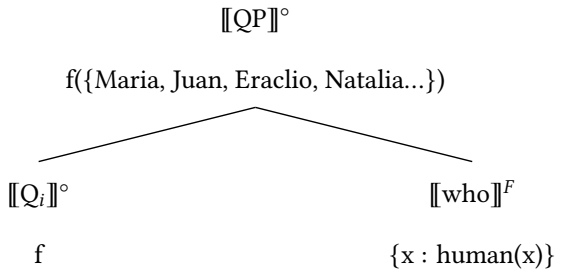
a. f({Maria, Juan, Eraclio, Natalia}) = Natalia

b. f'({dog, cat, rooster, donkey}) = rooster

c. f”({Ahuejutla, Tlapancingo, Juxtlahuaca}) = Ahuejutla

Thus the denotation of a Q particle plus its scope is the result of some choice function applied to the focus semantic value of its sister.

(51)



This choice function variable is then existentially bound by an interrogative Force head which additionally generates the semantics of a question as a set of propositions via a special composition rule (Hamblin, 1973; Karttunen, 1977)

(52) Special Composition Rule for Force$_Q$

$[\![Force_{Qi}XP]\!]^g = \lambda p[\exists f.p = [\![XP]\!]^{g(i/f)}]$

Cable (2010):78

Force$_Q$ combines with its sister to generate a set of propositions and existentially close the choice function variable.

Cable's theory offers a compelling explanation for pied-piping using data from a language which overtly realized question particles. Under this theory, wh-words displace syntactically because they must be in the scope of a particle, which itself undergoes movement. Semantically, wh-words must appear in the scope of the Q particle because otherwise they cannot be interpreted. The Q particle, however, is

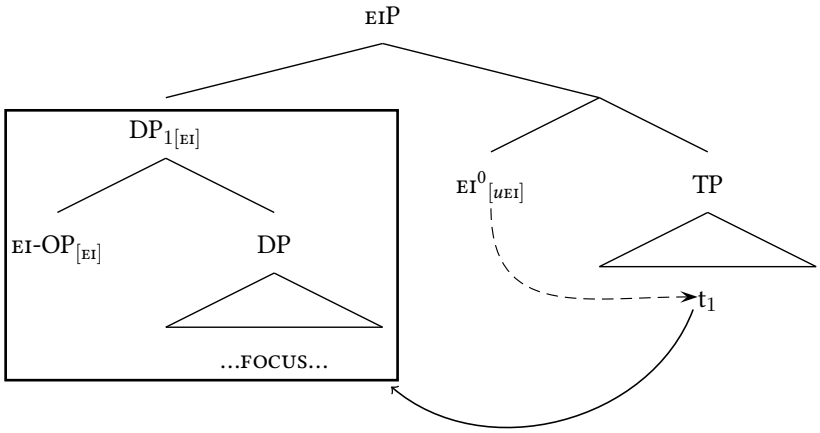
able to use the alternatives generated by the wh-words to help create the denotation of a question as a set of propositions.

2.2.2 Exhaustivity Operator (Horvath, 2007)

Recent work by Horvath on focus displacement in Hungarian comes to a similar conclusion as Cable: foci move indirectly when they appear in the scope of an operator that is targeted for movement. This analysis constitutes an argument against the "traditional" view of focus as a direct movement that is triggered by a syntactic [FOC] feature. An important part of Horvath's project is to argue that "focus-movement" is a misnomer: there is no need for foci to move in Hungarian, rather, it is an exhaustive operator that undergoes movement. In particular, she argues that focus displacement is triggered by Agreement with an Exhaustive Interpretation (EI) operator that can adjoin to constituents and exhaustively quantifies over the variable that it binds within its c-command domain. Consequently, foci that appear in the scope of this operator are interpreted exhaustively—that is, the operator triggers an entailment that the predicate holds for the focused constituent, and does *not* hold for any of the salient alternatives introduced by the focus.

She argues that this operator is targeted for movement by a an "Exhuaustive Interpretation" head in the left-periphery of the Hungarian clause. This head bears an uninterpretable [EI] feature. When this head enters into an Agreement relationship with the operator, it attracts it, as well as the phrase that the operator adjoins to.

(53) Movement of Exhaustive Identification Operator (EI-OP)



Horvath (2007): 130

Horvath (2007, 2010) advance three main arguments in support of this proposal. First, many authors have noted that in languages with displacement of foci, the constituent that is interpreted as the focus and the constituent that is displaced can be non-isomorphic (Horvath, 2007; Hartmann and Zimmermann, 2007b; Fanselow and Lenertová, 2011). That is, the constituent that is displaced may be larger or smaller than the constituent that is semantically interpreted as the focus. For instance, in Hungarian, exhaustive foci on a subpart of a relative clause can trigger fronting of the entire relative clause.

(54) [**Barackpálinkát** követelő vendégektől] fél a pincér __
apricot.brandy-ACC demanding guests-from fear-3SG the waiter-NOM
'It's customers demanding **apricot brandy** that the waiter is afraid of.'

Horvath (2007): 120

Here, though only part of the relative clause is interpreted as the focus (*apricot brandy*), the entire relative clause that contains the focus is fronted to a preverbal position.

Similar facts obtain when the focus is contained within an adjunct modifier. In

this case, the entire modified DP undergoes movement.

(55) [Néhány **Marilyn Monreról** írt könyvet] láttam __ a polcon
some M.M.-about written book-ACC saw-1SG the shelf-on
'It's a few books written about **Marilyn Monroe** that I saw on the shelf.'

Horvath (2007): 120

Furthermore, Horvath (2007) points out that pied-piping of a focus is more permissive than pied-piping of wh-words. For instance, a wh-word that is contained within an adjunct modifier cannot pied-pipe the phrase it modifies (cf. 55).

(56) *a filmszinésznő [[néhány skiről írt könyvet] láttam __ a
the movie-actress some whom-about written book-ACC saw-1SG the
polcon]
shelf-on
Intended: The movie star a few books written about whom I saw on the shelf…

Horvath (2007): 120

Adopting a theory of pied-piping driven by feature projection (e.g. Grimshaw, 2005), Horvath concludes that a putative [FOC] feature borne by constituents in focus would have to be allowed to project further than the [WH] borne by wh-words. Assuming that feature projection is an operation that applies to all features equally, Horvath proposes that focus pied-piping is not driven by the projection of a [FOC] feature and displacement of foci is not due to a formal focus feature at all. Instead, the "permissive" nature of focus pied-piping is due to the fact that the entire constituent of the exhaustivity operator undergoes movement when it is attracted. Under this view, the different pied-piping behavior of wh-words is due to the fact that they only pied-pipe when the feature that they bear projects. Notice, however, that this analysis forces Horvath to conclude that there are two distinct "types" of pied-piping. Pied-piping of wh-words is due to feature projection, while pied-piping of foci is due to the fact that

they appear in the scope of the exhaustivity interpretation operator.

A secondary objection against direct focus movement in Hungarian raised by Horvath is that not all foci undergo movement in Hungarian, but only those that are interpreted exhaustively (e.g., É. Kiss, 1998a). Under a view where foci are directly attracted in the syntax, this fact is surprising: if foci are attracted, then we wxpect them *all* to be attracted. One way that the contrast between exhaustive and non-exhaustive foci in Hungarian can be demonstrated is to show that (57b) is not an entailment of (57a).

(57) *Context: Who did they call up?*

a. **Jánost és Marit** hívták fel
J.ACC and M.ACC called.3PL up
'They called up **John and Mary.**'

b. **Jánost** hívták fel
J.ACC and M.ACC called.3PL up
'They called up **John.**' Horvath (2007): 127

Horvath argues that (57b) is not an entailment of (57a) because the exhaustive interpretation of (57b) triggers an additional entailment that no one besides John was called up. In other words, if (57a) is true, then (57b) will be false.

Additional evidence that fronted foci have an exhaustive interpretation in Hungarian comes from the distinct ways in which fronted foci can be contradicted. In particular, a fronted focus can be immediately followed up by a statement which explicitly negates the exhaustive inference.

(58) a. János **Pétert** mutatta be Marinak
J. P.ACC introduced VM M.to
'As for John, it was **Peter** that he introduced to Mary.'

b. Nem, **Zoltánt** is bemutatta neki
No, Z.ACC also introduced to.her
'No, he also introduced **Zoltan** to her.

Non-fronted foci, however, do not lead to an inference of exhaustivity, and consequently cannot be contradicted in the same way. É. Kiss (2002) refers to the dialogue in (59) as "nonsensical."

(59) a. János bemutatta Marinak **Pétert**
J. introduced M.to P.ACC
'John introduced **Peter** to Mary.'
b. *Nem, **Zoltánt** is bemutatta neki
no Z.ACC also introduced to.her
Intended: No, he also introduced **Zoltan** to her. É. Kiss (2002): 79

Finally, more evidence to support the claim that only exhaustive foci undergo displacement in Hungarian comes from the focus sensitive particles that correspond to English *only* and *even*. Though both are sensitive to the focus of the sentence (Jackendoff, 1972), *only* must front in Hungarian (60), but *even* cannot (61).

(60) a. Mari csak **a fogadásról** késett el
M.NOM only the reception-from late-was away
'Mary was late only for the **reception**.'
b. *Mari elkésett csak **a fogadásról**
M.NOM away-late-was only the reception-from
Intended: Mary was late only for the **reception**.

(61) a. Mari elkésett még **az esüvőjéről** is
M.NOM away-late-was yet the wedding-her-from also
'Mary was even late for **her wedding**.'

b. *Mari még **az esüvőjéről** is késett el
M.NOM yet the wedding-her-from also late-was away
'Mary was even late for **her wedding**.'

Horvath (2007): 122

While *only* entails that the focus must be interpreted exhaustively, the meaning of *even* is additive. Thus, while (60) presupposes that Mary was not late for any event besides the reception, (61) presupposes that Mary was late for some other event, in addition to her wedding.

Given that both of these particles are sensitive to focus, Horvath reasons that it cannot be foci *per se* that are targeted for fronting in the language. Because *only* is interpreted exhaustively and *even* is not, Horvath concludes that exhaustive interpretation is the relevant notion for fronting. This can overlap with focus, but it need not. Instead, there is a need for exhaustively interpreted constituents to move. Movement of foci, when it occurs, is epiphenomenal. When foci are within the scope of an exhaustive operator they will move, and when they are not, they won't. There is nothing about focus, or focus-sensitivity, that triggers movement in Hungarian.

The emphasis on exhaustivity, rather than focus, per se, is part of a larger objection to the existence of a formal syntactic feature which marks foci. Building on the notion of an Inclusiveness Condition (Chomsky, 1995), Horvath (2007, 2010) argue against the existence of a formal feature attached to foci on conceptual grounds. Specifically, Horvath (2010) proposes the following hypothesis:

(62) **The Strong Modularity Hypothesis for Discourse Features**

No information structure notions—i.e., purely discourse-related notions—can be encoded in the grammar as formal features; hence no "discourse-related features" are present in the syntactic derivation. They are available only outside the C_{HL} (Computational System). Horvath (2010): 1349

She hypotheses that information notions such as focus ought to be considered an "interface" phenomenon, rather than a notion that can be manipulated by the syntax proper. Specifically, she claims that formal features only mark notions which affect the truth conditions of a sentence. Exhaustivity is such a notion, and thus it can be considered a formal feature within the hypothesis outlined in (62).

As described above, Horvath (2007) argues against direct movement of foci triggered by a formal focus feature in Hungarian. Instead, she argues that syntactic movement of foci targets an operator (EI-OP), which triggers an exhaustive interpretation. This operator bears a formal feature [EI] which is targeted for movement to a preverbal position. When foci are interpreted exhaustively, they will be in the scope of this operator and thus will move when the operator fronts.

Like Cable's Q Particle, the operator proposed by Horvath (2007) is sensitive to alternatives. That is, it makes reference to the alternatives introduced by a focus in its scope as part of its semantics. Specifically, EI-OP identifies the focus as the only salient alternative for which some predicate holds, and introduces an entailment that the predicate does *not* hold for all other salient alternatives. Additionally, like the QP analysis of wh-movement, this proposed analysis of focus movement assumes that an operator indirectly triggers movement of some other constituent. Finally, both analyses are used to explain how pied-piping works.

Despite these similarities, there are some differences between the semantics of these two focus-sensitive operators. First, the semantics of Q does not make any reference to the ordinary semantic value of its sister. It simply requires that its sister have a focus semantic value, and consequently, it can compose with wh-words, which have no ordinary semantic value. Furthermore, while EI-OP trigger an entailment of exhaustive interpretation, Q does not trigger any such entailment. These similarities and differences are summarized in the following table.

	Q	EI-OP
Sensitive to Alternatives	✓	✓
Targeted for Attraction by Functional Head	✓	✓
Triggers "Pied-Piping"	✓	✓
Sensitive to ordinary Semantic Value	*	✓
Triggers exhaustive interpretation	*	✓

Table 2.3: Some Similarities Between Accounts of Cable (2010) and Horvath (2007)

Clearly, Q and EI-OP cannot be completely collapsed, as they have some different properties. However, we can consider them two types of Alternative Particles that have slightly differing properties. However, as I will argue in the next subsection, simply adopting Horvath's EI-operator as the "focus" counterpart to Cable's Q particle is not sufficient to capture the cross-linguistic patterns of focus movement.

2.2.3 Problems with equating focus movement with exhaustivity

Cable briefly considers the possibility that his QP account of pied-piping can be extended to focus pied-piping by viewing Horvath's exhaustivity operator as another type of Q particle. In this subsection, I show that this is not sufficient to capture the patterns of focus movement outside of Hungarian. Instead, I argue that Q particles and Exhaustive Particles ought to be thought of as two Alternative Particles, a class that has additional members that trigger distinct focus interpretations.

1. Not all focus movement is interpreted exhaustively

The first objection to Horvath's account is that it separates focus displacement from the notion of focus, instead relying on exhaustive interpretation. That is, she argues that displacement of foci is an epiphenomenon triggered when exhaustively interpreted elements undergo movement. Consequently, this account predicts that *only*

exhaustively interpreted foci should undergo displacement across languages. However, there are many languages that front non-exhaustively interpreted foci. For instance, Sardinian allows non-exhaustive foci to undergo displacement.

(63) *Context: What did you write yesterday?*

N'articulu scrissi
an.article wrote.I
'I wrote an article.' Cruschina (2011): 60

(64) Macari **Giufà** 'mmità au tiatru!
even G. invited.3SG to.the theater
'He even invited **Giufà** to the theater!' Cruschina (2011): 66

In addition, as I will argue more extensively in the following chapter, San Martín Peras Mixtec is a language which does not require fronted foci to be interpreted exhaustively. Moreover, focus displacement in Mixtec is syntactic and is not driven by prosodic motivations. Consequently, any theory of focus displacement which relies on that notion is not empirically adequate from a cross-linguistic perspective. Under the Alternative Particle analysis discussed in the previous section, this fact can be accounted for by assuming additional Alternative Particles beyond an exhaustivity particle. In other words, by expanding the class of particles that are targeted for movement beyond just a Q particle and an exhaustivity particle, we can account for cases where there is no specific interpretive effect.

Moreover, there is some empirical uncertainty about whether the exhaustive interpretation of displaced foci in Hungarian is truly truth conditional. Recall that according to Horvath (2010)'s Strong Modularity Hypothesis, the fact that exhaustivity is truth conditional makes is a legitimate type of formal feature. Consequently, if the exhaustivity interpretation is not actually truth conditional, then the motivation to tie focus movement to an [EI] feature is weakened. Specifically, while fronted foci are

argued to be interpreted exhaustively, there are some differences between fronted foci and fronted foci that associate with the overt exhaustive focus operator *csak* (only). For example, Wedgwood (2005) points out that, if focus fronting is triggered by a null exhaustivity operator, then (65b) should be as acceptable as (65a). However, it is not, indicating that focus fronting is not simply a null version of *only*.

(65) a. Azt tudtam, hogy Mari megevett egy pizzát, de most vettem
that knew.I that M. VM-ate.3SG a pizza.ACC but now take
észre, hogy csak **egy pizzát** evett meg
mind-to that only a pizza ate VM
'I know that Mary ate a pizza, but I just discovered that it was only **a pizza** that she ate.'

b. ??Azt tudtam, hogy Mari megevett egy pizzát, de most vettem
that knew.I that M. VM-ate.3SG a pizza.ACC but now take
észre, hogy **egy pizzát** evett meg
mind-to that a pizza ate VM
Intended: I know that Mary ate a pizza, but I just discovered that it was **a pizza** that she ate. Wedgwood (2005): 137

Second, naturally occurring examples from corpora suggest that fronted foci can be combined with the phrase *többek között* ('among others'). In this case, there is no way that the fronted focus is interpreted exhaustively, because the phrase *among others* explicitly rules out an exhaustive interpretation.

(66) ...akiket útjukra többek között **Anna Lindh svéd külügyminiszter**
whom way-on others among A. L. Swedish foreign-minister
kíser majd el
accompany FUT VM
'...and they will also be accompanied by among others **the Swedish foreign minister Anna Lindh**.' Wedgwood et al. (2006): 14-15

Finally, experimental results in Onea and Beaver (2011) suggest that fronted foci

are significantly less likely to be contradicted than sentences with overt exhaustive particles when participants are showed pictures depicting multiple participants engaging in an activity. For instance, in one experimental item, they showed participants images of two individuals catching butterflies. Participants then saw one the examples in (67), and were tasked with responding with one of the choices in (68). (67a) includes an overt exhaustive particle, (67b) involves focus fronting and, consequently, is interpreted exhaustively. In (67c) the subject is fronted as a topic, so it is not expected to be interpreted exhaustively.

(67) a. Csak **Marci** fogott meg egy lepkét
only M. caught PRT a butterfly
'Only **Marci** caught a butterfly.'

b. **Marci** fogott meg egy lepkét
M. caught PRT a butterfly
'**Marci** caught a butterfly.'

c. Marci meg-fogott egy lepkét
M. PRT-caught a butterfly
'Marci caught a butterfly.' Onea and Beaver (2011): 349-350

(68) a. Yes, and Peter caught a butterfly too.

b. Yes, but Peter caught a butterfly too.

c. No, Peter caught a butterfly too.

When confronted with an overt exhaustive particle (67a), the vast majority of participants contradicted the assertion using examples like (68c). However, when confronted with a fronted foci (67b), a significantly higher percentage of participants choose responses like (68a) and (68b). Finally, when confronted with sentences with no fronted focus (67c), the majority of speakers choose responses like (68a). Overall, these results suggest to Onea and Beaver (2011) that there is an exhaustive inference associated with fronted foci, but it is not as strong as the exhaustivity entailment triggered by an overt

only. Consequently, they conclude that the exhaustiveness inference is not semantic, but pragmatic.

All in all, what these facts suggest is that it is not clear if the exhaustive interpretation of fronted foci is truth-conditional, even in languages like Hungarian. I suggest that this shows that tying focus fronting to exhaustiveness is not the right move. Cross-linguistically, there are languages where non-exhaustive foci can move. In addition, even if we limit our attention to Hungarian—the most famous example—it still is not clear that the resulting exhaustivity inference is actually a semantic effect.

2. The feature driving movement

Another argument against tying all focus movement to exhaustivity comes from the connection between focus movement and wh-movement cross-linguistically. Recall that there is a clear cross-linguistic generalization regarding the surface position of displaced foci and wh-words: in languages where they both displace, they apparently displace to the same surface position. Consider a few diverse languages which represent this point. First, consider Hausa a language with a default VSO word order (69).

(69) Kandè taa dafà kiifìi
K. 3SG.PERF cooking fish
'Kande cooked the fish.' Hartmann and Zimmermann (2007b): 3

In Hausa, both wh-words (70a) and foci (70b) surface clause initially, preceding a particle.

(70) a. Mèenee nèe Kandè ta-kèe dafàawaa?
what PRT K. 3SG-REL.CONT cooking
'What is Kande cooking?'

b. **Kiifìi** nèe Kandè ta-kèe dafàawaa
fish PRT K. 3SG-REL.CONT cooking
'Kande is cooking the **fish**.' Hartmann and Zimmermann (2007b): 10

Similar facts obtain in Mongolian, a language with a default SOV word order (71).

(71) Öchigdör Peter Mari-g shunaltai ün-sen
yesterday P. M-ACC passionately kiss-PST
'Yesterday, Peter kissed Mary passionately.'

In Mongolian, both wh-words (72a) and foci (72b) surface before the subject.

(72) a. Hen-ig Peter üns-sen be?
who-ACC P. kiss-PST Q
'Whom did Peter kiss?'

b. **Mari-g** Peter üns-sen
M-ACC P. kiss-PST
'Peter kissed **Mary**.' Onea and Guntsetseg (2011): 469

Samoan also presents the same pattern. The default word order is VSO (73), and both categories can displace to a preverbal position (74)

(73) Na toso e Sione le maea
PST pull ERG S. DET rope
'Sione pulled the rope.' Calhoun (2015): 208

(74) a. 'O le ā le mea na toso e Sione analeilā?
PRES DET what DET thing PST pull ERG S. earlier
'What did Sione pull earlier? Calhoun (2015): 211

b. 'O **le maea** na toso e Sione
PRES DET rope PST pull ERG S.
'It was the rope that Sione pulled.' Calhoun (2015): 209

Finally, Toba Batak has a default VOS word order (75), and it optionally moves both

categies to a preverbal position (76).

(75) Man-jaha buku si Poltak
ACT-read book PN P.
'Poltak read a book.' Erlewine (2018): 664

(76) a. Ise mang-allang babi?
who ACT-eat pork
'Who ate pork?' Erlewine (2018): 665

b. Holan **si Poltak** mang-allang indahan
only PN P. ACT-eat rice
'Only Poltak ate rice.' Erlewine (2018): 667

This generalization is robust enough that it needs to be explained in a principled way. If, however, we accept that focus fronting is triggered exclusively by the feature [EI] and movement of QP is triggered by [Q], then there is no reason why we should expect these two features to consistently co-occur on the same syntactic head.

Moreover, it is not clear that either of these features can be naturally collapsed into the other. For instance, English is a language that fronts Q-particles (77a), but doesn't front other Alternative Particles (77b)

(77) a. [Q which of those women] was Pedro dancing with __ at the party?

b. Pedro was [only dancing with **Maria**] at the party.

So, it is not possible to say that in all languages Alternative Particles bear a [Q] feature.

Additionally, it is not possible to say that all Q particles bear an [EI] feature. This is because not all wh-words are interpreted exhaustively, as evidenced by the felicity of "mention-some" questions (Cable, 2008). Consider these examples from Hungarian.

(78) a. Hol vehetek újságot itt a környéken?
where I.can.buy newspaper.ACC here the vicinity.on
'Where can I buy a newspaper around here?'

b. Melyik számok páratlanok?
which numbers odd.PL
'Which numbers are odd?' Cable (2008): 10

This discrepancy between the interpretation of fronted foci and fronted wh-word leads (Cable, 2008) to suggest that they cannot be the same phenomenon. Though, as Cable himself recognizes, arguing that wh-movement and focus-fronting are distinct "re-problematizes the structural similarities between wh-questions and focus constructions" (pg. 12). In other words, it will not be sufficient to simply assign a [EI] feature to QPs.

So, though Cable (2010) suggests that focus movement might be due to a special type of QP ($QP_{[FOC]}$) that associates with focus, it is not clear what the properties of that QP would be. Cable suggests that it might be equivalent to Horvath's exhaustivity operator, but as I have shown, not all focus movement creates an exhaustive interpretation. Moreover, the precise featural representation of the QP that associates with foci is left unstated. If we assume that $QP_{[FOC]}$ also bears a [Q] feature, then we incorrectly predict that exhaustive Alternative Particles will move in languages with QP movement. On the other hand, if we assume that both types of QP bear an [EI] feature, then we cannot explain why not all wh-words are interpreted exhaustively.

The theory of Alternative Particles outlined in §1.1 better explains this pattern. This is because once we generalize to a larger class of Alternative Particles, we are no longer committed to the claim that all focus movement will be triggered by exhaustivity. Instead, we are able to connect focus movement and wh-movement via a different shared property: the fact that both wh-words and foci generate alternatives and appear in the scope of particles that are sensitive to those alternatives. Specifically, because all Alternative Particles bear the feature [ALT], we expect that a probe that is relativized to that feature will attract *both* Q particles and other Alternative Particles that take scope over foci. Consequently, we predict that wh-words and foci

will surface in the same displaced position. However, this account still gives us the needed flexibility to explain the typology of movements. As I will outline more explicitly in chapter 5, Q particles bear an additional [Q] feature, which means that they can be targeted alone. Moreover, if we assume that only Alternative Particles that trigger an exhaustive interpretation bear the feature [EI], then we correctly predict that only those particles will move in a language that has a probe relativized to that feature.

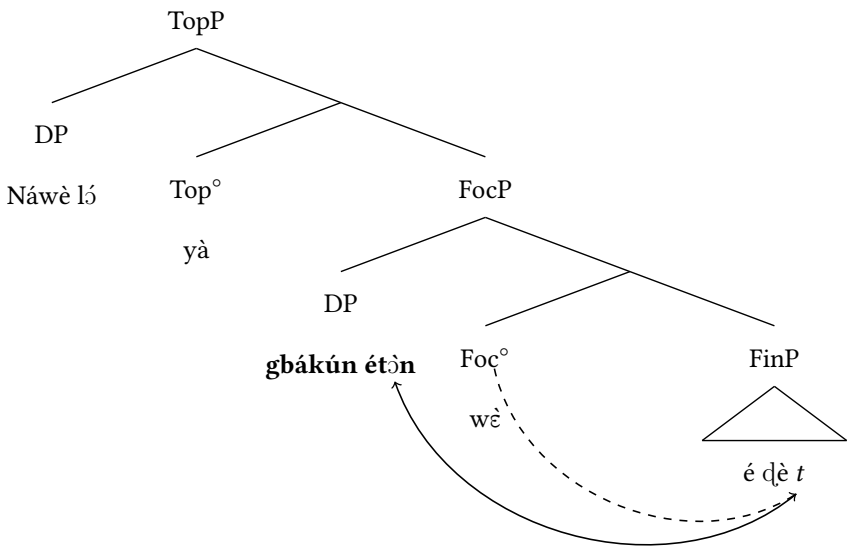
2.3 Are all Alternative Particles left-peripheral heads?

As we have seen, many languages use designated particles to mark both foci and wh-words. Often, these particles immediately precede an AGE. Within the cartographic literature, a common proposal is that focus particles of this type are the morphological spell-out of a functional head within the C-domain. Specifically, these particles are claimed to be a head which triggers attraction of a focused marked constituent to its specifier (Rizzi, 1997; Lecarme, 1999; Frascarelli and Puglielli, 2007a; Aboh, 2007; Shlonsky and Bocci, 2019). Under this view, focused constituents must be marked with a formal feature which allows them to be targeted directly for attraction.

This proposal is meant to account for several distinct facts: (i) in some languages, foci consistently surface in the left-periphery of the clause, (ii) the consistent position of displaced foci relative to other heads within the left periphery. For instance, Aboh (2016) argues that foci in Gungbe consistently surface following topics. This can be analyzed as a series of heads within the left periphery which attract information structural categories (80).

(79) Náwè lɔ́ yà **gbákún étɔ̀n** wɛ̀ é ɖè
woman DET TOP hat her FOC she remove
'As for the woman, she took off **her hat**.' Aboh (2016): 151

(80) Attraction By a Focus Particle

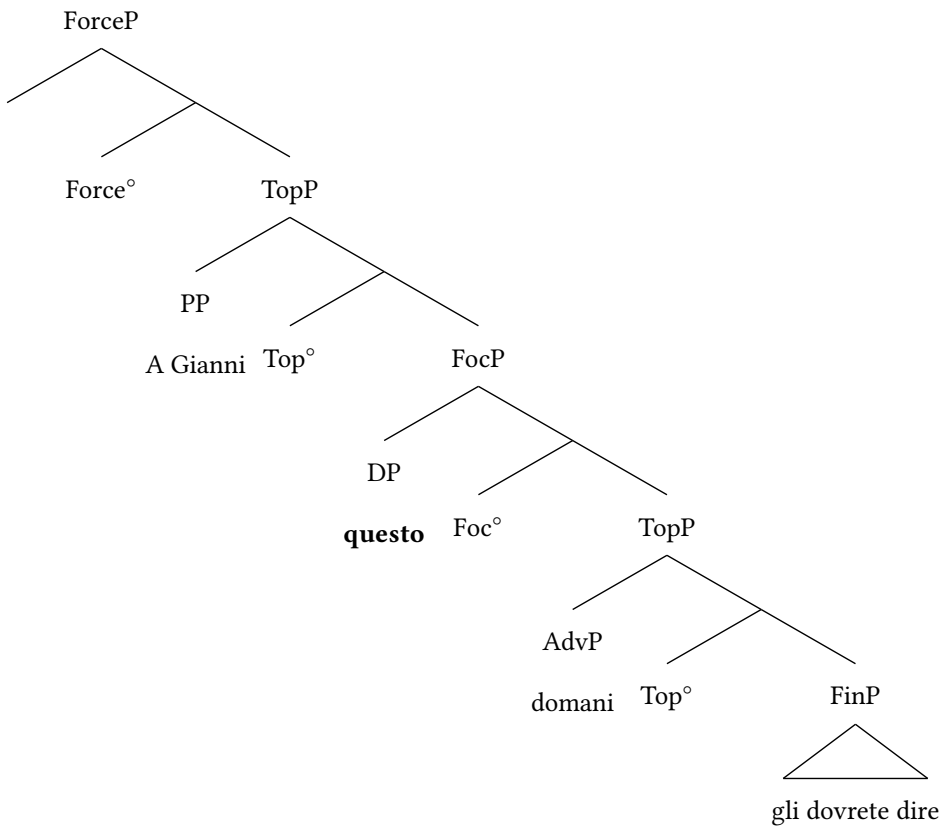


Aboh (2016): 151

In the classical cartographic analysis of focus movement, these heads are present even in languages where they are not spelled-out morphologically. In Rizzi (1997)'s analysis, the left-periphery of the Italian clause has null topic heads on either side of a null focus head, which he argues can explain sentences like (81).

(81) A Gianni, **questo**, domani, gli dovrete dire
to G. this tomorrow him should.you tell
'To Gianni, **this**, tomorrow, you should tell him.' Rizzi (1997): 291

(82) Attraction By a Focus Particle



Adapted from Rizzi (1997): 297

Once again, this movement is claimed to be motivated by a need of a functional head (Foc°) to move focus marked constituents into its specifier.

However, given the proposed account of Alternative Particles advanced in the preceding section, another hypothesis for how to account for these data emerges: "focus" particles form constituents with foci and are themselves attracted to left periphery positions. In head-final languages where this attraction is obligatory and the particle follows the focus, these hypotheses would be hard to tease apart. However, the Alternative Particle approach and the cartographic approach make two distinct predictions which it will be fruitful to explore. First, because the cartographic approach argues that these particles are left-peripheral heads, it predicts that we should never

find these particles appearing with non-displaced foci; that is, foci that remain in their thematic position. Second, because the cartographic approach argues that foci are attracted to the specifier of these heads, it predicts that foci will uniformly precede the particle in head-initial languages, and predicts that the particle and the focus will be non-adjacent in head-final languages.[5]

Let's address each of these predictions using the language Gùrùntùm. Gùrùntùm has a neutral word order of SVO(X), aspect morphology precedes the verb (83a), and relational nouns expressive locative meaning precede locations (83b), all of which suggest that it is primarily head-initial.

(83) a. Tí bà wúm kwálíngálá
he PROG chew colanut
'He is chewing colanut.' Hartmann and Zimmermann (2009): 1341

b. Tí bà dàa gə̃́ã̃ shìndí
he PROG sit head stone
'He is sitting on the stone.' Hartmann and Zimmermann (2009): 1343

In this language, foci and wh-words are marked with the particle *á*. Crucially, the position of this particle is not fixed and can appear in a displacement position and an in-situ position.

(84) a. Á kə́ã̃ mài tí bà wúmì?
FOC what REL 3SG PROG chew
'What is he chewing?'

b. Tí bà wúm=á **kwálíngála**
3SG PROG chew=FOC colanut
'He is chewing **colanut**.' Hartmann and Zimmermann (2009): 1342

[5]However, it should be noted that if we expand the types of movements there are other analytical possibilities. For instance, Yuan (2017) argues that in the Bantu language Kikuyu, foci are attracted to the complement position of left peripheral focus head (undermerge). If we assume that phrasal movement to complement position movement is a possibility, then the linear order of the focus marked constituent and the focus particle will not be a reliable diagnostic.

(85) a. Tí bà wúr má-ì à kwá?
3SG PROG ring water-DEF FOC who
'To whom is he bringing the water?

b. Tí bà wúr má-ì à báa-sì
3SG PROG ring water-DEF FOC father-his
'He is brining the water to **his father**'

Hartmann and Zimmermann (2009): 1343

The fact that the position of the particle is not fixed suggests that *à* is not a left-peripheral particle, nor for that matter a head that has any fixed position within the clausal-spine. Moreover, the Alternative Particle precedes, rather than follows, the constituent that generates alternatives. This means that, in order to analyze this particle as a head which attracts the focus to its specifier, we would be forced to stipulate that this specifier appears after the head.

These data suggest that particles analyzed as heads of Focus Phrases can sometimes be plausibly be reanalyzed as forming a constituent with the focus that it takes scope over, and then being attracted to some head. However, more work is needed to test whether this alternative analysis works for all languages which have been claimed to have a left-peripheral focus particle.

2.4 Looking forward

In this chapter, I have argued that displacement of wh-words and foci ought to be thought of as a class of movements triggered by Agreement with particles that are sensitive to the alternatives generated within their scope. This idea, which builds on prior work of Cable (2010) and Horvath (2007) especially, offers a principled explanation for numerous syntactic and semantic correlations between these two categories, and does so in a way that has more empirical coverage than previous accounts of focus displacement as movement of an exhaustivity operator.

Under this account, foci and wh-words need not be moved for interpretive or phonological reasons, but move to satisfy a purely formal syntactic requirement. This contrasts sharply with much previous work on focus movement which has argued that foci move principally to be made phonologically prominent or to be interpreted in a particular way.

Moreover, I have shown that this account avoids some empirical issues introduced by the "standard," cartographic, approach to syntactic focus movement. Specifically, I point to an example of a language which has a designated focus particle that does not appear in a fixed position in the clause and which precede (rather than follow) the focus. Both of these facts suggest that a unified account of focus particles as left-peripheral heads that attract foci cannot be maintained for all languages.

Finally, the account advanced here avoids a theoretical critique that has been advanced against purely syntactic theories of focus movement. Specifically, an Alternative Particle approach does not require a commitment to syntactic labeling of context-dependent foci. Because formal movement features are attached to a lexical class of Alternative Particles, there is no sense in which foci need to be directly "visible" to syntactic operations.

In the following chapter, I will explore the predictions of this account in more detail by presenting a case study on the variety of Mixtec spoken in San Martín Peras. In chapter 3, I will provide an extended argument to support the claim that focus displacement is syntactic in the language and that it conforms to the patterns predicted by the Alternative Particle account. Moreover, I will show that focus movement is not always interpreted exhaustively in the language, providing a clear empirical motivation to extend the class of Alternative Particles beyond Q and EI-OP. Then, I will provide an extended argument against the idea that focus displacement could be a prosodic phenomenon in the language.

Chapter 3

A Case Study on Mixtec

In the previous chapter, I introduced a general theory of Alternative Particle Movement. Under this hypothesis, foci and wh-words must surface in the scope of particles that are sensitive to the alternatives that they generate and are displaced when that particle is targeted for syntactic movement by some head. In particular, I proposed that the feature that triggers this movement is not a feature of foci *per se*, but rather is a feature of the particles that take scope over them and affects the way that the alternatives they generate are interpreted.

This hypothesis makes a series of predictions about the nature of focus displacement. First, if Alternative Particles are displaced syntactically, then their movement ought to display the hallmarks of syntactic movement. Moreover, we expect that displaced foci and displaced wh-words will surface in the same syntactic position in languages where they both move, given that their movement is triggered by [ALT].[1] Third, it predicts that overt Alternative Particles should move along with displaced foci and that the possibilities for focus pied-piping should correlate with the position of these particles. Fourth, given that the Alternative Particle hypothesis is meant to encom-

[1] However, see Chapter 5 for more detailed discussion of the differences between movement of QPs and other Alternative Particles.

pass a wide-range of displacement of alternative generating elements, it predicts that the particular interpretation of the displaced element will depend on the type of Alternative Particle that takes scope over it. In other words, it predicts that there will be no inherent connection between focus displacement and a particular interpretation of foci, such as exhaustiveness. Assuming that some Alternative Particles trigger an exhaustive interpretation and others do not, we expect that the relationship between movement and interpretation will be mediated by the types of Alternative Particles that are in the inventory of a given language, and what formal syntactic properties they have. Finally, the Alternative Particle hypothesis predicts that there should be no inherent connection between focus movement and prosodic prominence. In other words, we expect to find languages where the movement of focus and the prosodic realization of focus do not neatly map onto one another.

Importantly, these predictions diverge from the predictions made by other theories of focus displacement in several important ways. First, as outlined in the previous chapter, a theory of direct displacement of foci (driven by the feature [FOC]) does not straightforwardly predict that Alternative Particles will move along with fronted foci. Second, the theory of focus movement advanced in Horvath (2007) explicitly ties focus displacement to an exhaustive interpretation, and consequently predicts that non-exhaustive foci will not move. Finally, theories which point to the prosodic character of foci as a motivation for their movement, such as Féry (2013), predict that all foci should have a distinct prosodic signature or be in a prosodically "strong" position. Consequently, they do not predict that focus displacement will display the hallmarks of syntactic movement.

In this chapter, I explore these predictions through an extended case study of San Martín Peras Mixtec (SMPM), an Otomanguean language spoken in Oaxaca, Mexico and by diaspora communities throughout Mexico and the United States (see chap-

ter 1 for general background on the language and its speakers). In particular, I use novel data gathered during my own fieldwork on the language to demonstrate that it is a language that supports the Alternative Particle hypothesis of focus displacement. In particular, after providing some general background on the properties of the language in §3.1, in §3.2, I present a number of arguments that focus displacement in the language is syntactic. In particular, it satisfies several diagnostics for syntactic movement, and perhaps more importantly, focus displacement behaves nearly identically to wh-movement. In §3.3, I present evidence to show that Mixtec moves all foci, not just foci that are interpreted exhaustively. This proves to be an important way in which SMPM diverges from better studied languages, such as Hungarian. In particular, it supports the proposal of the previous chapter that we need a more general approach to focus displacement, not one that relies on achieving a particular interpretation. In §3.4, I extend the scope of the investigation to cases of focus displacement with overt Alternative Particles. Through this investigation, I argue that Alternative Particles, not foci themselves, are the targets for movement. I then extend this logic and propose that SMPM has a segmentally null Alternative Particle which can take scope over certain types of foci. In §3.5, I offer an extended argument against a prosodic account of focus displacement in Mixtec. This is especially important, as some foci in SMPM can be prosodically distinguished from non-foci. Moreover, numerous researchers have explicitly argued that non-exhaustive focus displacement should always be explainable by prosodic means (Horvath, 2007; Fanselow, 2006). Thus, it is important to argue explicitly that focus displacement in SMPM cannot be explained through prosody. In this section, I will first describe the empirical pattern of focus prosody in SMPM (§3.4.1), then I will investigate whether this pattern of focus prosody could be a motivation for focus displacement in the language. In particular, I will argue that the prominence pattern is not triggered by a prosodic boundary (§3.4.2), nor is it the reflex

of a default phrasal prominence that has been shifted onto foci because they are not given (§3.4.3). Furthermore, I will propose that these facts argue against a prosodic motivation for focus displacement. Finally, in §3.4.4, I propose that focus prominence is best analyzed as the result of a tone sandhi process triggered by segmentally null Alternative Particle. Thus, this extended digression into the prosody of SMPM has two interrelated goals: (i) it provides additional evidence to support the claim that focus displacement is not prosodically motivated; (ii) it provides positive evidence for a tonally realized Alternative Particle which moves along with displaced foci. That is, the Alternative Particle hypothesis is not only compatible with the prosodic realization of foci in SMPM, but the prosodic evidence actually argues in favor of that approach.

3.1 Basic language properties

3.1.1 Word order

SMPM has an unmarked VSO word order (Ostrove, 2018; Mendoza, 2020), as shown in (1).

(1) a. Kotô Agustina chìchí
likes A. avocado
'Agustina likes avocados.'

b. Kăchi nà tashin nà íchĭ
said they give.POT they road
'They (government officials) said that they would give (us) a road.'

c. Nìshika Juan yukŭ koni
walked J. forest yesterday
'Juan walked in the forest yesterday.'

d. Chíchi Pedro
bathes P.
'Pedro is bathing.'

Moreover, Mixtec languages (including SMPM) display several other correlates of verb-initiality, such as having prepositions, post-nominal adjectives, possessa preceding possessors, no non-finite verbs, and null copular constructions (Macaulay, 2005).

While the language has a default VSO word order, clauses with initial arguments or adjuncts are quite common. Some examples are given in (2).

(2) a. Koni nìsha'a Maria nù ndóóba
yesterday went M. town Oaxaca
'Yesterday, Maria went to Oaxaca City.'

b. Tskwíì shì'i Ernesto
water drank E.
'Ernesto drank water.'

c. Yukŭ shíka Gloria
forest walks G.
'Gloria is walking in the forest.'

Often these preverbal constituents are foci, however that is not always the case. In additional, topics can appear preverbally, as do certain types of quantifiers (Ostrove, 2018). Finally, sometimes constituents front in the context of a question that elicits all new information (Broad Focus).[2] In this case, speakers have the intuition that the preverbal constituent is "surprising" in some sense, perhaps suggesting that it is a type of "mirative focus" (see e.g., Cruschina, 2021).

[2]Though perhaps surprising, this phenomenon is actually well-attested cross-linguistically. It has been alternatively called "Partial Focus Movement" (Hartmann and Zimmermann, 2007b), "Subpart of Focus Movement" (Fanselow and Lenertová, 2011), and "Anti-Pied-Piping" (Branan and Erlewine, 2020).

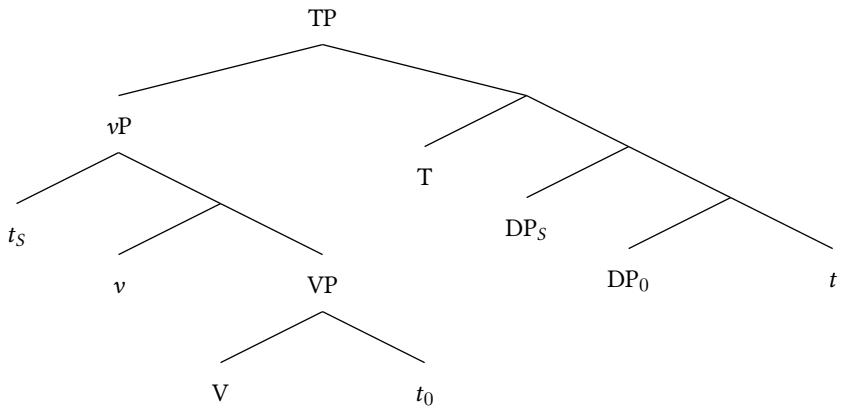
(3) *Context: What happened today?*

Kôñù shìshì tsìnà __
meat ate dog
'The dog ate the meat.'

While I will offer no syntactic or pragmatic account of this fronting process, I assume it is distinct from other types of focus fronting in the language for three principle reasons: (i) it is optional and it can target either the subject or the object. That is, it does not seem to be subject to locality of movement constraints like other types of focus movement (see §3.2.5); (ii) it is clause-bounded, unlike other types of focus fronting (see §3.2.1); (iii) it has a different prosodic signature than other types of focus (see §3.4 for an extended comparison).

I assume that the word order in SMPM is derived via predicate fronting of the *v*P to the specifier of a functional head (Eischens, 2020 on San Martín Peras Mixtec; Yuan, 2021 on San Juan Piñas Mixtec; Adler et al., 2018 on Santiago Laxopa Zapotec; *pace* Eberhardt, 1999 on Ocotepec Mixtec; Macaulay, 2005 on Chalcatongo Mixtec). Specifically, I assume that both the subject and object evacuate the VP to functional positions within the clausal spine, followed by predicate raising to the specifier of a functional head (assumed to be T).

(4) The Derivation of Verb-Initiality



Nothing crucial in my analysis of focus displacement depends on this particular derivation, but I adopt it based on evidence from the position of adverbs, reciprocals, and the possibility of quantifier float, as outlined in Eischens (2020) and Yuan (2021b). Consider for instance, the behavior of quantifiers that quantify over the object. One possible realization of these quantifiers is adjacent to the noun that they quantify over (5).

(5) Nàni'ǐ tsìnà ntsi'i ndushi
found dog all chicken
'The dogs found all of the chickens.'

However, another equally possible pattern is for the quantifier to surface in between the verb and the subject (6). Though the quantifier is linearly adjacent to the subject, the most natural interpretation of (6) is the one where it quantifies over the object. Following Yuan (2021b), I assume that this order is derived if the evacuation of the object from the VP strand the quantifier within the VP, followed by remnant VP fronting.

(6) [$_{vP}$ Sháshi ntsi'i $\_\__i$] tsìnà kôñù$_i$
eat all dog meat
'The dogs eat all the meat'

Additionally, as discussed in Eischens (2021b), manner adverbs—which are cross-linguistically low (Cinque, 1999)—immediately precede the verb in SMPM, and can linearly precede high adjuncts, such as temporal adverbs. This pattern can be explained by positing that manner adverbs front as part of the phrasal constituent that undergoes movement in the language.

(7) Nì'i shìnù Pedro koni
strong ran P. yesterday
'Pedro ran fast yesterday.' Eischens (2021b): 17

3.1.2 Tone

San Martín Peras Mixtec is a tonal language, like all other Otomanguean languages (DiCanio and Bennett, 2020). It has 5 phonemic tones: 3 level tones (high, mid, and low), and 2 contour tones (rising and falling) (Peters, 2018; Mendoza, 2020; Eischens, 2021c). Throughout this dissertation, I represent tones orthographically as follows:

High	á
Mid	a
Low	à
Rising	ǎ
Falling	â

Table 3.1: Tones in San Martín Peras Mixtec

Tone bears a high functional load in Mixtec languages. For many verbs, tense and negation are both marked tonally. Consider, for instance, this four-way contrast in meaning, the sentences only differing in the tone of the first vowel of the verb.

(8) a. Ndájchí saà
fly.CONT bird
'The bird flies.'

b. Ndàjchí saà
fly.COMP bird
'The bird flew.'

c. Ndajchí saà
fly.POT bird
'The bird will fly.'

d. Ndǎjchí saà
NEG.fly bird
'The bird won't fly.' Eischens (2021c): 3

Moreover, as discussed in §3.4, the realization of tone is affected by focus. In particular, high tones are raised in pitch when they surface on the final mora of a fronted focus constituent.

3.1.3 Noun class

San Martín Peras Mixtec has rich nominal classification system. Like other Mixtec languages, it separates nominals into one of several classes, which are (somewhat loosely) semantically defined (Hollenbach, 2015). Specifically, in addition to distinguishing masculine and feminine humans, San Martín Peras Mixtec also has noun classes that encompasses animals and spherical objects (e.g., round fruit and the moon), wooden or manufactured objects (e.g., cars), and liquids. Finally, there is a "neutral" classifier that is used when referring to humans of an unspecified gender or other objects that do not fall into any particular noun class, such as rocks.

	Singular	Plural
Feminine	ñá	ná
Masculine	rà	rà
Animal	rí	rí
Wooden	tún	tún
Liquid	rá	rá
Neutral (Singular)	ñà / yá	nà

Table 3.2: Classifiers/ Pronouns

Given that these words do not meet the minimal bimoraic word minimality requirement of Mixtec languages (Pike, 1948), I assume that they are prosodically dependent clitics. They can be used as pronominally, or alongside nouns and pronouns as "classifiers." When used as classifiers, they seem to indicate specificity or familiarity (see also Cisneros, 2019; Hofmann and Ostrove, 2020). For instance, classifiers often precede the restrictor of a D-linked wh-word.

(9) a. Ntsyâ rà táte
which CLS.MASC man
'Which man'

b. Ntsyâ rí chele
which CLS.AML rooster
'Which rooster'

c. Ntsyâ tún kárro
which CLS.WOOD car
'Which car'

Though the pronominal and classifier uses of these clitics are homophonous in the variety of Mixtec spoken in San Martín Peras, they are phonological differences between them in other varieties of Mixtec (Cisneros, 2019). Despite the homophony, I assume that these two uses are distinct in SMPM given that they can co-occur.

(10) *Context: I have two cats. I tell you that one of them is sick. You respond:*

Vă'a míí! Ntsyâ rí rí?
bad EMPH which CLF.AML PRO.AML
'How horrible! Which one?'

As we will see below, certain types of displaced foci co-occur with a noun class marker, which I argue relates to the salience of the alternatives.

3.1.4 Prepositions

In SMPM, prepositional meanings are created using words that can also be used to describe parts of the body, as is commonly the case within Mesoamerica (Campbell et al., 1986). This can be seen, for instance in (11). In each case, the prepositional meaning has an alternative meaning as a body part.

(11) a. Tàshin Maria íín ndìkă ndà'ă Juan
gave M. one banana to/hand Juan
'Maria gave a banana to Juan.'

b. Ntsyâ tŭn itŭn nàse=ón shù'ŭn sha'a __
which CLF.WOOD tree hid=you money under/foot
'Which tree did you hide the money under?

c. Ninà'a rà lo'o chìchí nùhu ñá lo'o
showed he small avocado to/face she small
'The boy showed the avocado to the girl.'

d. Nántsie tsìkushi sàtă itŭn
crawled worm behind/back tree
'The worm was crawling behind the tree.'

e. Tásha'a Maria shí'in Juan
dances M. with/side J.
'Maria is dancing with Juan.'

Following the intuitions of the speakers I have consulted, I assume that the preposi-

tional uses and nominal uses of these words are distinct. That is, I assume that the words in (11) are syntactically prepositions which are homophonous with nouns describing the body, though they are likely related diachronically. Lillehaugen (2003, 2004) argue that body part terms have been reanalyzed as prepositions in Valley Zapotec languages on the basis of several syntactic and semantic diagnostics. Nothing in this chapter hinges on this analysis, however, and I leave to future work a more detailed investigation of the syntax and semantics of these expressions. In §3.3, I will explore in more depth the ways that these prepositions move along with displaced foci.

3.1.5 Possession

SMPM has three distinct ways of marking possession, depending on the semantic relationship between the possessor and possessum, as well as the noun class of the possessum. The first strategy is used in cases of alienable possession, such as possession of human made objects. This type of possession relationship is created by inserting an overt possessive marker between the possessum and the possessor.[3]

(12) a. ntsyàjyí va'a ñà'ă Margarita
broth good POSS M.
'Margarita's mole'

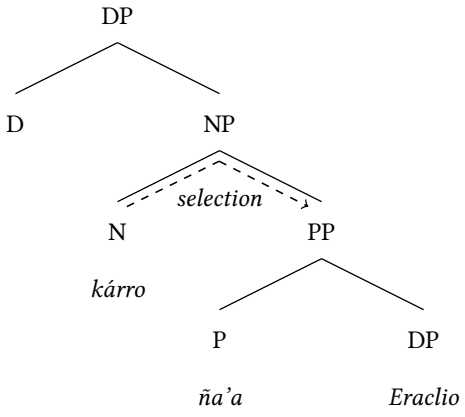
b. karro ñà'ă Eraclio
car POSS E.
'Eraclio's car'

For concreteness, I argue that nominals can be categorized according to the type of possessive morpheme that they select for. Nouns which do not belong to the "animal"

[3]This morpheme is homophonous with the noun *ñà'ă* which means *thing*. It may be the case that these two words are diachronically related, but the speakers I have consulted intuit that they are distinct words synchronically.

noun class and are alienably possessed, select *ña'a*, which then takes the possessor as its complement.

(13) Alienable Possession



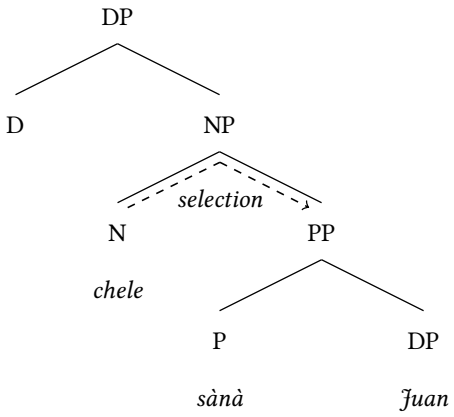
The second possession strategy in SMPM resembles the first, except for the form of the possessive morpheme which intervenes between the possessum and the possessor. This second strategy is used for possession of things in the "animal" noun class, which includes both animals and spherical objects.

(14) a. chele sànà Juan
rooster POSS.AML J.
'Juan's rooster'

b. tsinana sànà Maria
tomato POSS.AML Maria
'Maria's tomato'

This type of possession has a very similar structure, except that nouns in the "animal" noun class select for a distinct possessive preposition.

(15) Animal Possession



The final strategy is used in cases of inalienable possession, used for describing kinship relationships and body parts. On the surface, inalienable possession is formed with the possessor immediately following the possessum, as seen in (16).

(16) a. sè'e Maria
child M.
'Maria's child'

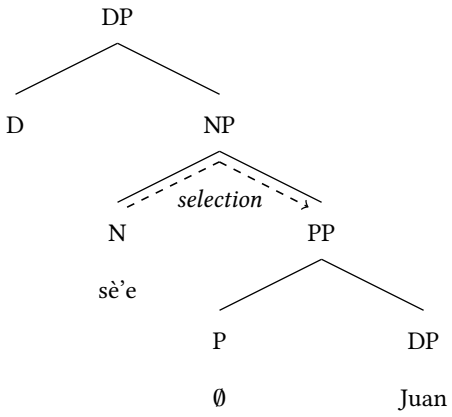
b. nda'a Maria
hand Maria
'Maria's hand'

From this surface structure, there are a number of possible structural analyses that one could consider. Aissen (1996) argues that a similar surface structure in the Mayan language Tsotsil is formed from a possessor that originates as a rightward specifier.[4] Coon (2010) argues that in the Mayan language Ch'ol, the possessum-possessor order is derived when the possessum moves past the possessor in specifier position to the specifier of a DP-internal functional projection. For the sake of simplicity, I assume here that inalienable possession is structurally similar to the other possession struc-

[4] Aissen argues that functional heads project leftward specifiers in Tsotsil, and lexical heads project rightward specifiers (pg. 451)

tures in SMPM. That is, I assume that the possessor originates as the complement of a (phonologically null) preposition, similarly to the other possession strategies of the language.

(17) Inalienable Possession



I believe there are several reasons to adopt this particular analysis. First, because inalienable possession involves relational nouns that are defined semantically with respect to their possessor, they are often degraded when used in isolation (Alexiadou et al., 2007). This is also true for inalienable possession in San Martín Peras Mixtec; inherently relational nouns in SMPM *require* a possessor. Speakers often intuit that they are "incomplete" if there is no specification of who they belong to.

(18) a. ?ndà'ă

b. ndà'ă Maria
hand M.
'Maria's hand"

(19) a. ?sè'e

b. sè'e Maria
child M.
'Maria's child'

Thus, it appears as though these nouns introduce a thematic relation which must be filled by some argument. Assuming that this relationship is established via selection, it is reasonable to conclude that the possessor is selected as the argument of the inalienable possessa.

Another difference between relational and non-relational nouns is reflected in English: only relational nouns can introduce their possessor within a prepositional phrase (20). Nouns which are not defined by a semantic relation cannot employ this possession strategy (21).

(20) a. the corner of the table
b. the mother of Maria

(21) a. *the house of Maria
b. *the car of Maria

This complementation strategy is also used in other languages besides English. For instance, in Palestinian Arabic, part-whole relations are derived via complementation.

(22) sahel-a la-panama
coastline-3SG.F to-P.
'The coastline of Panama' Boneh and Sichel (2010): 8-9

Thus, it is reasonable to suggest that parallel structures in SMOM are also derived via complementation.

(23) a. Shìjǐ kwé'e íjñǔn íjñǔnsívi
sharp very spines cactus
'The spines of the cactus are very sharp.'
b. Ndibi kwé'e yùkǔ nundǒva
pretty very mountain Oaxaca
'The mountains of Oaxaca are very pretty.'

Additionally, several of the reasons why Coon (2010) proposes a movement analysis of inalienable possession in Ch'ol do not apply to SMPM. First, Coon proposes the movement analysis in part to achieve a parallelism between the nominal and clausal domains. In Ch'ol, the unmarked word order is VOS, argued by Coon (2010) to result from predicate fronting of VP to a functional projection below CP. Correspondingly, she argues that the possessa fronts to a pre-possessor position as part of a *n*P projection. So, in Ch'ol, the claim is that possessa closely mirror the behavior of objects within the clause. Adopting this same analysis for SMPM would not achieve the same parallelism. This is because objects in SMPM evacuate out of the VP before the predicate is fronted, resulting in an unmarked VSO order.

A second reason that Coon adopts this analysis for Ch'ol is that the same morphology is used to mark both ergative subjects and possessors, known in the Mayan literature as the "Set A" morphology.

(24) a. Tyi k-mek'-e-yety
PRFV A1-hug-TV-B2
'I hugged you.'

b. k-chich
A1-oldersister
'my older sister' Coon (2010): 357

Thus, Coon analysis allows her to propose that set A morphology always coindexes the external argument of the VoiceP, whether it is the external argument within the nominal or clausal domain. SMPM, on the other hand, does not have any overt case morphology, so this motivation for unifying possessors and subjects doesn't hold in the language.

In the absence of positive evidence that possessa undergo movement to a functional head within the DP, I believe the simplest account of them is to assume that they are parallel to other possessive structures in the language.

In most cases, the use of the possessive morpheme is either required or prohibited, depending on whether the possession is interpreted as alienable or inalienable. That is, inserting the possessive *ñà'ă* after kinship terms or removing it after human-made objects is impossible. However, there seem to be a select set of words that are optionally followed by a possessive morpheme.

(25) a. amigo (ñà'ă) Margarita
friend thing M.
'Margarita's friend'

b. utu (ñà'ă) Juan
corn.field thing J.
'Juan's cornfield'

Impressionistically, these words seem to be on the "borderline" of alienability, describing things which a person might possess for many years or an entire lifetime.

In summary, I assume that possession is derived via complementation in SMPM. Nouns can select for one of three different possessive prepositions, depending on its properties. These properties include noun class—which distinguishes possession of animals from human-made objects—and whether the word describes a relational noun that is "inalienably" possessed (such as kinship or body parts). These possessive prepositions can then take DP complement, which is interpreted as the possessor. While the precise DP-internal differences between different types of possessive constructions will not factor into my discussion of Alternative Particles, familiarity with these different possession possibilities will be useful when considering the ways that focused possessors pied-pipe.

3.1.6 Wh-movement

As in other Mixtec languages (e.g. Caponigro et al., 2013), wh-words must move to a pre-verbal position in SMPM.

(26) a. **Yóó** shàshi __ kwì'i?
who ate fruit
'Who ate the fruit?'

b. **Nă** shĩ Marta __
what bought M.
'What did Marta buy?'

c. **Nashá** yávi yá __
how.much costs NEUT
'How much does it cost?'

d. **Ntsyá** chíchi ndó __
where bathe 2PL
'Where do you (PL) bathe?'

e. **Ntsyâ** ve'è kàsa'a Maria __
which house built M.
'Which house did Maria build?'

In general, when wh-words originate as the complement of a preposition, the proposition can be stranded when the wh-word moves.

(27) a. Yóó tásha'a Maria **shí'in** __
who dances M. with
'Who is Maria dancing with?'

b. Yóó tàshin Maria íí ntsikă **ndà'ă** __
who gave M. one banana to
'Who did Maria give a banana to?'

Alternatively, prepositions can also move along with wh-words when they displace. In this case, the wh-word will surface at the left edge of the pied-piped constituent. In other words, it will precede (rather than follow) the preposition that selected it.

(28) a. [Yóó shí'in __] tásha'a Maria __
who with dances M.
'With whom is Maria dancing?'

b. [Yóó ndà'ă __] tàshin Maria íí ntsikă __
who to gave M. one banana
'To whom did Maria give a banana?'

This phenomenon, known as "Pied-Piping with Inversion" (Smith Stark, 1988), is a common areal feature of Mesoamerican languages and will be discussed in more depth in the following chapter, where it will serve as an important language-internal argument in favor of the claim that semantic foci are not marked with a formal syntactic feature.

Pied-piping with inversion is also triggered when a wh-possessor pied-pipes its possessum. In this case, the wh-possessor will surface at the left edge of the possessive DP.

(29) a. [Yóó sè'e __] ká'an __
who child speaks
'Whose child is speaking?'

b. [Yóó ndayajyí vá'a ñà'ă __] shìshon __
who broth good POSS ate.2SG
'Whose mole did you eat?'

c. [Yóó tsìnà sànà __] nìshi'i __
who dog POSS.AML died
'Whose dog died?'

d. [Yóó kárro ñà'ă __] kàni __ itŭn
who car POSS hit tree
'Whose car hit the tree?'

Once again, pied-piping is optional, with some restrictions. Wh-possessors can subextract out of possessive DPs that are in the complement of V (30), but not those

that are in the specifier of *v*P (31) (see Hedding, 2020).

(30) a. Yóó shìshon [ndayajyí vá'a ñà'ă __]
who ate.2SG broth good thing
'Whose mole did you eat?'

b. Yóó nìshi'i [tsìnà sana __]
who died dog POSS.AML
'Whose dog died?'

(31) a. *Yóó ka'an [sè'e __]
who speaks child
Intended: Whose child is speaking?

b. *Yóó kàni [kárro ñà'ă __] itŭn
who hit car POSS tree
'Whose car hit the tree?'

3.1.7 Focus types in Mixtec

While there has been little formal theoretical work on focus in Mixtec languages, it has been consistently observed that foci move to a preverbal position across languages of the family (see, e.g. Alexander, 1988; DiCanio et al., 2018; Farris, 1992; Hedding, 2019; Hills, 1990; de Hollenbach, 2013; Johnson, 1988; Kuiper and Oram, 1991; Shields, 1988; Small, 1990; Zylstra, 1991). However, one consistent challenge with direct comparisons across Mixtec varieties comes from a general lack of discussion of what the authors assume a focus is and how it is distinguished from other fronted constituents, such as topics. This challenge is especially present in older descriptions which do not provide the context in which the sentence was uttered (or would be felicitous).

In the Mixtec of San Martín Peras, all types of focus obligatorily front to a preverbal position. First, consider a case of information focus, used to create a congruent answer to a wh-question. In this case, the focus must surface preverbally (32a). Leaving it in

situ leads to ungrammaticality (32b).

(32) *Context: What did the dog eat?*

a. **Kôñù** shìshì rí __
meat ate AML
'It (an animal) ate the **meat**.'

b. *Shìshì rí **kôñù**
ate AML meat
Intended: It ate the **meat**.

The same generalization holds when two foci are explicitly compared within a clause. In this case, the structurally highest focus must displace preverbally.

(33) a. Tsìnà **tohŭ** rí ntsíku tsìnà **yâ**
dog black AML chases dog white
'The **black** dog is chasing the **white** dog.'

b. Kárro ñà'ă **Pedro** tŭn kama cháka nuhŭ kárro ñà'ă **Juan**
car POSS P. WOOD fast more than car POSS J.
'**Pedro**'s car is faster than **Juan**'s car.'

As (33) demonstrates, focusing an adjective or a possessor will often trigger pied-piping of the entire DP that contains the focus.

The same basic pattern holds for corrective foci, which explicitly reject and replace an asserted alternative in a previous utterance. Corrective foci also move to a preverbal position (34a), and cannot be left in situ (34b).

(34) *Context: I am eating in the house of my friend Gloria and she serves me some tortillas that she says her daughter Rosa made. Gloria's husband tells her that she is wrong:*

a. U'un, **Maria ñá** tsyă __ shìtă
no M. she made tortilla
'No, **Maria** made the tortillas.'

b. *U'un, tsyă **Maria ñá** shìtă
no made M. she tortilla
Intended: No, **Maria** made the tortillas.

Comparative focus and corrective foci can be morphologically distinguished from information foci in SMPM: they are most often doubled by a noun classifier which immediately follows the focus (see 33 and 34). Moreover, in situ foci can also be doubled by a classifier when their movement is blocked by a wh-word (see §3.2.7), as in (35). This suggests that the classifier is truly doubling the focus, and is not simply part of a cleft construction.

(35) Yóó shìni'i __ **shìtă yá**
who brought tortillas NEUT
'Who brought **the tortillas**?

The pragmatic role of doubled classifiers seems to relate to whether or not the alternatives to the focus are salient in context. First, in both contrastive and corrective focus contexts, the focus is contrasted with an explicitly mentioned alternative. In the case of contrastive focus, the alternative is mentioned within the same utterance. In the case of corrective focus, the alternative is mentioned by another discourse participant. Moreover, though information foci (which do not normally involve an explicit mention of alternatives) are most often not doubled by a classifier, they can doubled by a classifier in the case alternatives have been explicitly mentioned, such as in a

narrative. For instance, in a context where a snake, a bear, and a fish have all been introduced as party-goers in a narrative, information focus on those participants will trigger doubling. This sentence was uttered during a task where a speaker used storyboard pictures to spontaneously construct a narrative (Littell, 2010a).

(36) *Context: Who brought the food?*

Oso rí ní'in yá
bear AML brought NEUT
'The bear brought it.'

Another elicited narrative demonstrates the same pattern. In this narrative, a mother, a father, a grandmother, and a grandfather have all been introduced as discourse referents (Littell, 2010b).

(37) *Context: Who gave you that shirt?*

Tát=i **rà** tàshin kótô yó'o ndà'=í
father=my he gave shirt this to=me
'My father gave this to me.'

Thus, the generalization seems to be that foci will be doubled by a classifier if the alternatives have been explicitly mentioned in the discourse.

There are two other domains within SMPM in which the presence of a doubled classifier signals something about the precise way that its referent is integrated with the discourse. First, classifiers are also used to mark D-linked wh-questions in SMPM (Hedding, to appear), as in (38).

(38) Ntsyâ rà táte yó'o tàshă'a Maria shì'in __ víkŏ
which CLS man here danced M. with party
'Which of these men was Maria dancing with at the party?'

Here, the restriction of the wh-question (*táte*) is immediately preceded by a classifier (*rà*). Once again, the presence of the classifier is not obligatory, but is preferred in contexts where the wh-word is D-linked. In this way, doubling is reminiscent of the connection between clitic doubling and specificity / D-linking that has been described for other languages (Suñer, 1988; Dobrovie-Sorin, 1990; Kramer, 2014; Yuan, 2021a).

Another construction which involves classifier doubling is identified by Ostrove (2018, to appear). In this process, a post verbal constituent can be optionally doubled by a preverbal classifier.

(39) a. Rà$_i$ shá'antsya Juan$_i$ chìkí
he cuts J. tuna
'Juan is cutting tunas[5].'

b. Rí$_i$ shá'antsya Juan chìkí$_i$
AML cuts J. tuna
'Juan is cutting tunas.' Ostrove (to appear): 2

As Ostrove carefully demonstrates, this process is not neutral with respect to information structure. In Ostrove (2018), he argues that doubling targets topics, and in Ostrove (to appear) he refines this slightly and argues that doubling targets DPs that are given in the discourse. That is, (39a) is only appropriate in a context where Juan has been discussed in the discourse, and (39b) is only acceptable in contexts where tunas have been discussed.

There are some obvious surface similarities between this phenomenon and classifier doubling in the context of some focus constructions. First, both involve a preverbal classifier which is co-referential with some other constituent in the sentence. Additionally, both seem to be licensed by similar discourse contexts: either the doubled constituent itself has been mentioned in the discourse, or some alternative to the doubled constituent has been mentioned. However, there are also two obvious dis-

[5]Tunas are the fruit of a prickly pear cactus.

similarities. First, as evident from the examples in (39), the preverbal classifier and its double are non-adjacent in this construction, while the classifier always immediately follows a focus that has been doubled. Moreover, in this construction, the classifier always immediately precedes the verb, and in the focus construction, the classifier always follows the focus. As mentioned above, this means that the doubled classifier can appear in a post-verbal position, in cases where the focus does not undergo movement.

Finally, Cisneros (2019) demonstrates that in closely related Cuevas Mixtec the use of prenominal classifiers that double nouns are used to create anaphoric links with familiar antecedents. For instance, the classifier in (40b) is used to establish that the turkey is the same one mentioned in the previous sentence, while the lack of a classifier implies that the followup sentence is referring to a distinct turkey, leading to infelicity (40a).

(40) Ìsayā'ní tyà juáàn kólō
killed he J. male.turkey
'Juan killed a turkey.'

a. #káchí nā ñà kú'vì vā kólō
say they COMP sick FOC male.turkey
'They say that a turkey was sick.'

b. káchí nā ñà kú'vì vā tyí kólō
say they COMP sick FOC AML male.turkey
'They say that the turkey was sick.' Cisneros (2019): 30

Once again, it seems that the use of doubled classifiers is a way of establishing an anaphoric relationship with the preceding discourse.

For the sake of concreteness, I assume that in classifier doubled focus constructions that a classifier is right adjoined to its double (Nevins, 2011; Kramer, 2014), creating a "Big DP" structure (Uriagereka, 1995). However, more investigation into the

precise syntax of this construction and how it relates semantically to the phenomena described in Ostrove (2018, to appear) and Cisneros (2019) is necessary.

Association with focus

SMPM has several words that roughly translate to the word *only* in English. These words, like their English equivalent, must c-command a constituent that is focused. For instance, when *inta* forms a constituent with a DP, it serves to trigger an exhaustive interpretation, as shown by the fragment answer in (41). While there are other Mixtec words that also translate as *only*, I focus on *inta* in this chapter because it has the clearest distribution and seems to be the most general.[6]

(41) *Context: Do any of your children know how to make mole?*

Inta **Maria** (va)
only M. EMPH
'Only **Maria**'

Like other types of focus, associated foci and the particles that they associate with undergo syntactic displacement to a preverbal position in SMPM. It is generally ungrammatical or highly degraded to leave DPs modified by *inta* in situ. This can be seen by examining the simple causes of modified subjects in (42) and (43), and modified objects in (44) and (45). In each of these cases, leaving a DP modified by *inta* in situ is ungrammatical.

(42) *Context: Does everyone in your town know how to make mole?*

a. U'un, inta **Maria ñá** và'a kásа'a rá
no only Maria she well makes LIQ
'No, only **Maria** can make it.'

[6]The other three words that have been occasionally translated as *only* are: *nina* and *ntsino'on*, both of which precede their associated focus, and one post-nominal clitic (*uun*) which seems to go in the position of adjectives.

b. *U'un và'a kása'a inta **Maria** rá
no well makes only Maria LIQ
Intended: No, only **Maria** can make it.

(43) *Context: Do all the students speak Spanish in the classroom?*

a. U'un, inta **ñá maestra ñá** ká'an __ tu'un sá'á
no only CL teacher she speaks language Spanish
'No only the **teacher** speaks Spanish.'

b. *U'un, ká'an inta **ñá maestra ñá** tu'un sá'á
no speaks only CL teacher she language Spanish
Intended: No, only the **teacher** speaks Spanish.

(44) *Context: Does Pedro eat meat?*

a. U'un, inta **yibá** shíshi rà __
no only vegetables eats he
'No, he only eats **vegetables**'

b. *U'un, shìshi rà inta **yibá**
no eats he only vegetables
Intended: No, he only eats **vegetables**

(45) *Context: Do you play a lot of instruments?*

a. U'un, inta **guitarra** và'a sá-ka'a=ì
no only guitar well CAUS-speak=I
'No, I can only play the **guitar**.'

b. *U'un, và'a sá-ka'a=ì inta **guitarra**
no well CAUS-speak=I only guitar
Intended: No, I can only play the **guitar**.

As is evident when comparing these examples, foci that associate with *inta* are sometimes doubled with a clitic, and sometimes not. As with other types of foci, the presence of doubling seems to correlated with the salience of alternatives.

Displacement of constituents modified by *inta* is not restricted to syntactic arguments. This can be seen be investigating temporal adverbs, which generally can appear in sentence initial or sentence final position in SMPM with no apparent difference in

interpretation (Eischens, 2021b).

(46) a. Ndomíngo nánitsié'jě Maria
sunday rests M.
'Maria rests on Sundays.'

b. Nánitsié'jě Maria ndomíngo
rests M. sunday
'Maria rests on Sundays.'

Despite this optionality, in cases where a temporal adverb is modified by *inta* it must surface in sentence initial position (47a). A temporal adverb modified by *inta* in sentence final position is ungrammatical (47b).

(47) a. Inta **ndomíngo** nánitsié'jě Maria.
only sunday rests M.
'Maria rests only **on sundays**.'

b. *Nánitsié'jě Maria inta **ndomíngo**
rests M. only sunday
Intended: Maria rests only **on sundays**'

While focus sensitive particles generally undergo movement in the language, there is one particle that I am aware of—*và*—which can attach to foci but does not trigger overt movement.

(48) *Context: The dog ate some tortillas, right?*

Ũ'ũ, **kônù yá** shàshi rí __ ra shàshi ti rí **chìchí** và
no meat NEUT ate AML and ate also AML avocado FOC
'No, it ate the **meat**, and it also ate an **avocado**.'

While this particle can sometimes be used to mark new information (as in 48), it does not seem to be a preferred strategy to mark new information among the speakers that I have consulted. Indeed, according to Cisneros (2020), the cognate particle in closely

related Cuevas Mixtec has several distinct uses: it can mark new information, it is used in the formation of free choice indefinites, it can denote an ongoing event when attached to a verb, and can be used to signal that an utterance runs counter to the speakers expectations. As this particle does not appear to trigger movement, I set it aside here, and leave to future work a more complete analysis of its distribution and how it interacts with focus.

3.2 Movement of Alternative Particles is syntactic

Recall from chapter 1 that there is much debate within the literature about the precise motivation for the displacement of foci. Though some researchers argue for a syntactic motivation for focus fronting (e.g. Bródy, 1990; Frascarelli and Puglielli, 2007a; Aboh, 2016), there is a substantial literature that focus displacement should be thought of as a primarily prosodic phenomenon (Zubizarreta, 1998; Szendrői, 2001; Féry, 2013). From the preceding section, it should be clear that San Martín Peras Mixtec is a language where several different types of focus must be displaced to a position before the verb. In this section, I will provide a series of arguments in favor of the claim that this displacement is syntactic. The evidence will come from a variety of different diagnostics for syntactic movement, as well as an explicit comparison with wh-movement. Under an attraction-based theory of movement, this implies that the moved constituent must bear a formal syntactic feature.

Showing that SMPM moves displaced foci syntactically is a crucial step towards demonstrating that it satisfies the predictions of the Alternative Particle hypothesis introduced in the previous chapter. Because that hypothesis assumes a syntactic motivation for movement, the first step is to demonstrate that foci move syntactically in the language. I reserve discussion of the prosodic realization of fronted foci to §3.5. In that section, I will approach this question from another angle, showing that the

prosodic realization of foci in SMPM is not consistent with a prosodic motivation for movement.

3.2.1 Focus displacement leaves a gap

First, let's establish that focus displacement leaves a syntactic gap in the position where the focus receives its thematic interpretation. Consider, for example, the predicate *kasa'a*, which is strongly transitive and requires a syntactic object.

(49) a. *Kàsá'a Maria __
built M.
Intended: Maria built.

b. Kàsá'a Maria íí vè'e
built M. one house
'Maria built a house'

In the case that the object of the predicate is focused, it appears preverbally and leaves a gap in its base position. This suggests that the selectional requirements of the predicate are satisfied by the focus at a step of the derivation prior to syntactic movement, allowing there to be no overt complement of the verb.

(50) *Context: Did Maria build a house?*

U'un, inta **tsyâyi** kàsá'a ñá __
no only chair built she
'No, she only built a **chair**.'

Additionally, the gap associated with the displaced focus can appear inside an embedded clause (51), regardless of how deeply embedded it is (52).

(51) *Context: What did Eraclio say that Ana bought at the market?*

Chìchí kàchi=rà [shin ñá __]$_{CP}$
avocado said=he bought she
'He said she bought an **avocado**'

(52) Inta **chìchí** ntsìv=í yó'ò [kwa'=on [ki'i=on __ nùhǔ yá'vi]]
only avocados sent=I you go=you buy=you at market
'I only sent you to buy **avocados** at the market.'

In this way, focus displacement resembles movement of wh-phrases, which also can move long-distance across multiple clause boundaries in SMPM.

(53) Ntsyâ yá kwì'i yó'o ntsi'iví Maria yó'ò [kwa'=on [kí'i=on __ nuhǔ ya'vi]]?
which CLS fruit here sent M. you go=you buy=you in market
'Which of these fruits did Maria send you to go buy in the market?'

3.2.2 Islands

Foci, like wh-words, can move out of embedded clauses. However, their movement is sensitive to various types of islands. First, foci and wh-words cannot move out of relative clauses, as show in (54) and (55).

(54) *Context: I have two daughters: Natalia and Agustina. They are both a bit mischievous, so they are often scolded by their teachers in school. One day, I see the teacher that often scolds Natalia in town. When I mention that I saw a teacher to my wife, she asks: "Did you see the teacher that scolds Agustina?"*

*U'un, **Natalia ñá** shîn=ì ⟨ñá maestra káná'a shi'i __⟩
no N. she saw=I CLS teacher scolds with
Intended: No, I saw the teacher that scolds **Natalia**.

(55) *[Ntsyâ rà rà lo'o]$_i$ shin=on ⟨[míí maestro]$_j$ kana'a __$_j$ shí'i __$_i$⟩?
which CLS he small saw=you MII teacher scolded with
Intended: Which child did you see the teacher that scolded __?

Second, neither foci (56) nor wh-words (57) can extract out of adjunct islands.

(56) *Context: Is Natalia mad because the teacher scolded her?*

*U'un, **Agustina ñá** sáhă ñá ⟨chi ñá maestra nìkana'a shi'i __⟩
no A. she mad she because CLS teacher scolded with

Intended: No, she is mad because the teacher scolded **Agustina**.

(57) *Yóó sáhă Natalia ⟨chi ñá maestra nìkana'a shi'i __⟩?
who mad Natalia because CLS teacher scolded with
Intended: Who is Natalia mad because the teacher scolded?

Finally, foci cannot subextract out certain types of subjects (58) and neither can wh-words (59).

(58) *Context: Whose dog ate the meat?*

***Juan** shàshi ⟨tsìnà sana __⟩ kôñù
J. ate dog POSS.AML meat

Intended: **Juan**'s dog ate the meat.

(59) *Yóó tsyâ ⟨sè'e __⟩ shìtă
who makes child tortillas
Intended: Whose child is making tortillas?

Under the assumption that subjects are a type of strong island (Szabolcsi and Lohndal, 2017), this fact is not surprising. However, there are a few points about subextraction out of subjects in SMPM which complicate matters and are worth briefly discussing.

One possible explanation for subject islands is English is that subjects typically do not surface in their base position, but must move to a derived position outside the *v*P (Kitagawa, 1986; Koopman and Sportiche, 1991). Consequently, the subject island constraint could be thought of as the result of a more general ban on extraction out of constituents that have been moved (i.e., Freezing) (Ross, 1967; Wexler and Culicover,

1980; Corver, 2006; Sichel, 2018). Some evidence for that approach comes from the fact that movement out of derived subjects is ungrammatical (60a), while movement out of subjects that remain low is grammatical (60b).

(60) a. *Which candidate were [posters of __] all over town?

b. *Which candidate did they say [to get __ to agree to a debate] was hard?

(61) a. Which candidate were there [posters of __] all over town?

b. Which candidate did they say it was hard [to get __ to agree to a debate]?

(Lasnik and Park, 2003): 651

Recall from §3.1.1 that I assume that verb-initiality in SMPM is derived via predicate fronting. Specifically, in order to derive VSO order, I assume that both the subject and the object evacuate the *v*P, which then undergoes phrasal movement to the specifier of a functional head. Consequently, if the fact that wh-words and foci cannot extract out of external arguments was due to freezing, then we would also expect subextraction out of objects to be blocked, given that objects also surface in a derived position in the language. In fact, subextraction out of objects (62) and unaccusative subjects (63) is grammatical.

(62) a. Yóó sà-kŭshi Maria [tsìnà sana __]
who CAUS-eat M. dog POSS.AML
'Whose dog did Maria feed?'

b. **Juan** sà-kŭshi ñá [tsìnà sana __]
J. CAUS-eat she dog POSS.AML
'She fed **Juan**'s dog.'

(63) a. Yóó nìta'avi [ndána ñà'ă __]
who broke window POSS
'Whose window broke?'

b. **Marta** nìta'avi [ndána ñà'ă __]
M. broke window POSS
'**Marta**'s window broke.'

Unergative subjects, like transitive subjects, do not allow subextraction.[7]

(64) a. *Yóó ká'an [sè'e __]
who speaks child
Intended: Whose child is speaking?

b. ***Margarita** ká'an [sè'e __]
M. speaks child
Intended: **Margarita**'s child is speaking.

Assuming that unaccusative subjects originate as the complement of the verb (Perlmutter, 1978; Burzio, 1986), then the correct generalization seems to be that subextraction is possible from the complement of the verb, but not from the specifier of *v*P.

Viewed from a certain perspective, this pattern of subextraction seems to be inconsistent with the derivation of verb-initiality that I propose above. If both subjects and objects surface in derived positions (after evacuating *v*P), then we expect both to be opaque to subextraction. If on the other hand, we assume a verb-raising account of verb-initiality (i.e., the subject and object remain in their base positions), then we would then simply have to find some independent reason to exclude extraction out of external arguments, perhaps by unifying subjects and adjuncts (Huang, 1982; Johnson,

[7]While bare wh-words are restricted from extracting out of transitive and unergative subjects, this same restriction does not apply to D-linked wh-phrases (Hedding, to appear).

(i) Ntsyâ rà rà=jâ shàshi [tsìnà sana __] chéle san=ì
which CLS he=DEM ate dog POSS.AML rooster POSS.AML=my
'Which of those men's dog ate my rooster?'

Considering that subject islands are generally strong (i.e., not ameliorated by D-linking), this fact is surprising. However, it is certainly related to the fact that D-linked wh-phrases *never* pied-pipe in SMPM. See discussion in §4.3.

2003).

While the pattern of subextract in SMPM seems to argue against a predicate-fronting analysis, I believe that the preponderance of evidence (quantifier float, recipricols, and adverb placement) supports it. Moreover, I note that the Mayan language Ch'ol has an identical restriction on subextraction (Coon, 2009) and there is strong evidence that the base VOS word order of Ch'ol is derived via predicate fronting (Coon, 2010). Thus, more work certainly needs to be done to understand why objects that have evacuated the VP in some verb-initial langauges do not seem to be subject to Freezing Effects.

Setting aside the empirical uncertainty introduced by subject islands in SMPM, the main point of this subsection remains: both wh-words and foci are subject to the same types of restrictions on their movement. Neither can move out of relative clauses, adjuncts, or external arguments. Assuming that island-hood is a constraint on syntactic movement, then this suggests that focus displacement, like wh-movement, is syntactic.

3.2.3 Idiomatic interpretations

An alternative to foci being moved syntactically would be to say that they are base-generated in a preverbal position and bind a null pronoun in their thematic position. One way to tease these two possibilities apart is by using idiomatic interpretations. Assuming that idioms are non-compositional and therefore must be stored as a unit in the lexicon Marantz (1997), we can use idiomatic interpretations to determine whether the a constituent has moved (Schachter, 1973). This is the logic behind the classic use of idiom chunks to distinguish between raising and control predicates (e.g. Postal, 1974).

The logic is as follows, if a chunk of words can be interpreted idiomatically even if

one of its parts is discontinuous from the rest, then this suggests that that part of the idiom has undergone movement. In the case of focus, the crucial test case is whether a part of an idiom can be focused and still retain its idiomatic interpretation.

First consider the idiomatic expression *shashi yú'ǔ* which literally means "to eat mouth," but which has the idiomatic meaning of "to kiss." When part of the idiom is focused, it can still be interpreted idiomatically.

(65) *Context: I go to a dinner party with my son Juan. At the party, Juan meets up with his girlfriend Maria. When we eat dinner, I can't find Juan. When I go looking for him after dinner, I find him and Maria kissing. Later, at home, my wife notices that Juan looks hungry. She asks: "What did Juan eat at the party?" I respond:*

Yú'ǔ **Maria** shàshi rà
mouth M. ate he
'He kissed Maria.' (literally, He ate **Maria's mouth**)

The same point can be made with the idiomatic expression *lúndú yájǎ.* This expression literally means "to have a short tongue," but it has the idiomatic meaning of "to not talk much." As before, part of the idiom can be fronted as a focus while retaining the idiomatic meaning.

(66) *Context: I have a friend that is looking for a romantic partner, but he is very shy and doesn't talk much. He hasn't had much luck, and is trying to figure out why. He tells me: 'I think the problem is that I have short legs.' I respond:*

U'un, **yáj=ún** lúndú __
no tongue=your short
'No, you don't talk much.' (literally, **Your tongue** is short.)

In both cases, the retention of the idiomatic interpretation suggests that the focus must have formed a constituent with the verb at an earlier stage of the derivation. In

other words, the focus is not base-generated in a preverbal position and surfaces there due to movement.

3.2.4 Reconstruction

Next, consider the behavior of the reciprocal expression *tá'an*. In normal circumstances, this reciprocal object moves along with verb to a position in front of the subject. I assume following Yuan (2021b) that this is the result of phrasal movement of the VP.

(67) Shini tá'an ndù
saw each.other we.EXCL
'We saw each other.'

Because *tá'an* has a reciprocal interpretation, it cannot be bound by a singular subject.

(68) *Shini tá'an Juan
saw each.other J.
Intended: Juan saw each other.

If focus displacement involves syntactic movement, then we would expect focused reciprocals to be able to reconstruct to their base position and be bound by a plural subject. If, however, foci are base-generated in a preverbal position, then we would a focused *tá'an* to remain unbound, leading to ungrammaticality.

In fact, an expression containing *tá'an* can be fronted as a focus, suggesting that *tá'an* is able to reconstruct to its base position where it is c-commanded by the subject (69). Further evidence of a binding relationship comes from (70), which replaces the plural subject with a singular subject. This leads to ungrammaticality, suggesting the focused *tá'an* is reconstructing and is being illicitly bound by the singular subject.

(69) *Context: Did you both give a photo to your mother?*

U'un, **ndà'ă tá'an** **míí** **ndù** tàshin ndù ñà
no to each.other EMPH we.EXCL gave we.EXCL it

'No, we gave one to **each other**.

(70) *U'un, **ndà'ă tá'an** **míí** **ndù** tàshin Juan ñà
no to each.other EMPH 1PL.EXCL gave J. it
Intended: No, Juan gave one to **each other**.

This diagnostic provides additional evidence to support the claim that the focus originates in a low position before it is displaced preverbally.

3.2.5 Multiple foci

Additional evidence that focus movement is syntactic comes from clauses with multiple foci. As expected, assuming standard syntactic locality applies, only the structurally highest focus can front to a preverbal position.

(71) *Context: One of my friends doesn't really like mushrooms—he almost never eats them. However, he really likes one mushroom in particular: the deer horn mushroom. I relate this to my friend Benjamín and he says: "How surprising! Which of your friends eats only deer horn mushrooms?"*

a. **Juan rà** shíshi __ inta shì'ĭ **ntsikĭ usu**
J. he eats only mushroom horn deer
'**Juan** eats only **deer horn** mushrooms.

b. *Inta shì'ĭ **ntsikĭ usu** shíshi **Juan rà** __
only mushroom horn deer eats J. he
Intended: **Juan** eats only **deer horn** mushrooms.

I take this to be additional support for the claim that focus movement is syntactic and thus is sensitive to syntactic constraints on movement such as locality. If, instead,

focus displacement where a purely prosodic phenomenon, then we would not expect it to obey syntactic constraints on locality of movement.

3.2.6 The position of moved foci

Further evidence that focus displacement is syntactic comes from a comparison with wh-movement. Wh-words and foci move to the same syntactic position in SMPM, as has been proposed for other languages (e.g. Horvath, 1986; Rizzi, 1997; Aboh, 2016). This can be shown based on the fact that they appear in identical positions with respect to several syntactic landmarks. First, they can both surface above fronted negative indefinites (72), preverbal manner adverbs (73), and certain quantifiers that regularly front in the language (74). Note, in addition, that foci with and without overt Alternative Particles appear in the same position.

(72) a. Yóó ko ñă'a nìki'i
who NEG thing bought
'Who bought nothing?'

b. **Maria ñá** ko ñă'a nìki'i
M. she NEG thing bought
'**Maria** bought nothing.'

c. Inta **Juan rà** ko nà yibì ni-shìnì
only J. he NEG-thing 3SG person NEG-saw
'Only **Juan** saw nobody.'

(73) a. Yóó ni'i shínu
who strong runs
'Who runs fast?'

b. **Teresa ñá** ni'i shínu
T. she strong runs
'**Teresa** runs fast.'

c. Inta **Mariana ñá** ni'i shîñò
only M. 3.SG.F strong runs
'Only **Mariana** runs fast.'

(74) a. Yó kwa'a chútu shìni
who many cat saw
'Who saw many cats?'

b. **Maria ñá** kwa'a chìchí shàshi
M. she many avocados ate
'**Maria** ate many avocados.'

c. Inta **Maria ñá** kwa'a rí shàshi
only M. she many AML ate
'Only **Maria** ate many of them (avocados).'

A second piece of evidence that fronted wh-words and foci appear in the same syntactic position is their distribution with respect to temporal adverbs. In Mixtec, temporal adverbs normally can appear in either sentence initial (75a) or sentence final position (75b).

(75) a. Ndomíngo nánitsié'jě Maria
sunday rests M.
'Maria rests on Sundays.'

b. Nánitsié'jě Maria ndomíngo
rests M. sunday
'Maria rests on Sundays.'

However, when a temporal adverb co-occurs with either a focus or a wh-word, it must surface sentence finally. It cannot occur preverbally with the focus or wh-word, in either order.

(76) a. Yóó nìshi'i koni
who died yesterday
'Who died yesterday?'

b. *Koni yóó nìshi'i
yesterday who died
Intended: Who died yesterday?

c. *Yóó koni nìshi'i
who yesterday died
Intended: Who died yesterday?

(77) *Context: Vitorino broke his hand yesterday.*

a. U'un, **Juan rà** nìtá'no ndà'ă koni
no J. he broke hand yesterday
'No, **Juan** broke his hand yesterday.'

b. ??U'un, koni **Juan rà** nìtá'no ndà'ă
no yesterday J. he broke hand
Intended: No, **Juan** broke his hand yesterday.

c. *U'un, **Juan rà** koni nìtá'no ndà'ă
no J. he yesterday broke hand
Intended: No, **Juan** broke his hand yesterday.

(78) a. Inta **chútu rí** shàshá koni
only cat AML ate yesterday
'Only **the cat** ate yesterday.'

b. *?Koni inta **chútu rí** shàshá
yesterday only cat AML ate
Intended: Only **the cat** ate yesterday.

c. *Inta **chútu rí** koni shàshá
only cat AML yesterday ate
Intended: Only **the cat** ate yesterday.

Thus, wh-words and foci both move to the same position in SMPM. This position is quite specific, as it can be defined relative to several syntactic landmarks. This can be contrasted with displacement for prosodic reasons. Take for instance the discussion of prosodic movement of Irish pronouns in Bennett et al. (2016). Some of the evidence in favor of a prosodic analysis of pronoun movement in the language comes from the fact that the movement of pronouns is fundamentally "non-syntactic." That is, pronouns move to variable positions in the clause, move into syntactic constituents, and move to the right. From this perspective, focus movement in SMPM is quite "well-behaved,"

syntactically speaking. Foci always move to the same position in the clause; the same position to which wh-words also move.

3.2.7 Blocking focus movement

A final diagnostic in favor of a syntactic analysis of focus displacement comes from cases where focus movement is blocked. While focus movement is almost always obligatory in SMPM, it is blocked in clauses that also contain a wh-word. For instance, movement of a focus to a position between a wh-word and the verb is completely ungrammatical (79a). Instead, the most natural way to form this question is to leave the focus in situ (79b).

(79) *Context: My friend Benjamín and I went a party where everyone brought some food or drink to share. We know who brought the meat but we are curious who brought the tortillas. When we go to ask the host, Benjamín mistakenly asks him, "Who brought the meat?" I turn to Benjamin and say, No:*

a. *Yóó **shìtă** **yá** shìni'ì __ __
who tortilla NEUT brought
Intended: Who brought the **tortillas**?

b. Yóó shìni'ì __ **shìtă** **yá**
who brought tortilla NEUT
'Who brought **the tortillas**?'

This complementary distribution of wh-words and foci in the left-periphery makes sense from a syntactic perspective if we assume that they are attracted to the same syntactic position. However, if we thought that focus movement was prosodic in nature, then it would be unclear why it would be blocked just in cases where wh-movement has occurred.

As will be discussed at length in Chapter 5, when a focus co-occurs with a wh-

word within the same clause, it will stay in situ regardless of whether it is the object, as in (79), or the subject, as in (80), or an adjunct, as in (81).

(80) *Context: My friend Benjamín and I went a party where everyone brought some food or drink to share. We know what Maria brought, but we didn't see what Marta brought. When we go to ask the host, Benjamín mistakenly asks him, "What did Maria bring?" I turn to Benjamín and say, No:*

Nă kìshashì **Marta ñá** __
what brought M. she
'What did **Marta** bring?'

(81) Ntsyâ rà ko'ob=on nánitsié'jě inta **ndomíngo**?
which CL sibling=your rests only sunday
'Which of your siblings rests only on **sundays**?

Distinguishing topicalization

For the sake of completeness, it is also necessary to rule out the possibility of a focus fronting to a position above a wh-word. At first glance, this seems to be possible, however, there are three reasons to show that in examples like (82), the object has not undergone syntactic focus movement, but is instead acting as a contrastive topic.

(82) *Context: Same as (9)*

Shìtă yá, yóó shìni'ì
tortilla NEUT who brought
'The tortillas, who brought them?'

First, we have seen above that syntactic focus fronting is obligatory in SMPM, except in cases where it is blocked by a wh-word. However, fronting a constituent to a position above a wh-word is always optional, as can be seen by comparing (82) to (9b). This suggests that this is a distinct syntactic phenomenon.

Second, if the pre-wh-word constituent were a focus attracted by the same head that attracts wh-words, then we would expect their relative order to depend on which is the subject and which is the object. In fact, contrastive topics always appear above wh-words, regardless of their base position.

(83) *Same as (10)*

Marta ñá nă kìshashì
M. she what brought
'Marta, what did she bring?'

Third, and perhaps most importantly, certain expressions, such as negative indefinites (84) and universally quantified DPs (85) are restricted from appearing in this pre-wh-position.

(84) *Context: I had 10 guests at a potluck at my house but only 9 dishes. Looking for the person who didn't contribute, my friend Benjamín begins to ask dish by dish, "Who brought the meat? Who brought the salsa..." I impatiently ask:*

*?Ko-ñà'a ñà yóó nĭ-shini'i
NEG-thing NEUT who NEG-brought
Intended: Nothing, who brought?

(85) *As my friend and I walk past a school, we see that all of the children are leaving one of the classes crying. It seems as though one of the teachers was in a bad mood and scolded them. We are worried, so we go to ask the principal what happened. My friend asks: 'Which teacher scolded the children?' I interject:*

*__Ntsi'i__ na bali ntsyâ rà maestro nìkàná'a shí'in
all they small which he teacher scolded with
Intended: All the children, which teacher scolded?

These restrictions would be surprising if movement to a position before the wh-word

was an optional type of focus movement, as *no one* and universally quantified DPs can both undergo focus fronting with no restriction.

(86) *Context: I had a potluck, but my friend Maria didn't bring anything to share. My friend Benjamín notices that I am frustrated about something and tries to cheer me up, saying: "Well, at least Maria brought her delicious salsa." I respond, No:*

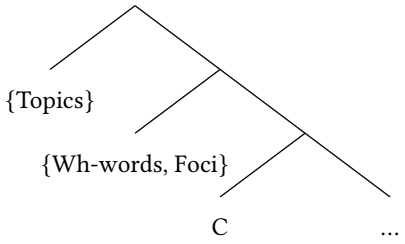
Ko-ñà'a ñà nǐ-shini'i Maria
NEG-thing NEUT NEG-brought M.
'Maria brought **nothing**.'

(87) *Who did they scold at the school today?*

Ntsi'i nà báli nìkàná'a nà shí'in
all they small scolded they with
'They scolded **all the children**.'

In many languages, there are semantic restrictions on contrastive topic. For instance, the same contrast holds in Italian (Rizzi, 1997). While negative indefinites and universally quantified DPs cannot be topicalized in Clitic Left Dislocation structures, they can be focused. Collectively, these facts suggest that the position above wh-words is reserved for contrastive topics, which must be referential. Thus, I assume the left-peripheral structure for SMPM shown in (88). Both foci and wh-words move to a preverbal position, which I assume to be the specifier of a null C. In addition to this position, there is at least one higher peripheral position that is reserved for topics. See Macaulay (1996) and Aissen (1992) for similar proposals about Chalcatongo Mixtec and Mayan, respectively.

(88)



3.2.8 Summary

In this section, I have presented a number of diagnostics to argue that displacement of foci in SMPM is a fundamentally syntactically phenomenon. Some of these diagnostics show definitively that foci must be lower in the clause at some step of the derivation, and some suggest specifically that they are displaced syntactically. This is important, as many theories assume that focus displacement is a prosodic phenomenon. I will return to this question in §3.5, and will present additional, prosodic evidence which suggests that focus fronting in SMPM is not a prosodic phenomenon.

In the next section, I turn my attention to the interpretation of fronted foci in SMPM. Recall that in some languages, such as Hungarian, only foci which are interpreted exhaustively can undergo movement. As I will argue briefly in the next section, this is not the case in SMPM. Though fronted foci might receive an implicature of exhaustiveness, this is not a truth-conditional requirement.

Establishing this difference with Hungarian provides additional support for the general Alternative Particle approach to focus displacement proposed in the preceding chapter. In particular, one of the motivations for assuming that there are other particles involved in focus displacement besides an exhaustive particle is to give the theory more empirical coverage. By looking beyond Hungarian to SMPM, we see that a more general theory of focus displacement is needed, one that doesn't explicitly tie movement to exhaustivity.

3.3 Focus movement does not trigger exhaustive interpretation

Recall from the previous chapter that certain theories of focus displacement assume that it is inherently correlated with exhaustive interpretation (É. Kiss, 1998a; Horvath, 2007, 2010). That is, these theories propose that a displaced foci will trigger an entailment that replacing the focus with any other alternative will be false. Recall as well that when Cable (2010) briefly considers that focus displacement may be triggered by a distinct Q particle, he speculates that it might be the exhaustivity operator proposed in Horvath (2007).

A crucial task, then, in establishing that a more general theory of Alternative Particle movement is needed, is to demonstrate that some languages move foci that are not interpreted exhaustively. In this section, I establish empirically that displaced foci do not need to be interpreted exhaustively in Mixtec. Importantly, it is worth noting that in some cases these displaced foci may trigger an *implicature* of exhaustivity—due to Grice's Quantity Maxim—but my main aim in this section is to show that this is not an entailment, and consequently, is not an inherent property of moved foci.

The first way to show this is by comparing the behavior of exhaustive and additive focus sensitive particles. Exhaustive particles entail that all other alternatives beside the prejacent are false, while additive particles presuppose that at least one other alternative is true. That is, additive particles are non-exhaustive (in fact, we might call them "anti-exhaustive" because they are incompatible with an exhaustive interpretation). If focus displacement was only triggered by exhaustive interpretation, then we would expect there to be a contrast between exhaustive and additive Alternative Particles.

In SMPM, both exhaustive (89) and additive (90) Alternative Particles move to a

preverbal position along with the focus that they associate with.[8]

(89) *Context: Does Margarita eat meat?*

a. U'un, inta **yibá** shíshi ñá __
no only vegetables eats she
'No, she only eats **vegetables**.'

b. *U'un, shìshi ñá inta **yibá**
no eats she only vegetables
Intended: No, she only eats **vegetables**.

(90) *Context: We are rushing to make enough tortillas before a party. Pedro, who famously hates cooking, is helping.*

a. Ntsya **Pedro** tsyâ __ shìtă
even P. makes tortillas
'Even **Pedro** is making tortillas.'

b. ??Tsyâ ntsya **Pedro** shìtă
makes even P. tortillas
Intended: Even **Pedro** is making tortillas.

In (90), it is clear that *Pedro* cannot be interpreted exhaustively, because the context explicitly states that other people are also making tortillas. Thus, (90a) clearly reflects a case of non-exhaustive focus movement.

This reflects an important difference from Hungarian. In Hungarian, the exhaustive Alternative Particle *csak* must undergo focus movement to a preverbal position (91), while the additive particle *még…is* cannot (92).

(91) a. *Mari elkésett csak **a fogadásról**
M. away.late.was only the reception.from
Intended: Mary was late only for **the reception**.

[8] One of the two speakers that I consulted about these examples occasionally accepted leaving *ntsya* (even) and its associate in situ. However, these judgements were variable across elicitation sessions, leading me to conclude that it is at best marginally acceptable. Moreover, both speakers consistently accepted moving *ntsya*, suggesting that it can move, in contrast to Hungarian.

b. Mari csak **a fogadásról** késett el
M. only the reception.from late.was away
'Mary was late only for **the reception**.'

(92) a. Mari elkésett még **az esküvőjéről** is
M. away.late.was yet the wedding.her.from also
'Mary was late even for **her wedding**.'

b. *Mari még **az esküvőjéről** is késett el
M. yet the wedding.her.from also late.was away
'Mary was late even for **her wedding**.'

This contrast is an important argument for Horvath's claim that only foci that are interpreted exhaustively can move in Hungarian. However, as evidenced by the data from SMPM, this is not a universal property of focus displacement cross-linguistically.

A second way to demonstrate that the exhaustive interpretation of displaced foci—to the extent to which it exists in Mixtec—is an implicature and not an entailment is to demonstrate that it is cancelable. Indeed, both information (93) and corrective (94) focus can be felicitously followed up with a continuation that asserts that the predicate holds of another member of the alternative set (i.e., that there is no exhaustive quantification over the displaced focus).

(93) *Context: What did Gloria cook for the party?*

Ndayajyí và'a kàsa'a ñá. Kàsa'a ti ñá **nchichi** và
broth good made she made also she green.bean ALT
'She made **mole**. She also made **green beans**.'

(94) *Context: I claim that Teresa chatted with Esteban at the school yesterday. You respond:*

U'un, shi'i **Margarito** nda'a tu'un ñá. Sá ti shi'i **Juan**.
No with M. hand word she so also with J.
'No, she chatted with **Margarito**. Also, with **Juan**.

If exhaustivity were part of the entailed meaning of focus fronting, then we would expect these continuations to be contradictions. Crucially, the felicity of these continuations contrasts with continuations after overt exhaustive Alternative Particles, such as *inta*. Adding *inta* to the displaced focus causes the continuation to be interpreted as a contradiction, and thus is infelicitous in both instances.

(95) *Context: What did Gloria cook for the party?*

Inta **ndayajyí và'a** kàsa'a ñá. #Kàsa'a ti ñá **nchichi** và
only broth good made she made also she green.bean FOC
'She only made **mole**. #She also made **green beans**.'

(96) *Context: Teresa chatted with Esteban at the school yesterday.*

U'un, inta shi'i **Margarito** nda'a tu'un ñá. #Sá ti shi'i **Juan**.
No only with M. hand word she #so also with J.
'No, she only chatted with **Margarito**. #Also, with **Juan**.

This contrast shows us a clear distinction between an exhaustivity interpretation which is an entailment (and thus, cannot be canceled) and an exhaustivity interpretation that can be canceled without problem.

A third way to demonstrate that displaced foci are not necessarily interpreted exhaustively is using speakers judgements about truth values. Specifically, in a context that explicitly states that a predicate holds for several distinct alternatives, focus fronting a partial answer (i.e. one of those alternatives) should be interpreted as false if exhaustive interpretation is a necessary entailment of displacement. If, however, a partial answer is interpreted as true, then the displacement focus is not interpreted exhaustively. In Mixtec, fronting a partial answer to a question is interpreted as true (97a), indicating that it can be interpreted non-exhaustively. As expected, associating the displaced focus with an overt exhaustive particle leads to the interpretation that it is false (97b).

(97) *Context: I went to a party with Francisca. There was a lot of food there. She ate some mole, beans, tortillas, and some cake for dessert. If someone asks me: 'What did Francisca eat ate the party?' would the following answers be true?:*

a. TRUE: **Ndayajyí và'a** shìshi ñá
broth good ate she
'She ate **mole**.'

b. FALSE: Inta **ndayajyí và'a** shìshi ñá
only broth good ate she
'She only ate **mole**.'

Once again, the contrast between an overt particle which triggers an exhaustive interpretation and simple focus fronting is illustrative. If focus fronting alone had the same exhaustive interpretation as *inta* then we would expect these to behave the same.

These three diagnostics show convincingly that fronted foci need not be interpreted exhaustively in SMPM. What can we conclude from this fact? It seems that, unlike Hungarian, there is no truth-conditional exhaustive interpretation associated with displaced foci in Mixtec. To the extent that there is an implicature of exhaustivity, it is cancelable. This suggests that Horvath's theory of focus displacement as movement of an operator which triggers an exhaustive interpretation cannot be generalized to Mixtec. Moreover, other languages have also recently been claimed to displace non-exhaustive foci (Cruschina, 2011, 2021). Thus, Horvath's theory is too narrowly tailored to Hungarian to be widely cross-linguistically applicable, suggesting a more general account of focus displacement is needed, one that can encompass languages like Mixtec, as well as languages like Hungarian.

This contrast between SMPM and Hungarian is one of the main motivations to introduce a more general theory of Alternative Particle movement. Because this theory is more general, and ties movement to alternative sensitivity rather than exhaustivity, we can better capture the cross-linguistic typology of focus displacement. In

particular, the types of foci that move in any particular language will depend on its inventory of Alternative Particles and their morphosyntactic properties. In languages like Hungarian, a movement probe only attracts particles that trigger an exhaustive interpretation; in SMPM, all Alternative Particles are attracted.

In the next section, I turn to the behavior of overt Alternative Particles in SMPM. In particular, I use evidence from pied-piping to show that Alternative Particles are attracted. Specifically, I show that Alternative Particles cannot be stranded, that large constituents can be fronted so long as they are c-commanded by an Alternative Particle, and that Alternative Particles must be at the left edge of the pied-piped constituent. Then, I generalize the movement of overt Alternative Particles to other instances of focus displacement, arguing that Alternative Particles are implicated in all cases of focus displacement in the language.

3.4 Displacement of Alternative Particles

3.4.1 Overt Alternative Particles are attracted

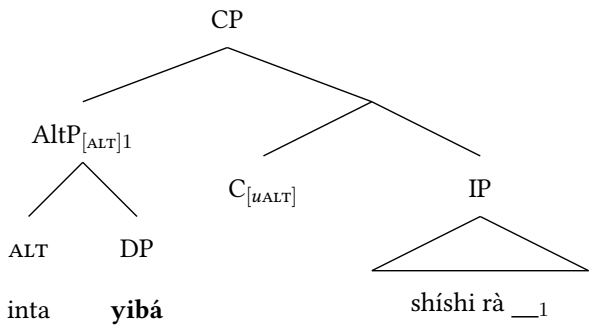
As we saw in §3.1.7, most overt Alternative Particles must be displaced along with their associated focus in Mixtec.

(98) *Context: Does Pedro eat meat?*

U'un, inta **yibá** shíshi rà __
no only vegetables eats he
'No, he only eats **vegetables**'

Under the hypothesis proposed in the previous chapter, this is because Alternative Particles are attracted to a preverbal position, which causes the focus that they associate with in their c-command domain to also move.

(99) Movement of Alternative Particle

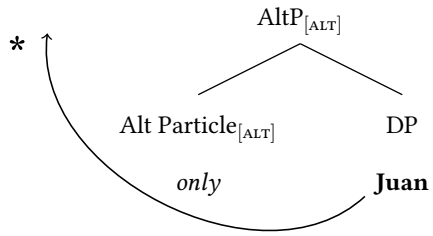


If this account is on the right track, then it is the Alternative Particle that undergoes movement, rather than the constituent that is interpreted as the focus. In this subsection, I describe three specific predictions that help us distinguish between these two analytical possibilities. In each case, I argue that the empirical data supports the hypothesis that it is Alternative Particles, not foci, that are targeted for movement in SMPM.

Prediction 1: No stranding of Alternative Particles

The main way that this account differs from many previous accounts of focus displacement is the placement of the feature that is entering into an Agreement relationship. Many previous accounts argue that constituents in focus bear a formal feature which triggers their movement. Under this view, we might expect foci to be able to move and strand the Alternative Particle that associates with them in-situ. Under the account proposed in the previous chapter, however, we expect that foci will not be able to strand Alternative Particles.

(100) Focus Movement cannot Strand Focus Particles



As predicted, stranding an Alternative Particle is never possible in Mixtec.

(101) a. *U'un **yibá** **yá** shíshi Pedro inta __
no vegetables NEUT eats P. only
Intended: No, Pedro only eats VEGETABLES.

b. *U'un **ñá maéstra ñá** ka'an inta __ tu'un sá'á
no CL teacher she speaks only language Spanish
Intended: No, only the **teacher** speaks Spanish.

Under an account where semantic foci are directly targeted for movement, then this fact would require an additional stipulation that foci must always pied-pipe particles that are sensitive to the alternatives that they generate.

There is, however, another explanation for the ungrammaticality of (101). As noted by Tancredi (1990), Aoun and Li (1993), and Beaver and Clark (2003), among others, *only* generally cannot associate with the trace of a moved constituent. Consider for instance, (102). Though *only* can associate with *chocolate* (102a), it cannot be interpreted as being associated with *the guy* (102b), which originates in its scope but is moves as part of a relative clause.

(102) Kim is [the guy]$_i$ who Sandy says she only gives __$_i$ chocolate.

a. *'Kim is the guy such that Sandy says she gives him and nobody else chocolate.'

b. ✓'Kim is the guy such that Sandy says she gives him chocolate and nothing else.'

Beaver and Clark (2003): 345

Similar data are discussed by Aoun and Li (1993), who show that the same restriction holds for Mandarin

(103) *Ta zhi xihuan $\_\__i$ de nage ren$_i$
he only like DE that man
Intended: the man that he only likes Aoun and Li (1993): 206

This generalization—that *only* cannot associate with a trace—is codified by Tancredi (1990) as (104):

(104) **Principle of Lexical Association**:
An operator like *only* must be associated with a lexical constituent in its c-command domain.

Tancredi (1990): 30

However, while this descriptive generalization seems to hold for *only* it doesn't hold for all Alternative Particles. For instance, Erlewine (2014) argues that *even* is able to associate with a lower copy of a moved element based on the fact that it can associate with the subject.

(105) a. ✓A **professor** is even ⟨a **professor**⟩ at the party.
b. *A **professor** is only ⟨a **professor**⟩ at the party. Erlewine (2014): 129

Moreover, Beaver and Clark (2003) note that *always* seems to have a more flexible association than *only*. Unlike *only*, *always* can associate with a focus outside of its c-command domain that has undergone movement (see also Krifka, 1992, 233-234).

(106) Kim is [the guy]$_i$ who Sandy says she always gives __$_i$ chocolate.

a. ✓'Kim is the guy such that Sandy says she gives him and nobody else chocolate.'

b. ✓'Kim is the guy such that Sandy says she gives him chocolate and nothing else.'

Beaver and Clark (2003): 345

Thus, it is important to show that the restriction against stranding an Alternative Particle is not a unique property of *inta*, but instead is a more general restriction in the language. Indeed, stranding *ntsya* is also ungrammatical.

(107) *Context: We are rushing to make a lot of tortillas before a party. Everyone is helping, even Pedro, who famously hates cooking. My son starts to complain that he doesn't want to help anymore. In order to encourage him to keep working I say:*

*__Pedro__ chintsié ntsya __ yé
P. helps even us.INCL
Intended: Even __Pedro__ is helping us!

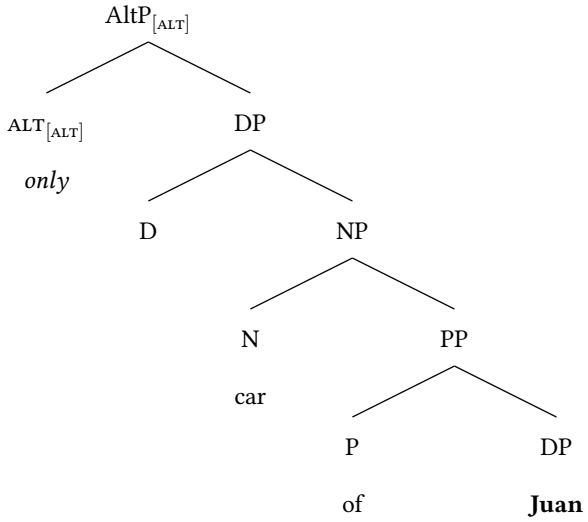
This suggests that stranding of Alternative Particles is not possible in the language and that the ungrammaticality of (101) is not due to an independent restriction on the ways that exhaustive particles associate with foci.

Prediction 2: Focus pied-piping

Second, recall that Alternative Particles must have an alternative generating element within their scope due to semantic requirement: these particles require alternatives as part of their semantic composition. Because the relationship is not one of selection, there is no requirement that the focus be the sister of the Alternative Parti-

cle. Consequently, we predict that constituents larger than a particle and its associated focus should be able to move. For instance, if an Alternative Particle takes a possessive DP as a sister (with a focused possessor generating alternatives), we expect that entire possessive DP to be able to move to a preverbal position.

(108) Can Be Targeted for Movement



This, indeed, is the case. An Alternative Particle can attach to a possessive DP and associate with a focused possessor. In this case, the entire possessive DP moves when the particle is targeted for movement.

(109) a. U'un, inta kárro ñà'ă **Juan** tŭn nitsivi
no only car POSS J. WOOD broke.down
'No, only **Juan**'s car broke down.'

b. Inta chele sànà **Pedro** rí kàna
only rooster POSS.AML P. AML crow
'Only **Pedro**'s rooster was crowing.

c. Inta sè'e **Maria** yá kú'u
only child M. NEUT sick
'Only **Maria**'s child is sick.'

The same reasoning can explain other cases of focus pied-piping. For instance, overt Alternative Particles can also take PPs as their complement, as long as there is a focus within the complement of the preposition. Once again, this will cause the entire constituent that is sister to the Alternative Particle to front, even if only the complement of the preposition is focused.

(110) a. Inta ndà'ă **Maria** ñá tàshi íí rí
only to M. she gave.I one AML
'I only gave one (apple) to **Maria**.'

b. Inta nùhu **Maria** nìna'=ì fóto ña'=ì
only to M. showed=I photo POSS=I
'I only showed **Maria** my photo.'

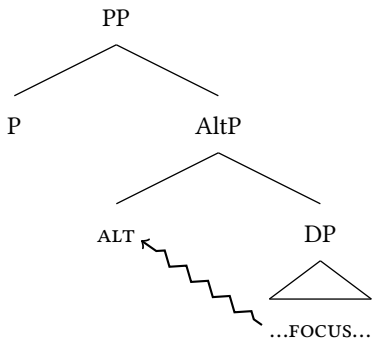
c. Inta chishí **mésa** nàndik=ì ñà
only under table searched=I NEUT
'I only looked for it under the **table**'

Given that preposition stranding is generally possible in Mixtec, we also correctly predict that an Alternative Particle that is the complement of a preposition should be able to front and strand the possessive preposition in situ.

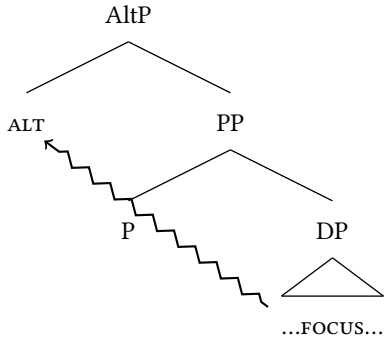
(111) U'un, inta **Juan** nitsivi kárro ñà'ă
no only J. broke.down car POSS
'No, only **Juan**'s car broke down.'

Following the analysis of Alternative Particles introduced in the previous chapter, I argue that the difference between pied-piping and preposition stranding has to do with the structural position of the Alternative Particle. Because the particle is targeted for movement, if it is merged locally with the focus that it associates with as a complement to the preposition, then the preposition will be stranded in situ (112). If, however, the particle associates with a focus across a preposition, then both the preposition and the focus will move when the phrase headed by the particle moves.

(112) Preposition Stranding



(113) Pied-Piping



Because either configuration is structurally possible, the target for movement will either include or exclude the preposition.

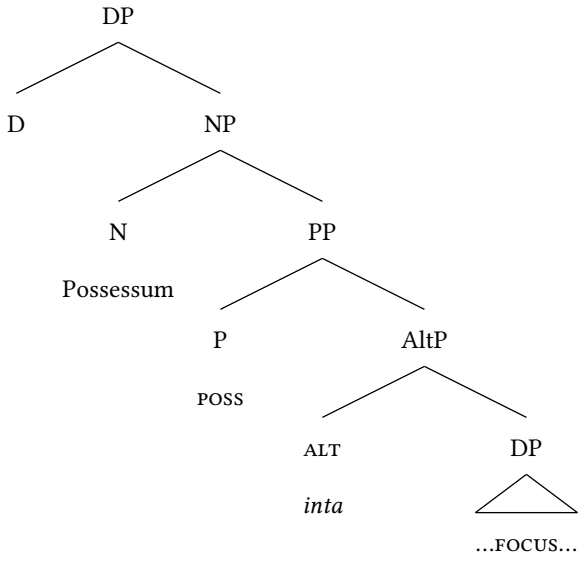
Moreover, because the Alternative Particle simply needs an AGE somewhere within its scope in order to be properly interpreted, we correctly predict that movement of an Alternative Particle should be able to pied-pipe even larger constituents, such as entire relative clauses, as long as there is a focus somewhere within the relative clause for the Alternative Particle to associate with.

(114) [Inta kwì'i táshin **nána** rà lo'o yo'o] sháshi rà __
only fruit gives mother he small here eats he
'This boy only eats the fruit that his **mother** gives him.'

Prediction 3: Alternative Particle will c-command entire pied-piped constituent

A third prediction made by this analysis is that the Alternative Particle will c-command the entire pied-piped constituent. This is because *inta* is the head that bears a formal movement feature, and all pied-piped material will be contained within the phrase that it projects. Thus, according to this analysis, only something in the specifier of the AltP could precede *inta* when it is fronted. Because I do not assume that there is any method of feature projection, there is no way that an embedded AltP headed by *inta* could pied-pipe a head that takes it as a complement. So, an AltP that is selected as the complement of a possessive preposition should not be able to pied-pipe a possessum (115).

(115) Cannot Be Targeted for Movement



Importantly, in order to test this prediction, we first need to ensure that an Alternative Particle can indeed intervene between a possessum and a focus possessor. Indeed, this is possible, in which case the Alternative Particle and its associate will front to a preverbal position.

(116) [Inta **Juan**] nitsivi kárro ñà'ă __
only J. broke.down car POSS
'Only **Juan**'s car broke down.'

Given this possibility, the crucial test case is whether the entire possessive DP can front when the Alternative Particle intervenes between the possessum and the possessor. Under an analysis where the Alternative Particle is the target for movement, this should not be possible. However, if semantic foci were in fact the target for movement (and there was a separate operation such as feature percolation that triggers pied-piping), then we would predict that this should be possible.

As predicted by the Alternative Particle analysis, the entire possessive DP can never move when the overt Alternative Particle is properly contained within the pied-piped constituent.

(117) a. *[Karro ñà'ă inta **Juan**] nitsivi __
car POSS only J. broke.down
Intended: Only **Juan**'s car broke down.

b. *[Sè'e inta **Maria** yá] kú'u __
child only M. NEUT sick
Intended: Only **Maria**'s child is sick.

The same restriction applies to pied-piping of prepositions: an overt Alternative Particle that is the complement of a preposition can never pied-pipe that preposition.

(118) a. *[Nùhu inta **Maria**] nìna'=ì fóto ña'=ì __
to only M. showed=I foto POSS=I
Intended: I only showed **Maria** my photo.

b. ??[Ndà'ă inta **Maria** ñá] tàshi íí rí
to only M. she gave.I one AML
Intended: I only gave one (apple) to **Maria**

c. *[Chishí inta **mésa**] nàndik=ì nà __
under only table searched=I NEUT
Intended: I only looked for it under the **table**

Thus, the problem with (118) is not that the phrase headed by *inta* cannot be a complement of a preposition—it can. However, the generalization emerges that *inta* will always c-command the entire pied-piped constituent. Put differently, *inta* will never move when it is properly contained within the pied-piped constituent. So, (118) is ungrammatical because it involves illicit movement of a DP that is not targeted for movement by any probe. In other words, the probe that fronts Alternative Particles cannot front this possessive DP, because a DP that contains an Alternative Particle does not bear the feature necessary for movement.

3.4.2 Generalizing displacement of foci

The evidence from overt Alternative Particles strongly suggests that focus pied-piping is triggered when Alternative Particles undergo movement. When the Alternative Particle takes an entire possessive DP or PP as its complement, then these constituents will front along with the Alternative Particle. If, however, it takes a possessor or an object of a preposition as its complement, then possessors and prepositions will remain in-situ because they are not contained within the AltP that is targeted for phrasal movement.

However, pied-piping of foci is also possible in cases with no overt Alternative Particle (e.g. information foci, contrastive foci, and corrective foci). Consider, for instance, (119) which demonstrates movement of entire DPs when only a subpart is semantically focused.

(119) a. [chútu **yátá** kân] kóto=ì
cat old DEM like=I

'I like that **old** cat.'

b. [rà **kân** rà] kìsha kwi'iná shù'=ì
he DEM he came stole money=my
'**That** man stole my money.'

Moreover, focused possessors can also pied-pipe possessa even in cases with no overt particles.

(120) a. [Táta **Natalia** rà] kayan __
father N. he collected
'**Natalia**'s father collected (mushrooms)'

b. [Ntána ñà'ă **Juan** yá] nìta'vi __
window POSS J. it broke
'**Juan**'s window broke.'

c. [Chele sànà **Juan** rí] kána __
rooster POSS.AML J. AML crows
'**Juan**'s rooster is crowing.'

Finally, movement of foci that appear in the complement of a preposition behave the same as when they are not associated with an overt Alternative Particle. Foci can move alone, stranding the preposition (121), or they can pied-pipe the preposition when they move (122).

(121) a. **Itŭn** nàsé'e rà sàtă __
tree hid he behind
'He hid behind a **tree**.'

b. U'un, **Maria ñá** sàna'=ì ñà nùhŭ __
no M. she showed=I NEUT to
'No, I showed it (a photo) to **Maria**.'

(122) a. [Nda'a **Marta**] tàsh=on íín ntsìkă __
hand M. gave=you one banana
'You gave a banana to **Marta**.'

b. [Sàtă **itŭn**] nàsé'e rà
behind tree hid he
'He hid behind a **tree**.'

c. [Chishí **vè'e**] nàsé'=ì ñà
under house hid=I NEUT
'I hid it (a coin) under the **house**'

d. [Nùhŭ **Maria**] sànáʼi ñà
to M. showed=I NEUT
'I showed it (a photo) to **Maria**.'

Thus, when comparing the behavior of focus displacement with overt Alternative Particles and no overt Alternative Particle, we see similar behavior. In both cases, more material than the semantic focus can be displaced. The types of non-focussed constituents that front can be the same (possessa and prepositions), and both allow stranding. Consequently, in order to generalize all types of focus movement in SMPM, I propose that the language has in its syntactic inventory a segmentally null Alternative Particles that can associate with several types of foci, including information, comparative, and corrective foci.

This generalization is theoretically desirable, as it allows us to avoid positing two distinct mechanisms for pied-piping in the language. That is, if we accept that pied-piping occurs in cases with overt Alternative Particles precisely when the particle c-commands more than just the semantic focus, then the simplest way to account for pied-piping without overt particles is posit a similar mechanism. The alternative—proposing a separate pied-piping mechanism in the grammar to account for cases with no overt particle—is theoretically undesirable, absent direct evidence to support it. Moreover, in the case of SMPM, we see that the pied-piping possibilities are the same in cases with and without an overt particle, so there is no empirical motivation to propose a difference between them.

Moreover, while this particle is segmentally null, I will propose in the following

section that we can find a prosodic trace of it. Specifically, I will show that the prosodic realization of fronted foci supports the claim that this segmentally-null particle is associated with a tone, which can affect the tonal realization of fronted foci.

However, before introducing this tonal account of null Alternative Particles, I first embark on an extended investigation into the prosody of focus in SMPM in the following section. After establishing the empirical generalization of the prosody of fronted foci in §3.5.1, I use this to provide additional arguments in favor of a syntactic account of focus movement in the language. That is, I argue against a possible alternative account to explain the pattern of focus displacement in Mixtec: one where foci move post-syntactically to a position of prosodic prominence. In particular, I show that foci do not move in the language in order to be realized with a particular prosody. They do not surface in a distinct prosodic position from other fronted constituents (§3.5.2), nor is there evidence that a "default" prominence is shifted onto them (§3.5.3). Instead, I argue that the prosodic signature of fronted foci is due to a tonal interaction with the segmentally-null focus sensitive particle.

3.5 The prosodic realization of focus in Mixtec

Recall from chapter 1 that foci are phonologically prominent in many languages. Thus, another common explanation for focus displacement is that it is a primarily a prosodic phenomenon. That is, displacement happens post-syntactically in order to situate foci in a position of prosodic prominence, either the position of default phrasal prominence or at the edge of some prosodic boundary. In this section, I will demonstrate that this is not a viable alternative hypothesis to explain focus displacement in Mixtec. I do this through an extended investigation into the prosody of focus in SMPM, and particular arguments against a prosodic movement account.

It is important to consider this possibility because much work has explicitly claimed

that focus displacement to that does not trigger an exhaustive interpretation should be explainable by prosodic means (Fanselow, 2006, 2008; Horvath, 2007). Under this view, foci sometimes move for semantic reasons (i.e. they are in the scope of an exhaustivity operator) or phonological reasons (i.e. to land in the place of default phrasal stress), but never for purely syntactic reasons. Recall from chapter 1 that one motivation for this typology of focus movement is that it would allow us to remove direct reference to information structure notions such as focus from our theory of syntax.

Before considering this possibility in more depth, it is worth stressing again that the theory of Alternative Particle movement presented in Chapter 2 *already* allows us to dispatch with direct reference of foci in the syntax. This is because, instead of targeting context-dependent foci, Agreement (and thus movement) targets a lexical class of particles which are sensitive to focus alternatives. Nonetheless, it is important to consider the prosodic realization of foci in Mixtec, in order to rule out the possibility that there is a prosodic motivation for their displacement. Moreover, as I will argue in this section, investigating the prosody of focus gives us some independent evidence to support the claim that all focus movement is driven by Alternative Particles, even in cases where there is no segmental realization of the particle. This is because the pattern of focus prominence supports the hypothesis that the "neutral" Alternative Particle in Mixtec has a tonal realization, which can trigger tonal effects on the preceding word.

This subsection is organized as follows. First, in §3.5.1 I will demonstrate that some (but, crucially, not all) displaced foci can be distinguished prosodically from other preverbal constituents. Then in §3.5.2, I will use two diagnostics—tone sandhi and phrase final lengthening—to argue that this prosodic effect is not due to the insertion of a prosodic boundary between the fronted focus and the verb. Then, in §3.5.3, I will argue against the hypothesis that this prominence represents a "default" phrasal

prominence that falls on the focus because it cannot fall on the rest of the sentence due to givenness. Finally, in §3.5.4, I will argue that the prosodic realization of focus in Mixtec is best analyzed as a tonal realization of a segmentally null focus sensitive particle.

3.5.1 Some foci are prominent relative to other fronted constituents

In order to determine the prosodic realization of fronted foci, it is necessary to compare the pronunciation of the same word in two contexts: as a fronted information focus and as a fronted constituent in a context where it is not an information focus. As we have seen, information foci must front to a preverbal position (123). In addition, it is possible to scramble the subject or the object in a response to a broad focus question, that is, a question that elicits all-new information (124).

(123) *Context: What did Ana give Juan?*

Chìchí tàshin ñá ndà'ă rà
avocado gave she to him
'She gave him an **avocado**.'

(124) *Context: What happened today?*

Chìchí tàshin Ana ndà'ă Juan
mushroom gave A. to J.
'Ana gave an avocado to Juan.'

Comparing the boxed words in these two contexts is illustrative because we can compare the pronunciation of the exact same word in the exact same linear position with respect to the verb. Consequently, when measuring pitch, we are able to avoid potential confounds associated with general phonetic factors such as declination. Moreover,

because these words can be distinguished based on their information structural status (one is an information focus and the other is not), directly comparing them should tell us what effect this property has on pronunciation, if any.

To make this comparison systematically, I chose 36 target words with various tone melodies and elicited them in sentences structures of the same shape as (123) and (124). All target words were bisyllabic[9] and were elicited as the direct object in a ditransitive construction. I would orally ask either a wh-question or a broad focus question in Mixtec, and would then show a picture representing a giving event between two individuals, with a picture of the target word in the middle. The consultant would then answer with the appropriate response. Sentences were held constant except for the target words and the proper names of the two individuals. I recorded twelve repetitions of each target word as a focus and twelve repetitions of each target word in a broad focus context, resulting in a total of 864 observations.[10]

Figure 3.1 and Figure 3.2 plot the normalized pitch through the time course of each vowel in the bisyllabic target words, separated by tone type. Figure 3.1 shows the realization of low, mid, and high tones in word initial position, and Figure 3.2 shows the realization of low, mid, rising, and high tones in word final position.[11]

The results show a pattern of asymmetric prominence in the language. High tones are significantly raised in pitch in word final position (boxed column). This raising effect is equivalent to roughly half the difference between level tones. There is also a statistically significant raising of pitch in word-initial low and mid tones, but this effect

[9]Roots in Mixtec languages are minimally bisyllabic or bimoraic. This is often referred to as the couplet in the Mixtecanist literature (Pike, 1948; Macaulay and Salmons, 1995, a.m.o.).

[10]4 of the repetitions were done with 4 distinct speakers living in Ahuejutla Mexico, and the other 8 repetitions were done by a single speaking originally from Ahuejutla that currently lives in California. The 8 repetitions done by the California speaker were done during 8 separate elicitation sessions over the course of several months, interspersed between other elicitation activities.

[11]I did not investigate falling tones or rising tones in initial position because they are less frequent in the language. Initial rising tones are used to signal certain grammatical distinctions (Eischens, 2021b), but are less frequently used as lexical tones.

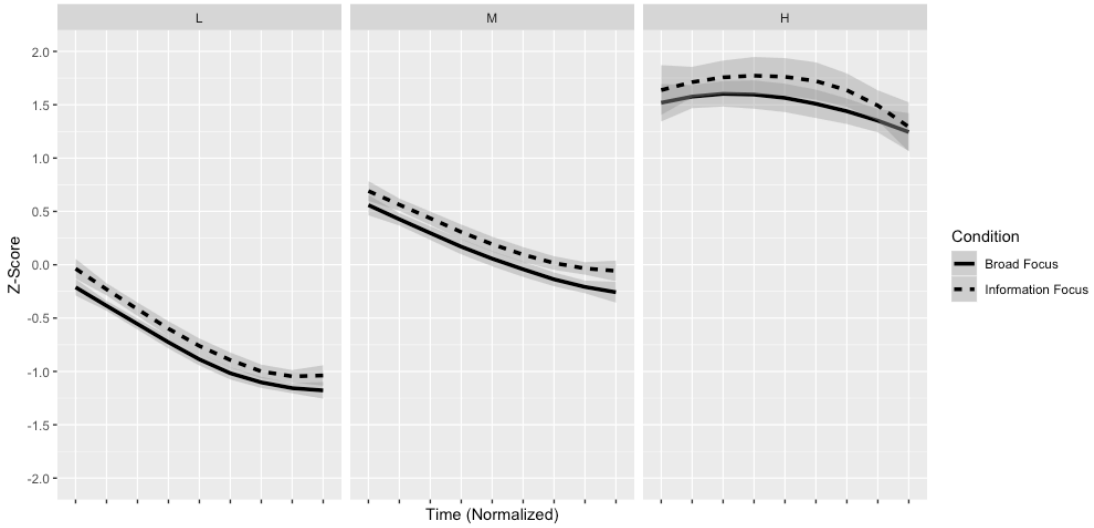


Figure 3.1: Pitches of Word Initial Tones

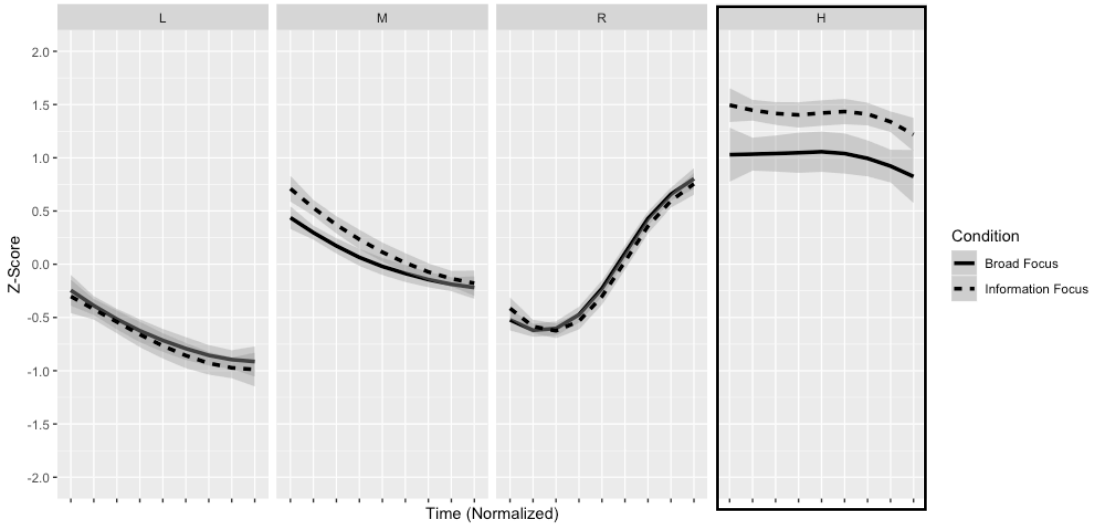


Figure 3.2: Pitches of Word Final Tones

is much smaller and it seems much less likely that this difference is even perceptible. There was no significant length difference between fronted foci and fronted non-foci for any tone.

Thus, San Martín Peras Mixtec displays a highly targeted pattern of prominence. Only the final vowel of a fronted focus is affected, and only if that vowel bears a high tone. This pattern is important because it means that only a subset of fronted foci are prosodically distinguished from fronted non-foci. Specifically, if a fronted focus does not bear a final high tone, then there is no sense in which it is prosodically "prominent." Concretely, the boxed words in (125) and (126) are not prosodically distinct from one another when considering their pitch or length because they don't bear a word-final high tone.

(125) *Context: What did Gloria give Francisco?*

Yùkù tàshin ñá ndà'ă rà
leaf gave she to him
'She gave him a **leaf**.'

(126) *Context: What happened today?*

Yùkù tàshin Gloria ndà'ă Fransisco
leaf gave G. to F.
'Gloria gave a leaf to Fransisco.'

This asymmetric pattern strongly suggests that foci are not moved to this position *in order* to be made prominent. Specifically, the prosodic analysis would offer no clear explanation for why *all* foci must be displaced, regardless of tonal melody, if only some displaced foci are prosodically prominent. Furthermore, this asymmetric pattern show that the preverbal position is not an inherently prominent position in the language.

3.5.2 Foci are not at a prosodic boundary

Despite the fact that many fronted foci are not distinguishable from other fronted constituents in terms of pitch or length, it is still worth investigating whether they can be distinguished by some other prosodic means. For instance, Féry (2013) proposes that foci universally surface at the edge of some prosodic constituent, most often an intonational phrase or a phonological phrase. This is the case, for instance, in Italian. Here Féry (2013), following Truckenbrodt (1995) and Samek-Lodovici (2005), argues that the focused subject in (128) is displaced to the right edge of the intonational phrase, where it receives the final nuclear accent.

(127) *Context: What happened?*

(Gianni ha RISO)$_{\iota}$
G. has laughed
'Gianni has laughed.'

(128) *Context: Who has laughed?*

(Ha riso **GIANNI**)$_{\iota}$
has laughed G.
'**Gianni** has laughed.' Féry (2013): 694

In this case, Féry argues that *Gianni* is not prominent because it is a focus, *per se*. Rather, its status as a focus forces it to be aligned to the right edge of an intonational phrase, where it happens to receive the nuclear accent. Thus, under one interpretation of these facts, this movement is "prosodically-motivated;" it occurs in order to achieve a desired prosodic realization of foci. Zubizarreta (1998) offers a similar analysis to account for sentence final foci in Spanish.

I assume a version of the Prosodic Hierarchy proposed in (Ito and Mester, 2012), with only three distinct higher-level prosodic domains: the prosodic word (ω), the

phonological phrase (φ) and the intonational phrase (ι) (Selkirk, 1978; Nespor and Vogel, 1986).

(129)

ι — Intonational Phrase
|
φ — Phonological Phrase
|
ω — Prosodic Word

These categories correspond, for the most part, to the syntactic categories of X^0, XP and CP, respectively, though mismatches can be triggered by prosodic markedness constraints (Selkirk, 2011). Following many others in the literature, I assume that these categories allow for recursion, and that boundaries at different depths of recursion can potentially impose different phonological restrictions (Ladd, 1986; Ito and Mester, 2012; Elfner, 2015; Elordieta, 2015, a.o.).

So, if we found that fronted foci displayed some correlate of being at the edge of a prosodic domain, such as an intonational phrase, then we might consider them "prominent" in some sense, even if this prominence is not always perceptible in terms of pitch or length. Furthermore, we could plausible propose that the need to appear in this prosodically prominent position is the reason that foci displace in the language.

(130)

$(\cdots \overset{\downarrow}{\text{FOC}})_\iota \quad (\cdots \overset{\downarrow}{\text{—}} \cdots)_\iota$

I assume, given that constituents are fronted in both wh-answers and answers to broad focus questions, that the left edge of some prosodic domain cannot be the crucial edge to which the focus has to be aligned in Mixtec (as it is in some other languages).

If the left edge did trigger prominence, then we would expect the same prominence pattern on correlates of wh-words and fronted objects in broad focus answers, as they are both left-most in the sentence. Instead, one might posit an intonational phrase boundary between the fronted correlate of a wh-word and the verb, allowing the right edge of correlates of wh-words to be aligned to an *ι*P, which in turn would trigger pitch raising on high tones (131a). Crucially, under this account, there would be no such boundary between broad focus fronted constituents and the verb (131b).

(131) **Phrasing To Be Rejected**

a. *Context: What did Mariana give Bernardo?*
(**Chìchí** ↑)*ι* (tàshin ñá ndà'ă rà)*ι*
avocado gave she to him
'She gave him a **avocado**.'

b. *Context: What happened today?*
(Chìchí tàshin Mariana ndà'ă Bernardo)*ι*
avocado gave M. to B.
'Mariana gave Bernardo an avocado.'

On this approach, the difference between fronted objects in broad focus constructions and information foci would be a difference in prosodic phrasing—information foci would be aligned to the right edge of an intonational phrase while broad focus answers would not. This difference in prosodic phrasing, if found, could perhaps reflect a difference in the syntactic positions to which they move, which in turn could be mapped to a different prosodic structure. Under this view, the prominence realized the final high tone on information foci would be a default prominence that occurs on all intonational phrases.

In this subsection, I will argue against this hypothetical phrasing by using two diagnostics—tone sandhi and final lengthening—to determine intonational phrase bound-

aries in the language. I will argue that both of these diagnostics suggest that correlates of wh-words are not followed by an intonational phrase boundary.

Tone sandhi

In SMPM, some adjectives that normally begin with a high tone will instead begin with a rising tone if preceded by a low tone.[12] This can be seen, for example, with the adjective *ká'no*, which undergoes this sandhi process after a noun that ends in a low tone (132a), but not after a noun that begins in a mid tone (132b).

(132) a. Shìnì kînì k**ǎ**'no
saw.I pig big
'I saw the big pig'

b. Shìnì leso k**á**'no
saw.I rabbit big
'I saw the big rabbit'

Despite being a general process of the language, this tone sandhi rule is systematically blocked when the noun and adjective are separated by a clause boundary—it does not apply, for instance, between a matrix subject and an embedded adjectival predicate, even when the conditioning environment is seemingly satisfied. This is apparent from the pitch track in Figure 3.3, which shows a representative pitch track of (133).

(133) Ká'án kînì [k**á**'no itũ]$_{CP}$
think.CONT pig big tree
'The pig thinks that the tree is big.'

Assuming that tone sandhi in (133) is blocked due to a prosodic boundary, we

[12]Moreover, as shown by Eischens (2021d), this tone sandhi process is only triggered when the high tone is docked on a low vowel that is laryngealized.

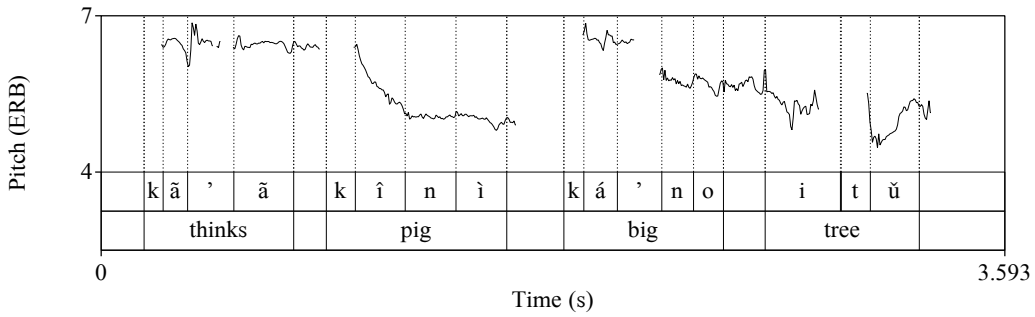


Figure 3.3: Tone sandhi doesn’t apply across clause boundaries

can leverage this fact to test the hypothesis that an intonational phrase boundary intervenes between fronted information foci and the verb. If there is a boundary here, then we expect that tone sandhi will be blocked between an information focus and an adjectival predicate. However, contrary to this prediction, tone sandhi is *not* blocked between and information focus and an adjectival predicate, as can be seen in the pitch track in Figure 3.4.

(134) *Context: What is big?*

Kînì kǎ’no
pig big
‘**The pig** is big.’

This lack of a blocking effect strongly suggests that there is no intonational phrase boundary in between the correlate of the wh-word and the following verb, casting doubt on an analysis that relies on alignment to a *ι*P boundary to account for the prosodic differences between answers to different questions.

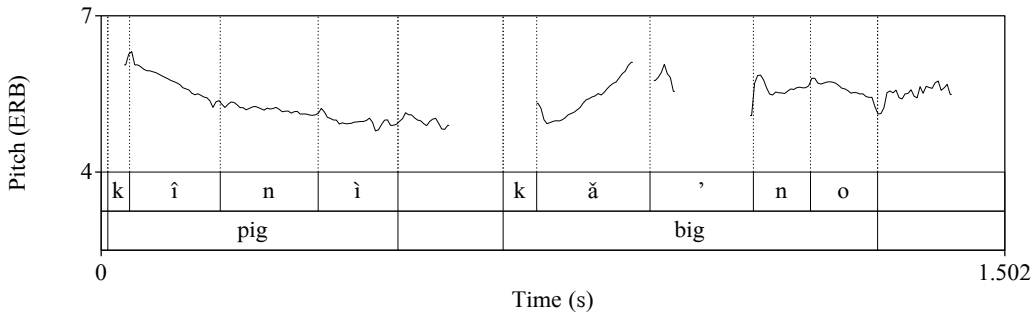


Figure 3.4: Tone sandhi applies between focus and predicate

Final lengthening

Another reliable cross-linguistic diagnostic for intonational phrase boundaries is vowel lengthening (Wightman et al., 1992; Klatt, 1976; Oller, 1973, a.o.), a phenomenon known as phrase-final lengthening. In the previous subsection, I used tone sandhi to suggest that there is an intonational phrase boundary between matrix subjects and embedded verbs. If this blocking effect is truly due to a prosodic boundary, then we should also see phonetic effects in this position, such as lengthening.

To test this prediction, I compared the length of the final vowel of the matrix subject when it is unmodified—which by hypothesis is at a prosodic boundary (135a)—to when it is modified by a post-nominal adjective (135b), which should push the noun away from that boundary.

(135) a. (Ka’an tsìnà)$_\iota$ (àhsǐ kôñù)$_\iota$
thinks dog tasty meat
‘The dog thinks that meat is tasty.’

b. (Ka’an tsìnà lo’o)$_\iota$ (àhsǐ kôñù)$_\iota$
thinks dog small tasty meat
‘The small dog thinks that meat is tasty.’

If there is an intonational phrase boundary between the matrix subject and the embed-

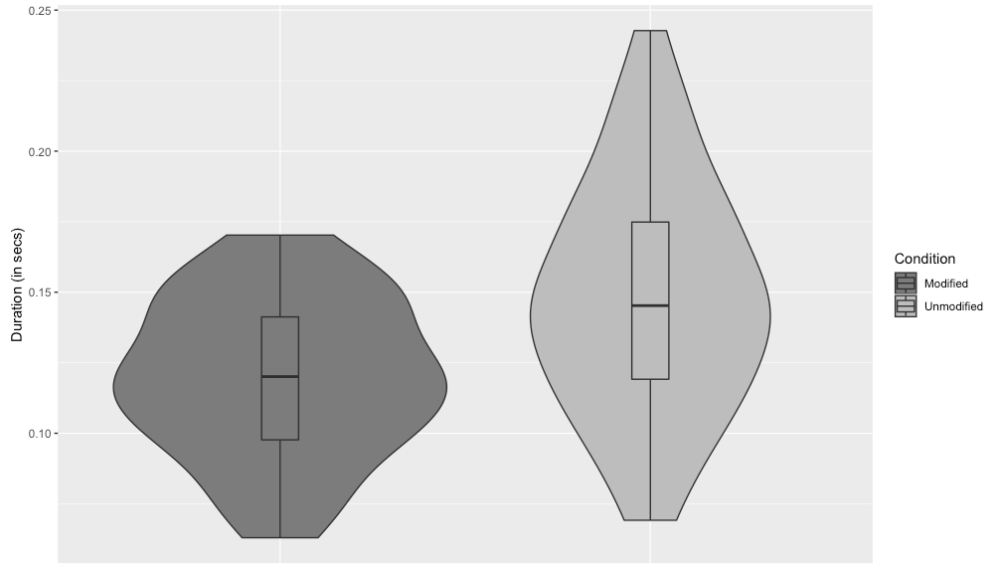


Figure 3.5: Vowel lengthening at clause edge

ded predicate, then we expect the final vowel to be lengthened when it is unmodified, as compared to when it is modified.

To test this, I recorded one speaker producing 24 sentences like (135a) and 24 sentences like (135b), in order to test the length of the final vowel of the noun. As predicted, the final vowel of the unmodified matrix subject is significantly lengthened as seen in Figure 3.5, by an average of ≈28 ms. This represents an average increase in duration of 23%. This finding provides convergent evidence that there is an intonational phrase boundary between matrix and embedded clauses. Here, the distribution of durations is represented as a violin plot: a box plot with a mirrored density plot on each side. The median is represented with a horizontal line, and each quartile of data is represented with a box or vertical line. Outliers are represented with dots. The mass between the curved lines and the midline of each plot represents the density of data at that point: the further the curved line from the mid-point, the more observations.

Given this, if information foci were at the right edge of an intonational phrase, then we would expect the same lengthening effect to be triggered on foci. Crucially, if

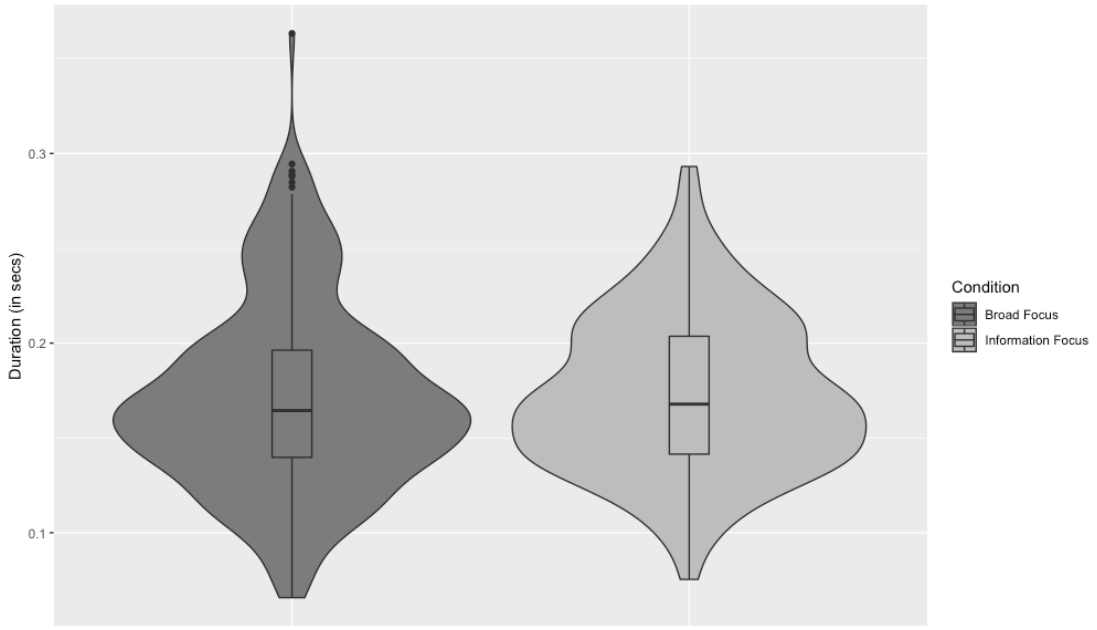


Figure 3.6: No vowel lengthening on fronted information foci

we assume that this boundary exists between foci and the predicate but not between other fronted constituents and the predicate, then we would expect to be able to detect this difference by comparing the length of the final vowel of foci and other fronted constituents.

To test this, I measured the length of the final vowel of fronted information foci with fronted constituents in a broad focus context. Comparing the duration of the final vowel of fronted constituents across the two contexts reveals that there is no significant difference (Figure 3.6). This provides additional strong evidence that the difference between these two prominence patterns is not due to an intonational phrase boundary.

3.5.3 Focus prominence is not "default" prominence

The generalization that information foci are prosodically prominent has been shown to hold in many languages besides English (see Büring, 2009, for a recent survey), but key questions remain up for debate. First, there is debate about whether "information foci" (i.e. correlates of wh-words in responses to wh-questions) should even be considered a type of focus. Though answers to wh-questions are canonically considered a type of focus (e.g. Rooth, 1992), this view has recently been challenged by Kratzer and Selkirk (2020). In that paper, the authors argue that there is no need to appeal to focus as a way of accounting for prosodic prominence on correlates of wh-words, and instead suggest that lack of givenness is a more appropriate notion. Under this hypothesis, information foci are prominent because they the only part of the sentence that is not already given in the context. It is well-established that in many languages, given constituents resist prominence, and are deaccented (Schwarzschild, 1999; Féry and Samek-Lodovici, 2006). According to this hypothesis, if the default intonational prominence would normally fall within a given constituent, it is shifted onto the non-given part of the answer. This shift forces the prominence onto the word that is new and not entailed by the context: the information focus.

In English, default sentence prominence falls on the head of the rightmost constituent (136a) (Chomsky and Halle, 1968; Bresnan, 1971). It is infelicitous for it to fall on other words in a neutral context (136b).

(136) *Context: What happened?*

a. My grandma made BROCCOLI.

b. #My GRANDMA made broccoli.

However, given constituents, which are entailed by the context, resist phrasal prominence (Schwarzschild, 1999; Féry and Samek-Lodovici, 2006)—pitch accents cannot fall

within the given constituent, even if we expect that word to receive default phrasal prominence (137a). Instead, prominence must fall outside of the given constituent (i.e. on the new information contributed by the response) (137b).

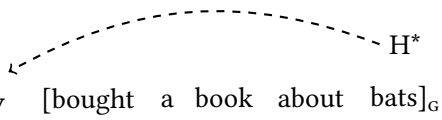
(137) *Context: Who made the broccoli?*

a. #My grandma [made the BROCCOLI]$_{\text{GIVEN}}$

b. My GRANDMA [made the broccoli]$_{\text{GIVEN}}$

Thus, one way of formalizing the need for new information to be prosodically prominent in languages like English is to say that default prominence is "shifted" from the position where it would normally occur onto some constituent that is not given.

(138) *Context: Who bought a book about bats?*



Importantly, when the non-given constituent is a phrase, the pitch accent falls on the word and syllable within that phrase that would normally receive default phrasal prominence (i.e. the head of the rightmost constituent) (139a) (Jackendoff, 1972; Chomsky, 1971). It cannot fall on any other word within the non-given constituent (139b)

(139) *Context: Who made the broccoli?*

a. My grandma from NORWAY [made the broccoli]$_{\text{GIVEN}}$

b. #My GRANDMA from Norway [made the broccoli]$_{\text{GIVEN}}$

Thus, if prominence is "shifted," it must map onto a position that already has some word or phrase level prominence. This fact can be formalized using the Metrical Grid, specifically, the Continuous Column Constraint. This constraint requires that a grid

mark at the intonational level must be supported by a grid mark at the phrasal and word level.

(140) **Continuous Column Constraint**

A grid containing a column with a mark on layer $n + 1$ and no mark on layer n is ill-formed. Phonological rules are blocked when they would create such a configuration. Hayes (1995): 34

If a default intonational level prominence is shifted onto the non-given constituent, this constraint requires that it fall on the word that already has phrasal prominence (141a), creating a "continuous column". It cannot fall on a word that does not already have phrasal stress (141b), as this would create an intonational level prominence which is not "supported" by a lower phrasal prominence.

(141) a.

			x	ι
			x	φ
x	x	x	x	ω
My	grandma	from	NORWAY	

b.

	x			ι
			x	φ
x	x	x	x	ω
*My	GRANDMA	from	Norway	

In effect, this constraint forces a shifted intonational prominence to fall on a phrasal prominence, which must fall on a prominent word, etc. This constraint has been used, for instance, to explain patterns of stress-retraction in English (Hayes, 1995). This restriction forces the intonational level accent to shift to syllables that are already prominent in some sense.

Multiword correlates in SMPM

An important first step to determine whether this hypothesis can correctly predict the prominence pattern in SMPM is to establish the empirical pattern of prominence in multiword answers. This is crucial, because it allows us to determine if prominence is mapped onto an already prominent position, as in English. That is, can the prominence pattern in SMPM be explained simply with the Continuous Column Constraint? To that end, I elicited one and two word correlates of wh-words with final high tones, to determine patterns of prominence in larger constituents. I compared the production of tones in three positions: word-final high tones on adjectives, word final high tones on single nouns, and word-final high tones on nouns followed by an adjective. This pattern allows us to answer two questions simultaneously: (1) does raising affect all final high tones equally within the information focus?; (2) if only one high tone is affected, which one is raised?

As expected, final high tones in one word answers are raised (142a). However, in two word answers, only the absolute final high tone on the adjective undergoes raising. There is no raising on the noun, even if it ends in a high tone (142b).

(142) *Context: What fell on the ground?*

a. Tsyàká$^{\uparrow}$ nàkàvà nùhŭ nũ'ũ
fish fall.COMP face ground
'The fish fell onto the ground.'

b. Tsyàká ndu'ú$^{\uparrow}$ nàkàvà nùhŭ nũ'ũ
fish fat fall.COMP face ground
'The fat fish fell onto the ground.'

This effect is demonstrated in Figure 3.7. Here we see that high tones on nouns that are modified are produced significantly lower than high tones on nouns that are unmodified. This difference can be seen by comparing the dotted and dashed lines in

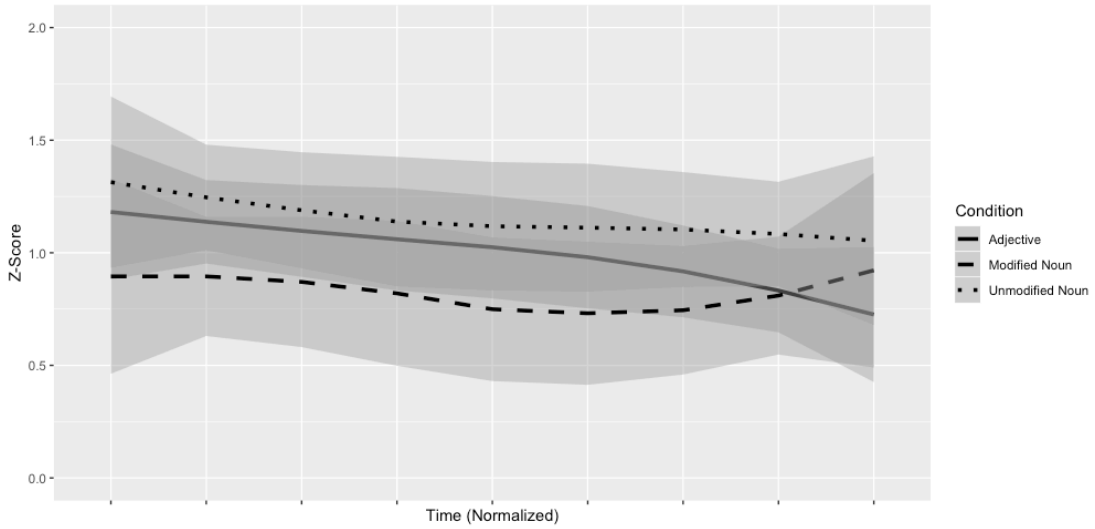
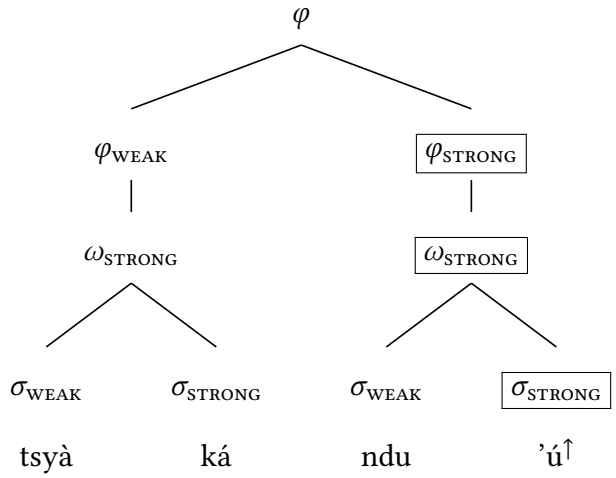


Figure 3.7: Final H Tone Pitch in Single and Multiword Phrases

Figure 3.7. Additionally, there is no significant difference between the pitch of high tones of unmodified nouns and adjectives, as can be seen by comparing the dotted and solid lines. Furthermore, high tones on adjectives are raised in pitch when compared to the nouns that they modify. Importantly, this is the opposite of what we would expect based on declination, as adjectives follow nouns in SMPM.

Thus, in order for the Continuous Column Constraint to account for this pattern, we expect to find evidence that adjectives are more prominent than nouns in default cases. This is because the Continuous Column Constraint predicts that prominence should be mapped onto an already prominent position. So, in order to confirm this hypothesis, we need to look for evidence for a prosodic structure as in (143), where each right sister is prominent with respect to the left sister.

(143) Hypothetical Prominence Pattern



Against right-headed prominence

In order to show that the SMPM is right-headed with respect to prosody, one would have to demonstrate two things: (1) the final syllable within the word is most prominent; (2) the rightmost word within the phrase is most prominent. If we indeed find this constellation of facts, then the hypothesis that a default stress is shifted onto a non-given constituent could straightforwardly explain why only the final syllable within the correlate of a wh-word receives prominence.

Some support for the first claim comes from DiCanio et al. (2018), who argue for fixed final stress in Yoloxóchitl Mixtec. However, it should be noted that the towns of San Martín Peras and Yoloxóchitl are roughly 100 miles apart in a region with a great diversity of languages. Additionally, in their typology of Mixtec stress patterns DiCanio and Bennett (2020) include seven languages with root-initial stress, as well as four with final stress and three with variable stress. So, despite the fact that some Mixtec languages have been argued to have final stress, there is no typological basis for claiming that is a common feature of Mixtec languages. More work needs to be

done to determine the stress pattern of SMPM.[13]

Despite the fact that it is plausible that SMPM might have final stress, I argue that there is no evidence that adjectives are more prominent than the nouns they modify in basic cases. That is, there is no evidence that the rightmost word within the phrase is most prominent. This makes it unlikely that prominence is mapped onto the final syllable of correlates of wh-words because it is an inherently prominent position. In fact, neither word appears to be more prominent, which may indicate that φ are unheaded in the language.

To support this claim, I elicited 64 sentences with a modified subject containing a noun and an adjective, both with final high tones, on the assumption that these form a syntactic constituent and thus likely form a prosodic constituent, presumably a φ.

(144) Shàhmi (yùtsí ihmí)$_{\varphi}$ rà lo'o
burn sand hot he small
'The hot sand burned the boy.'

I compared the realization of pitch of these two final high tones, and found no evidence that adjectives are more prominent. There is no significant difference in pitch between these two words, as can be seen in Figure 3.8

This pattern suggests that adjectives are not more prominent than the nouns they modify in default contexts. This, in turn, eliminates two possible explanations for the prominence of information foci that is present in SMPM. First, it suggests that

[13]It is possible that the general restriction of rising tones to word final position is indicative of final stress in the language. However, I don't think this is the only possible explanation. First, this is typologically common restriction (Zhang, 2004). Second, North and Shields (1977) describe a closely related variety of Mixtec that has no phonemic contour tones, but that has rising tones created when a word final low tone is adjacent to an initial low tone in the following word. All of the examples of words that the authors describe as undergoing this process in Silacayoapan Mixtec have an underlying rising tone in SMPM. And, in fact, there is a tone sandhi process in SMPM where rising tones are turned "back" into low tones before a high tone. Therefore, I hypothesize that rising tones in SMPM arose historically in the language as the fossilization of this tone sandhi process. If this hypothesis is correct, then it may offer an alternative explanation for why rising tones are restricted to final position, without appealing to word stress.

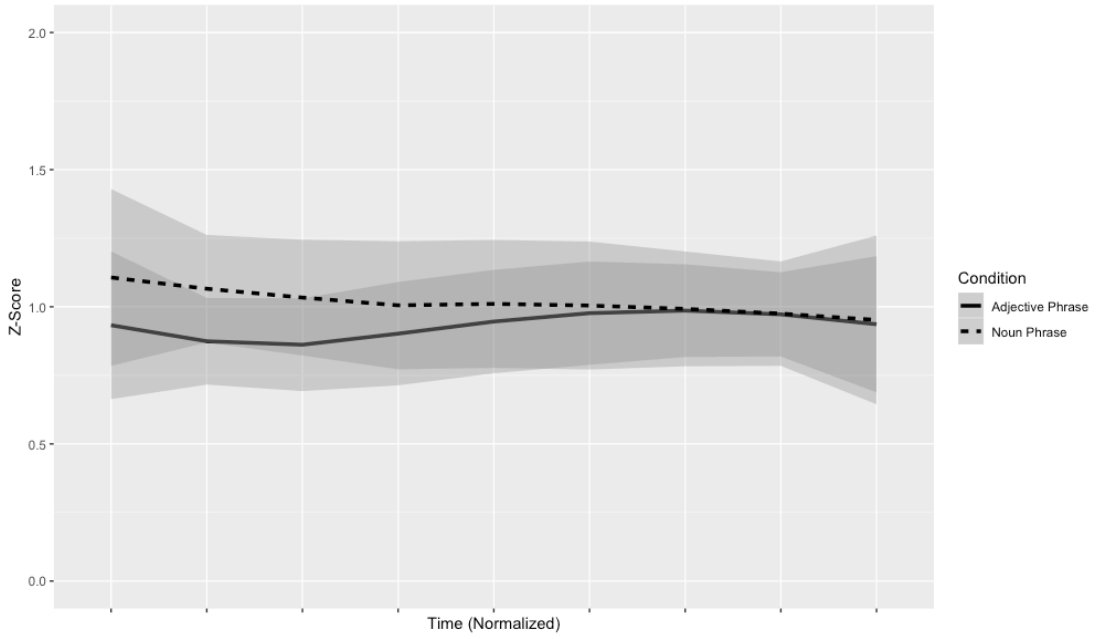


Figure 3.8: Relative H tone Pitch of Nouns and Adjectives in Neutral Contexts

prominence does not fall on the last syllable of a two word phrase because that position is inherently prominent. Additionally, it suggests that there is not raising of high tones at the edge of all φ in the language. These conclusions, together, cast doubt on at least one instantiation of a potential hypothesis where default prominence falls on the most prominent syllable of the non-given part of the answer. As there is no evidence that adjectives are more prominent than nouns in general, there doesn't seem to be a clear reason why prominence would only fall on the adjective in a two-word focus.

Against sentence final prominence

In the previous subsection, I argued that the prominence that we see on information foci is not mapped onto an inherently prominent position. I showed that there is no evidence that adjectives are more prominent than the nouns they modify in default cases, which in turn suggests that the edge of φ is not the triggering boundary for raising.

An alternative possibility is that prominence doesn't fall on the right edge of the correlate because that position is inherently prominent, but rather because prominence is aligned as far right as possible within the sentence. If this prominence cannot fall at the absolute right edge of the sentence because the word in that position is given, then it could be aligned as far right as possible. An analysis of this type could appeal to the interaction between two constraints: one which aligns prominence to the right edge, and one that prevents prominence from falling on given constituents. This would cause prominence to shift to the right edge of the wh-word correlate.

(145) a. HI: Align the right boundary of every ɪP with its head.

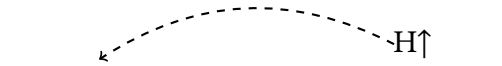
b. DESTRESS-GIVEN: A given phrase is prosodically non-prominent.

Féry and Samek-Lodovici (2006): 134-135

If DESTRESS-GIVEN is ranked above HI, then the prominence will fall as close to the right edge of the intonational phrase as possible, without falling on the given constituent. This is schematized in (146).

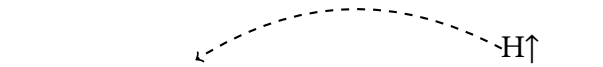
(146) *Context: What fell on the ground?*

a.



Tsyàká [nàkàvà nùhǔ nũ'ũ]$_{\text{GIVEN}}$
fish fell on ground
'The **fish** fell on the ground'

b.



Tsyáká ndu'ú [nàkàvà nùhǔ nũ'ũ]$_{\text{GIVEN}}$
fish fat fell on ground
'The **fat fish** fell on the ground'

This type of analysis analysis is proposed for Mandarin Chinese by Kabagema-Bilan et al. (2011) to account for sentences with multiple foci. In that language, the authors argue that prominence (realized as pitch raising) is only expressed on the rightmost answer to a multiple wh-question (represented here with small caps).[14]

(147) a. Shéi tōu shéi de wō
who steal who GEN nest
'Who steals whose nest?'

b. Māomī tōu wūyā wō
kitty steal raven nest
'**A kitty** steals **a RAVEN's** nest' Kabagema-Bilan et al. (2011):1897

On the basis of this fact, the authors argue that prominence is not directly correlated with focus, but instead claim that the pattern can be captured by a single intonational phrase stress, which is shifted to the rightmost answer—the non-given constituent that is most closely aligned to the right edge. The authors reason that if prominence was triggered directly by a focus feature, then it should be realized on both of the answers to the multiple wh-question, rather than just on the rightmost.

As with the other analyses we have considered, this proposal makes the claim that this prominence is not due to focus *per se*, but is instead a default prominence that moves away from given material. This claim makes the clear prediction that we should be able to find evidence of this prominence in non-focus contexts. Kabegema-Bilan and colleagues, for their part, do not find any direct evidence for intonational prominence outside of focus contexts, but maintain that prominence is rightmost—in line with cross-linguistic tendencies.

Recall that in San Martín Peras Mixtec, prominence is aligned (descriptively) to the the absolute right edge of information foci. It falls on the final syllable of nouns,

[14] All the stimuli in the Kabagema-Bilan et al. (2011) study have exclusively high level tones, so it is impossible to determine if the expected lowering of low tones as described by Xu (1999) is also only restricted to the rightmost-focus.

or on the final syllable of post-nominal adjectives. If there is indeed a right-aligned intonational prominence in the language, then we might expect to see its effects in absolute sentence final position.

This raises a question: against what baseline should we determine if the the sentence-final syllable is prominent? It is well known that tonal languages undergo declination throughout the clause, though the details vary and can be intricate (Connell, 2001; Gussenhoven, 2004; Ladd, 2008). Therefore, requiring the sentence final syllable to be the highest pitch in the clause would be too high a bar, as we expect this tone to be subject to phonetic pressures like declination. Instead, to demonstrate prominence, one would have to show that the sentence-final high tone is prominent relative to its expected pitch, correcting for declination.

To test this prediction, I elicited 60 sentences with multiple high tones in the form of (148). Each sentence contained four high tones: a verb in the continuative form, which begin with a high tone; a subject noun with a final high tone; an adjective with a final high tone; and an object with a final high tone. The result of this pattern is 4 high tones spread almost evenly throughout the sentence.[15]

(148) Sháshi ndushí tsya'á chìchí
eat.CONT chicken dirty avocado
'The dirty chicken is eating the avocado.'

The high tone of each word was isolated, and the mean pitch in Equivalent Rectangular Bandwidth (ERB)[16] was plotted on the scatterplot in Figure 3.9.[17]

[15] I know of no verbs in SMPM that end in a high tone. For this reason, it was impossible to disperse the high tones completely evenly throughout the clause.

[16] ERB is a psychoacoustic measurement scale that linearly plots the way pitch is perceived (Moore and Glasberg, 1983)

[17] 10 syllables with a mean pitch below 5 ERB were excluded. This was done for two reasons. First, 5 ERB is well below the average pitch of low tones, thus it is probable that these means were the result of spurious measurements—likely pitch halving errors. Second, this significantly reduced the variance around the means, resulting in a more conservative prediction for the final vowel. This more conservative prediction in turn increased the likelihood that prominence would be found, if present.

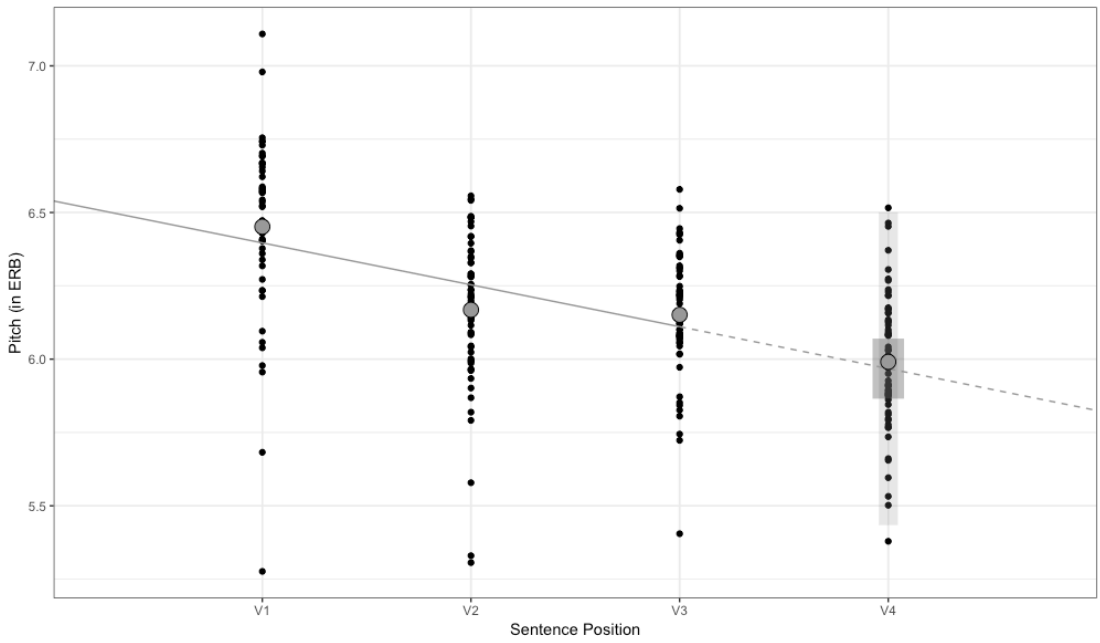


Figure 3.9: Actual and Predicted Declination

A linear regression model was fit over the first three high tones using R (R Core Team, 2019).[18] This model represented the expected rate of declination throughout the clause against which the final syllable could be compared, and is represented with a solid gray line in Figure 3.9. This linear regression model was then extended to predict the mean pitch of the sentence final vowel (dashed gray line). The dashed line represents the predicted mean, but the model predicts with 95% confidence that the mean of the fourth syllable will fall within the dark gray bar. The actual mean pitch of each syllable is represented with a gray dot. Additionally, assuming standard error, the model predicts that 95% of the observations of the final syllable should fall within the light gray bar. As predicted, the mean falls within expected range and over 95%

[18]This approach makes the implicit assumption that declination will be a linear process in the language. This assumption seems warranted, based on the understanding of declination as a phonetic effect (Connell, 2001; Connell and Ladd, 1990). In this respect it is different from downstep, which is a phonological process of lowering that can be triggered by a specific tone type.

of the final syllable observations fall within the light gray bar. Thus, the pitch of the final high tone is right where it is expected to be, based on the rate of declination throughout the clause. If, instead, the final high tone was significantly raised in pitch, we would expect more observations to be outside the upper bound of the expected range (light gray bar) and we would expect these higher observations to influence the mean, pushing it above the dark gray bar. The fact that we don't see this pattern leads me to conclude that there is no positive evidence in favor of a sentence-final intonational prominence that could be mapped onto correlates of wh-words.

3.5.4 Focus prominence as tone sandhi

In the two previous subsections, I have argued that focus prominence is not triggered because foci are dispaced to a particular prosodic position, nor does it represent a "default" prominence that is shifted from given constituents onto non-given constituents. That is, there seems to be no sense in which the displacement of foci is motivated by prosodic factors in the language. In this subsection, I argue that the focus prominence in Mixtec is in fact due to tone sandhi, and argue that this effect is triggered by a segmentally null Alternative Particle that has a tonal realization. When this segmentally null particle immediately follows a word that ends in a high tone, it trigger insertion of a super-high allotone, resulting in pitch raising at the right edge.

(149)

L	H	H↑
chìchí		ALT

As a first step toward arguing for this analysis, it is worth establishing that many heads only have a tonal realization in Mixtec languages. For instance, as already mentioned in §3.1.2, much of the tense morphology in Mixtec is realized tonally.[19] Con-

[19] Some verbs realize tense morphology overtly, via a prefix or a stem change. In addition, some verbs combine tonal and segmental realizations (Eischens, 2021a).

sider, for instance, the verb *paint*, which can be realized in different aspects solely by changing the initial tone.

(150) a. náka'yì
paint.CONT
'paints / is painting'

b. nàka'yì
paint.COMP
'painted'

c. naka'yì
paint.POT
'will paint'

In a similar way, negation is marked tonally in the potential and completive aspects (Eischens, 2021a).

(151) a. tsyà'yǐ
rot.POT
'will rot'

b. tsyǎ'yǐ
rot.NEG.POT
'will not rot'

Given that tone has a high functional load in Mixtec, realizing not only lexical distinctions but also functional heads, it seems reasonable to hypothesis that a particular Alternative Particle in the language would only be marked tonally.

Second, recall the high targeted, specific nature of focus prominence in Mixtec. The final high tone at the edge of the focused constituent raises in pitch, but there are no other detectable correlates of prominence. Thus, low, mid, and rising tones are not affected, nor are foci lengthened. This type of targeted effect is what we expect to see for tone sandhi, but is distinct from other patterns of focus prominence in other tonal languages. In Mandarin, for instance, focus triggers pitch range expansion (Xu,

1999). That is, high tones raise in pitch, and low tones lower in pitch on words that are focused. Given the highly targeted, positional nature of focus prominence in Mixtec (only affects one tone type in one position), it seems reasonable to argue that this tone is affected by an immediately following tone.

If, indeed, focus prominence is triggered by a tone sandhi rule, this implies that there is nothing about foci per se which triggers this effect. Rather, the tonally marked Alternative Particle should be able to effect any tone that immediately precedes it, regardless of whether that tone is on a word that is focused.

Prediction 1: "Focus" prominence on non-foci

Recall from chapter 2 that because Alternative Particles are targets for movement—not foci themselves—movement of an Alternative Particle can trigger movement of a larger constituent than just the focus. Consequently, we expect the tonally marked Alternative Particle to sometimes be adjacent to a focus, and sometimes adjacent to a non-focus that has been pied-piped. For instance, consider a case where a noun is focus and pied-pipes an adjective that is not focused. Because adjectives are post-nominal in Mixtec, it is the adjective, not the focused noun that would be adjacent to the Alternative Particle. Consequently, if the tone sandhi rule triggered by the Alternative Particle can target *any* high tone, then we expect high tones on adjectives to be raised in pitch, even if they are given in context.

(152)

L	H	M H	H↑
chìchí	[iiyá]$_{G}$	ALT	

To test this prediction, I elicited 48 sentences with a fronted DP where the noun was in focus and the adjective was given by the context, as in (153).

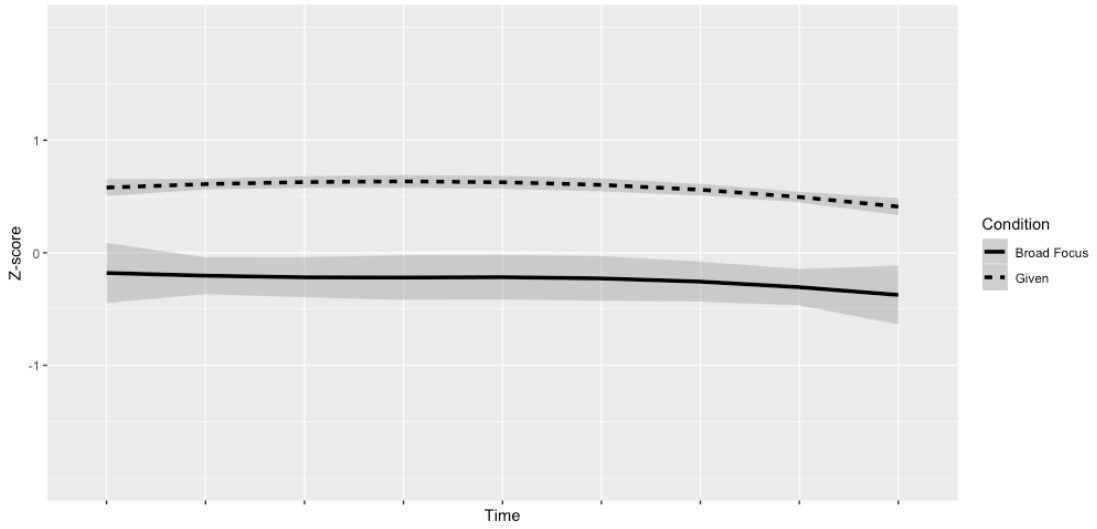


Figure 3.10: High tones on given adjectives are higher in pitch than nouns fronted in broad focus contexts

(153) *Context: Did Juan give a sour lime to Alejandra?*

U'un, [**chìchí** iiyá ALT] tàshin rà ndà'ă ñá
no avocado sour ALT gave he to her
'No, he gave her a sour **avocado**.'

In order to determine if pitch raising can effect given adjectives, I compared the final high tone of the given adjective to the final high tone of fronted nouns in broad focus context, which represents the "baseline" against which we can establish if raising occurs. In line with the prediction of the Alternative Particle approach, the final high tone on given adjectives is significantly raised in pitch, as shown in Figure 3.10.

Crucially, if we thought that pitch raising was a type of "focus prominence" this would be completely unexpected. In fact, we expect given constituents to be deaccented. So, I take this to be strong evidence to suggest that the raising effect that we see at the right edge of fronted constituents is a tonal signature caused by a segmentally null Alternative Particle.

Prediction 2: Different focus structure, same pronunciation

A second way to test this same idea is to compare string identical sentences that only differ in their focus structure. Consider, for instance, (154) and (155), which consist of the same words, but in one case the noun is focused and in the other case the adjective is focused.

(154) *Context: Did Juan give a ripe avocado to Alejandra?*

U'un, [chìchí **iiyá** ALT] tàshin rà ndà'ă ñá
no avocado sour ALT gave he to her
'No, he gave her a **sour** avocado.'

(155) *Context: Did Juan give a sour lime to Alejandra?*

U'un, [**chìchí** iiyá ALT] tàshin rà ndà'ă ñá
no avocado sour ALT gave he to her
'No, he gave her a sour **avocado**.'

If pitch raising is indeed caused by an Alternative Particle, then we expect that there should be no difference in pronunciation between the fronted constituents in these two sentences. This is because the Alternative Particle will simply affect whatever is at the right edge, regardless of whether that word itself is focused or if it is a given word "pied-piped" along with the displaced focus.

(156) a.
L H M H H↑
chìchí [iiyá]$_G$ ALT

b.
L H M H H↑
[chìchí]$_G$ **iiyá** ALT

To test this, I elicited 48 sentences like (154) and 48 sentences like (155) and compared the realization of the final high tone on the noun and the adjective in two different conditions, either focused or given. As shown in Figure 3.11, there is no significant

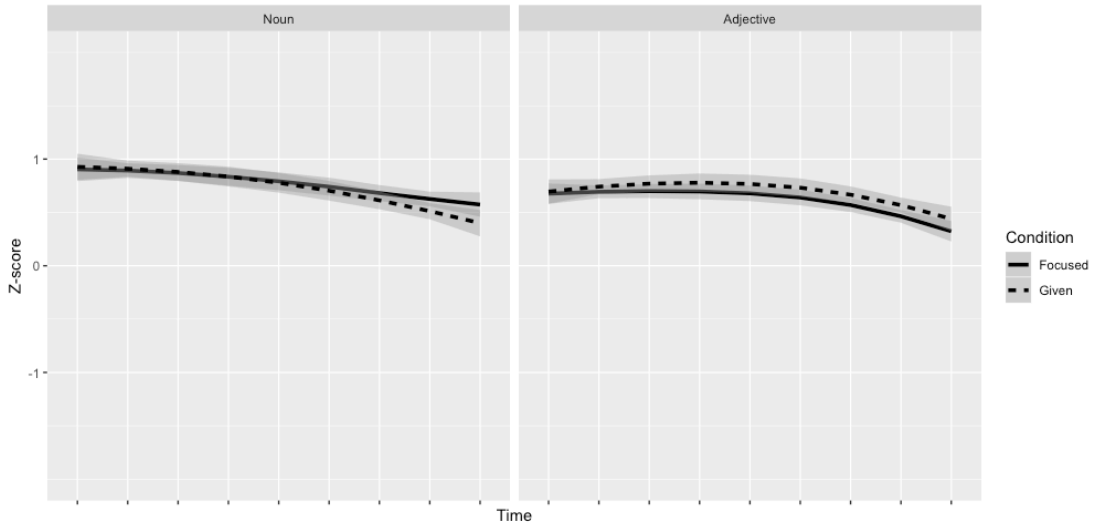


Figure 3.11: No difference between focused and given words when fronted as part of a focused constituent

difference between the focus or given conditions for either category. Moreover, the one speaker I have consulted intuits that these two sentences are pronounced identically.

This provides additional evidence to support the claim that words in focus are not prominent per se, but that an Alternative Particle can trigger pitch raising on the preceding word, whatever that word is.

An Alternative Particle on the right?

Given that Mixtec is a head-initial language, it is perhaps surprising that a phonologically null Alternative Particle would immediately follow the focused constituent, as proposed above. Indeed, most Alternative Particles in the language precede the focus that they associate with, with the exception of *và*.

(157) *Context: The dog ate some tortillas, right?*

Ũ'ũ, **kônù yá** shàshi rí __ ra shàshi ti rí **chìchí** và
no meat NEUT ate AML and ate also AML avocado ALT
'No, it ate the **meat**, and it also ate an **avocado**.'

Thus, we might be reasonably skeptical that an Alternative Particle would appear to the right of its complement, even if it only has a tonal realization.

A possible alternative analysis would account for the prominence on post-focal adjectives using Focus Projection. As is well-known, in languages like English, there is not a one to one mapping of accent to focus. In fact, the same string of words (with the same prosodic pattern) can be used in a number of different focus structures. Consider, for example, (158). In each sentence, a pitch accent (represented by small caps) is placed on the word *bats*. However, the constituent that is focused (represented by bolding) is not the same.

(158) a. *What did Mary buy a book about?*
Mary bought a book about **BATS**.

b. *What kind of book did Mary buy?*
Mary bought a book **about BATS**

c. *What did Mary buy?*
Mary bought **a book about BATS**

d. *What did Mary do?*
Mary **bought a book about BATS**

e. *What's been happening?*
Mary bought a book about BATS Selkirk (1995): 554

Selkirk (1995) accounts for this pattern with a set of rules that relate the placement of pitch accents and the interpretation of focus by means of "F-marking." Under her

theory, accented words are interpreted as F-marked, and F-marking of a constituent can license F-marking of a larger constituent. Specifically, F-marking a head licenses F-marking of the phrase it projects, and F-marking an internal argument of a head licenses F-marking of the head. The F-marked constituent not dominated by any other F-marked constituent is interpreted as the focus of the sentence. Thus, in English, an accent on the final word in the phrase will license F-marking of the entire phrase, meaning that a single phrase final accent can be used in a broad focus context.

Extending this reasoning to SMPM, we might be able to say that F-marking of an accented adjective licenses F-marking of the noun that it modifies. However, this presents two challenges. First in Selkirk's system, the accented (prominent) word is always isomorphic with the focus or a proper subpart of the focus. This is derived by the specific focus projection rules that she proposes. However, in SMPM, the prominence and the focus can be completely separate. As I have shown, pitch raising can occur on an adjective even if only the noun is interpreted as the focus. Second, prominence can occur on word that is given in context. Cross-linguistically, given constituents are often de-accented (Féry and Samek-Lodovici, 2006; Katz and Selkirk, 2011; Kratzer and Selkirk, 2020), and the pitch range of given utterances can be compressed Féry and Ishihara (2010).

Thus, there are challenges in explaining the prominence pattern in SMPM using Focus Projection. First, the prominent word does not have to be part of the focus, and the prominent word can be given in context. For this reason, I think it is more reasonable to propose that the particular prominence that we find in fronted constituents is not directly tied to the notions of focus or givenness, but rather is an independent tone sandhi process that is completely independent of information structure. Of course, this analysis requires the stipulation that null Alternative Particle in SMPM follows, rather than precedes, the focus that it associates with. In future work, I hope

to explore this pattern in more depth, looking for other instances of the hypothesized sandhi process and other arguments to support my hypothesis that the null Alternative Particle follows its complement.

3.5.5 Summary

In this section, I have described in depth the prosodic realization of focus in Mixtec. This exploration—apart from providing a first step toward investigating the prosody of an understudied language—also served to bolster the main claims of this chapter: focus displacement in Mixtec is a syntactic phenomenon that targets Alternative Particles. Understanding the prosody of focus displacement in Mixtec supports this claim in two distinct ways. First, I provided arguments that focus do not displace *in order* to become prominent. That is, despite the fact that some foci can be described as prosodically prominent in the language, it does not seem warranted to argue that this is the motivation for displacement. Second, investigating the prosodic realization of foci in detail revealed that "focus prominence" is a highly targeted, positional effect which occurs at the right edge of the fronted constituent, whether or not the word that is affected is actually a focus. Consequently, I proposed that this prominence reflected a tone sandhi effect, triggered by a null Alternative Particle. This, in turn, provided some additional, indirect support for the Alternative Particle hypothesis proposed in chapter 2.

3.6 Conclusion

In this chapter, I have tested the predictions of the Alternative Particle hypothesis of focus displacement through an in-depth look at several aspects of the grammar of Mixtec. I showed that all types of focus undergo displacement in the language and

showed how patterns of pied-piping with overt Alternative Particles support the view that the particle is attracted, not the focus itself. I then showed that this movement is syntactic, does not have any clear interpretive effects, and cannot be straightforwardly be be explained prosodically.

In the next section, I provide additional evidence that foci are not directly attracted in the syntax, using a language-internal process of movement within a pied-piped constituent. As I will argue, this phenomenon provides us a window into what types of constituents can be attracted for Ā-movement. As I will show, while wh-words can undergo this process, foci cannot. This provides further evidence for the claim that foci are never directly attracted in the syntax.

Chapter 4

Pied-Piping with Inversion

In the previous chapter, I provided evidence to demonstrate that focus displacement is syntactic in SMPM. Beyond the correlations with wh-movement, focus fronting consistently passes diagnostics for syntactic movement. Moreover, an extended investigation into the prosodic facts of focus displaced constituents provided additional evidence in favor of a syntactic account. First, I demonstrated that focus prominence is not due to a particular prosodic phrasing, nor to default prominence. Second, I showed that the particular prominence pattern of SMPM provides additional evidence to support the claim that there is a segmentally null Alternative Particle associated with the movement. In addition, in the previous chapter, I explored the movement of overt Alternative Particles and showed that pied-piping patterns are consistent with the phrase headed by the particle being the target of movement.

If Alternative Particles are the target of movement, we might ask: are foci *ever* directly attracted in the syntax? Put another way, is there positive evidence from Mixtec that foci are *not* marked with a formal feature, and consequently cannot be targeted by syntactic operations. Recall that one common critique against syntactic movement of foci is a conceptual one, dealing with the nature of formal features. Focus is dependent on context and is not an inherent property of lexical items—the reasoning

goes—and thus our theory of formal features ought to reject a syntactic feature that is directly tied to focus. This was one of the critiques of syntactic focus movement which lead us to reevaluate how foci are displaced. Importantly, this critique against a formal focus feature does not apply to wh-words, as wh-words form a morpho-syntactic class that can be defined lexically. Positive evidence of this type would be informative, because it would support the theoretical claim that context-dependent notions such as focus and topic are not the types of properties that are realized as syntactic features, following the "Strong Modularity Hypothesis" of Horvath (2010).

If the contrast between the lexical nature of wh-words and the context-dependent nature of foci reflects a true difference in the way that these categories could be assigned formal movement features, then we expect to be able to find ways of distinguishing them. Of course, in Chapter 2, I advanced an analysis of their displacement that does not rely on a formal feature assigned to either the constituent that is interpreted as the focus or the wh-word. Instead, this formal feature is assigned to a class of particles that are sensitive to alternatives generated by their sister. However, if there is a real contrast between wh-words and foci, then we expect to find cases where they come apart if we are able to abstract away from the movement of Alternative Particles.

In this chapter, I will provide language-internal evidence from SMPM which supports the claim that foci are not marked with a formal syntactic feature, and consequently cannot be attracted in the syntax. This evidence then, provides indirect support for the claim that all focus displacement in the language is driven by Alternative Particles: if foci cannot be moved directly, then they must be moved indirectly. The particular empirical phenomenon of investigation will be "Pied-piping with Inversion," an areal feature of Mesoamerican languages wherein the order of elements within a pied-piped constituent is inverted. As a representative example, recall that possessors normally follow possessa in SMPM (1a). However, when a possessor is

a wh-word, it will precede (rather than follow) the possessa within the fronted DP (1b). If pied-piping is triggered by movement of a QP that contains more than just a Q and a wh-word, then the possibility for movement within the pied-piped constituent suggests that wh-words can move independently of QPs.

(1) a. Nìxi'i tsìnà sànà Gloria
died dog POSS G.
'Gloria's dog died.'

b. [Yóó tsìnà sànà __] nìxi'i __
who dog POSS died
'Whose dog died?'

This property gives us a powerful diagnostic to test the motivation for focus movement in the language. Given the strong correlations between wh-words and foci, if foci were marked syntactically in the same way as wh-words, then we might expect them to also undergo this additional step of movement. However, foci cannot undergo inversion (2a), and must remain in their base position within the pied-piped nominal (2b).

(2) a. *[**Juan** tsìnà sànà __] nìxi'i __
J. dog POSS died
Intended: **Juan**'s dog died.

b. [Tsìnà sànà **Juan**] nìxi'i __
dog POSS J. died
'**Juan**'s dog died.'

As I will argue, this provides strong evidence that semantic foci are not marked with a formal feature in Mixtec, and that the *only* trigger for focus displacement in the language is Agreement with Alternative Particles. Moreover, it is consistent with the hypothesis that foci *cannot* be marked with a formal feature that labels them as such. Consequently, foci never move *within* the scope of Alternative Particles. This provides

evidence in favor of the claim of the previous chapter that constituents interpreted as foci do not form a morpho-syntactic class and, consequently, are not labeled with a formal syntactic feature. This distinguishes them from wh-words, which can bear formal features, can enter into Agreement relationships, and can move independently of Alternative Particles. In this chapter, I will argue that this provides additional evidence that foci are not directly attracted in the syntax.

4.1 Introducing pied-piping with inversion

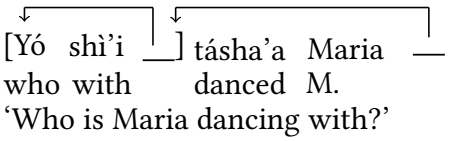
When wh-words trigger pied-piping in Mixtec, they obligatorily undergo an additional step of movement to the beginning of the pied-piped constituent. As outlined in §3.1.2, possessors normally follow possessa (3a) and prepositions normally precede their objects (4a) in Mixtec. However, a wh-possessor that has undergone fronting to the beginning of the clause will precede its possessum (3b) and a wh-word will precede the preposition that takes it as a complement (4b).

(3) a. Kìshâ [sè'e Juan] Ahuejutla
arrived child J. A.
'Juan's child arrived in Ahuejutla.'

b. 
[Yó sè'e ___] kìshâ ___ Ahuejutla
who child arrived A.
'Whose child arrived in Ahuejutla?'

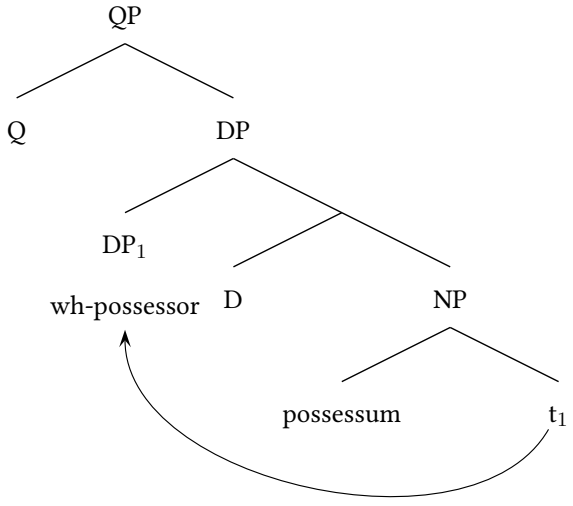
(4) a. Tásha'a Maria [shì'i Eraclio]
dances M. with E.
'Maria is dancing with Eraclio.'

b.

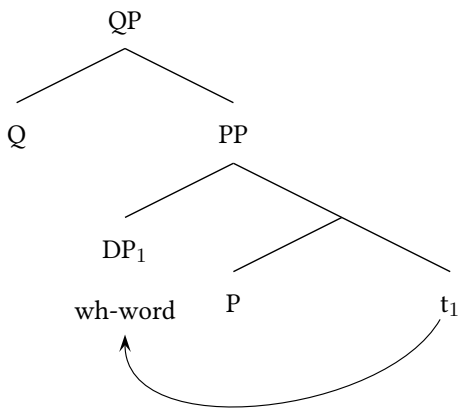


This pattern of wh-movement is traditionally called "Pied-piping with Inversion." The same basic pattern has been well described for many languages of the region, including Zapotec languages, Mayan languages, and other Mixtec languages (e.g. Smith Stark, 1988; Aissen, 1996; Eberhardt, 1999; Coon, 2009; Broadwell, 2006; Caponigro et al., 2013; Arellanes Arellanes and de la Parra Aguilar, nd). Following previous work on this phenomenon in Mayan languages, I assume that inversion involves an additional step of Ā-movement by wh-words to the specifier of D or P (Aissen, 1996; Coon, 2009; Cable, 2010). This step of movement—which I assume happens within a QP because it happens within the pied-piped constituent—suggests that wh-words *do* bear some formal syntactic feature which can be targeted for attraction. That is, wh-movement can not be reduced to movement of QPs alone.

(5) Possessor Inversion



(6) Complement of Preposition Inversion



While pied-piping with inversion is well-described in the domain of wh-words, there has been much less investigation into the behavior of focus pied-piping in languages that display inversion. In fact, in San Martín Peras Mixtec, foci do *not* trigger inversion when they pied-pipe. Instead, when focused possessors or objects of prepositions undergo pied-piping, the pied-piped constituent must remain in its base order.

(7) a. Sè'e **Maria** rà tsyâ __ shìtă
child M. he makes tortillas
'**Maria's** son is making tortillas.'

b. *[**Maria** sè'e __ rà] tsyâ __ shìtă
M. child he made tortilla
Intended: **Maria's** son is making tortillas.

(8) a. Shí'in **Juan** tásha'a Maria __
with J. dances M.
'Maria is dancing with Juan.'

b. *[**Juan** shí'in __] tásha'a Maria __
J. with danced M.
Intended: Maria is dancing with **Juan**.

In fact, this contrast between wh-words and foci seems to be the norm for languages that display pied-piping with inversion. While many researchers do not say explicitly whether or not inversion applies to fronted foci, it is clear from looking at previous descriptions that foci most often do not trigger inversion in languages where wh-words do. A typology of languages described to have pied-piping with inversion is given in Table 4.1. In some cases, I was able to find a specific claim that foci do not undergo inversion. In other cases, I was able to find examples in the description where we would expect inversion to occur but it does not (such as focusing the object of a preposition).

	WH-Questions	**Focus**
Alacatlatzala Mixtec (Zylstra, 1991)	✓	*
Ayutla Mixtec (Hills, 1990)	✓	*
Jamiltepec Mixtec (Johnson, 1988)	✓	*
Ocotepec Mixtec (Eberhardt, 1999; Alexander, 1988)	✓	*
San Marín Peras Mixtec	✓	*
Silacayoapan Mixtec (Shields, 1988)	✓	*
Yosondúa Mixtec (Farris, 1992)	✓	*
Quiegolani Zapotec (Black, 1994)	✓	*
Ch'ol (Coon, 2009; Vázquez Álvarez and Coon, 2020)	✓	*
K'iche' (Broadwell, 2005)	✓	*
San Dionicio Zapotec (Broadwell, 2001)	✓	✓
Tsotsil (Aissen, 1996)	✓	✓

Table 4.1: A Typology of Pied-Piping with Inversion

As is evident, most descriptions of focus pied-piping suggest that foci do not undergo inversion. In fact, there are only two descriptions that I have found of languages that invert foci, and both seem to only apply in special cases. Broadwell (2001) reports that so called "negative foci" can undergo inversion in San Dionicio Zapotec (p. 18).

(9) Rú-tèh'cà **túú** lò ù-déhhdy Màríí cààrt
AN:NEG anyone to COMP-give M. letter
'Maria didn't give the letter to **anyone**.'

Broadwell (2001): 19

By "negative foci," Broadwell seems to refer to indefinites like *anyone* or *anything* which occur with sentential negation. It may be important to note that these negative indefinites are formed using a word that is morphologically identical to a wh-word. In this case, "anyone" is formed with the word *túú*, which means "who" when used in a question context. Typologically, indefinites of this type are often derived morphologically from wh-words Haspelmath (1997). Consequently, it seems reasonable to assume that "negative foci" are created from the same lexical entry as the interrogative wh-word, and the distinct interpretation comes from what type of operator the word is in the scope of (e.g., Tran and Bruening, 2013). Thus, it seems possible to hypothesize that the lexical item *túú* is marked with a formal syntactic feature that can be targeted for movement, even in contexts where it is not interpreted as a wh-word.

Importantly, foci that are not morphologically derived from wh-words do *not* seem to invert in San Dionicio Zapotec, based on examples like (10).

(10) Cùn **yààg** ù-dìny Juaààny bèh'cw
with stick COMP-hit J. dog
'Juan hit the dog with a **stick**.' Broadwell (2001): 4

In turn, this supports the claim that foci do not invert, in general, in this language, except in cases where the focus is derived morphologically from a wh-word.

Additionally, Aissen (1996) reports that focusing a first or second person pronoun triggers inversion in Tsotsil (11). Other foci, however, do not (pg. 473, fn. 26).

(11) **Vo'ot** a-krem i-p'aj yalel
you A2-son COMP-fall down
'It's **your** son that fell down.' Aissen (1996): 473

This suggests that it may be something about their pronominal status, rather than their status as foci, which forces them to invert.

Overall, this typology strongly suggests that foci don't tend to trigger inversion in languages with pied-piping with inversion, except perhaps in some edge cases. On its face, this difference provides a useful contrast between wh-words and foci, two categories which pattern together in many ways cross-linguistically. In particular, it raises the question: why can wh-words invert and not foci, especially in those languages where both wh-words and foci move to the clause edge (as in San Martín Peras Mixtec).

4.2 Subextraction

As outlined in the previous section, there is a clear contrast in SMPM between wh-words and foci with respect to pied-piping: wh-words must undergo an additional step of movement within the pied-piped constituent (12a), while foci cannot (12b).

(12) a. [Yóó tsìnà sànà ___] nìxi'i ___
who dog POSS died
'Whose dog died?'

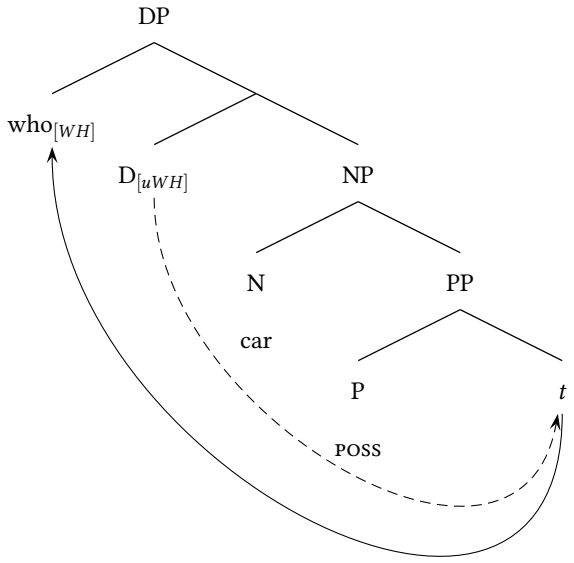
b. *[**Juan** tsìnà sànà ___] nìxi'i ___
J. dog POSS died
Intended: **Juan**'s dog died.

This contrast raises an obvious question: how can we account for the fact that these two categories—which so often pattern together—come apart in this context?

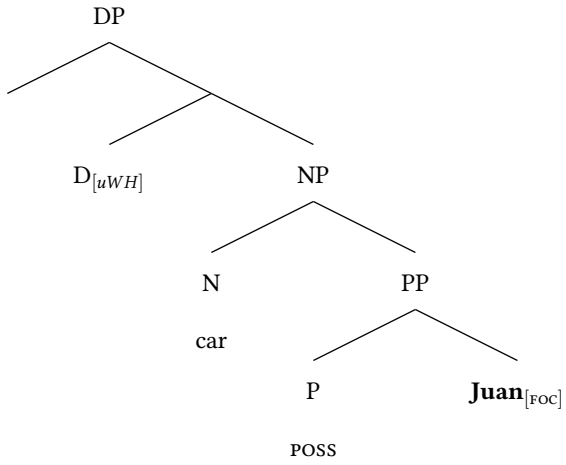
Let's begin with perhaps the simplest possible explanation: the head(s) that trigger inversion are relativized to search for wh-words, but not for foci. Consequently, wh-words will be attracted by this head, but foci will not.

(13) **To Be Rejected**

a. Agreement with wh-word, triggering movement



b. No Agreement with Foci



Note that if this analysis is correct, then it doesn't tell us anything about the features that are or are not present on semantic foci. That is because it would be consistent with this analysis to claim that semantic foci *do* bear a [FOC] feature, but the head that triggers inversion is simply not looking for that feature. Under this account then, the difference between foci and wh-words is that only one of them is able to undergo

movement to the specifier of DP (or PP), and thus only one inverts.

One way to test this hypothesis is to consider subextraction. Cross-linguistic data suggest that subextraction out of a nominal is only possible through successive cyclic movement through the edge of the nominal domain (Cinque, 1980; Szabolcsi, 1984; Horrocks and Stavrou, 1987; Giorgi and Longobardi, 1991; Gavruseva, 2000; Boeckx, 2003). Some evidence for this claim comes from Hungarian. In Hungarian, there are two distinct ways that possessor phrases can be formed. In one, a possessor marked with nominal case follows an overt determiner (if one is present) (14a). In the other, a possessor marked with genitive case precedes the determiner (14b).

(14) a. (a) Mari vendég-e
the M.NOM guest-POSS
'Mary's guest'

b. Mari-nak a vendég-e
M.-DAT the guest-POSS
'Mary's guest' Szabolcsi (1984): 89 & 91

Crucially, these two types of posessor phrases have different behavior with respect to subextraction: a nominative wh-possessor cannot extract out of the DP (15a), while a genitive wh-possessor can (15b).

(15) a. *Ki ismer-té-tek [a __ vendég-é-t]?
who.NOM know-PST-2PL the guest-POSS-ACC
Intended: Whose did you know guest?

b. Ki-nek ismer-té-tek [__ a vendég-é-t]?
who-DAT know-PST-2PL the guest-POSS-ACC
'Whose guest did you know? Szabolcsi (1984): 90 & 92

This difference, according to Szabolcsi (1984), reflects a difference in the structural position of these two possessors: the genitive posessor undergoes movement to an Ā position at the edge of the nominal domain. Once in that position, it can be extracted.

Moreover, this subextraction is not restricted to wh-possessors. Focused possessors can also subextract if they are dative.

(16) **Mari-nak** alszik a vendége
M.-DAT sleeps the guest
'It is **Mary** whose guest sleeps.' Szabolcsi (1984): 93

Additional evidence for this claim comes from Greek. Like Hungarian, Greek has two possible positions for possessors within the DP. The first, which follows the possessum, triggers an echo question interpretation when the possessor is a wh-word (17a). The second, which precedes the determiner, has a normal, non-echo question interpretation (17b).

(17) a. to vivlio tinos
the book who.GEN
'whose book'

b. tinos to vivlio
who.GEN the book
'whose book'

As in Hungarian, a wh-possessor can subextract out of a DP in Greek (18c). Moreover, it can also surface in an intermediate position (18b), suggesting that this intermediate movement to a DP internal position facilitates successive cyclic movement out of the DP.

(18) a. Mu ipes pos dhiavases [to vivlio tinos]
me-GEN said-2SG that read-2SG the book who-GEN
'You told me you read whose book?' (Echo Question)

b. Mu ipes pos dhiavases [tinos$_i$ [to vivlio __$_i$]]
me-GEN said-2SG that read-2SG who-GEN the book
'Whose book did you say that you read?'[1]

[1]Horrocks and Stavrou (1987) do not provide a translation for this sentence, but say it is fully gram-

c. Tinos$_i$ mu ipes [__$_i$ pos dhiavases [__$_i$ [to vivlio __$_i$]]]
who-GEN me-GEN said-2SG that read-2SG the book
'Whose book did you say that you read?'

Horrocks and Stavrou (1987): 89

Like Hungarian, this pattern of subextraction also applies to focused possessors. Any possessor can move to a position preceding the determiner, in which case, it receives a focus interpretation.

(19) a. to vivlio tu Chomsky
the book the.GEN C.
'Chomsky's book'

b. **tu Chomsky** to vivlio
the.GEN C. the book
'**Chomsky's** book'

Horrocks and Stavrou (1987): 86

Given that foci can appear in this position at the nominal edge, we expect that they should be able to subextract from this position. Indeed, this is possible, as shown in (20).

(20) **Tu vivliu** mu ipes pos dhiavases tin kritiki
the.GEN book.GEN me.GEN said.2SG that read.2SG the review
'You told me you read the review **of the book**.'

Horrocks and Stavrou (1987): 87

Horrocks and Stavrou (1987) frame their discussion of this pattern in terms of Subjacency. If a language has an Ā-position within the DP (or NP in their terms), then possessors can move successive cyclically through this position, thus avoiding crossing multiple Bounding Nodes in a single step of movement, which would violate Subjacency. This, they argue, can account for the difference in acceptability of posses-

matical. I have given a free translation that is as natural as possible based on the gloss that they provide.

sor extraction between Greek and English. There is no NP internal position to which wh-words can move in English, and thus extracting wh-words out of a complex NP will always violate Subjacency. Greek, on the other hand, has a position within the NP where the wh-word can move. From that position, they can move to clause initial position without violating Subjacency.

Adopting Phase Theory (Chomsky, 2001b), we might say that the reason that wh-possessors must move to the specifier of DP in order to extract is because that is the only position where they will be visible to the probe on C. Assuming that D is a phase head (Svenonius, 2004; Citko, 2014), the *Phase-Impenetrability Condition* predicts that only D and its specifier will be visible to higher probes. The complement of D will not be visible to a probe that is outside of the DP. Thus, the only languages that will be able to extract wh-possessors are those that allow for movement of possessors to the specifier of DP, where they will be in an escape hatch for movement (Gavruseva, 2000).

Returning now to the contrast between wh-words and foci in SMPM. Recall that one way of explaining the pattern is to postulate different movement possibilities within the DP. Under this view, D attracts wh-words to its specifier (causing inversion), while it does not attract foci (causing a lack of inversion). Considering now the previous discussion, this account makes a clear prediction about subextraction: if only wh-possessors move to spec-DP, then only wh-possessors should be able to subextract. Focused possessors, if they truly can't move to spec-DP, should not be able to subextract.

In fact, *both* wh-words and foci are able to subextract out of the same nominals. Specifically, they can subextract out of unaccusative subjects and transitive objects (Hedding, 2020). This suggests, then, that it is indeed possible for focused constituents to move through the specifier of DP.

(21) a. Yóó nìxi'i [___ tsìnà sànà ___]
who died dog POSS
'Whose dog died?'

b. **Juan** nìxi'i [___ tsìnà sànà ___]
J. died dog POSS
'**Juan**'s dog died.'

This fact—that foci can extract on the one hand, but cannot invert—tells us something important about which constituent bears the formal feature that can be attracted by DP. Suppose that all constituents that are semantically interpreted as foci bore a formal feature [FOC]. Under this analysis, foci could be subextracted if they underwent movement to spec-DP before fronting to CP. If, however, we assume that there is a DP which attracts focus marked constituents to its specifier (allowing them to be extracted), then we would *also* expect foci to undergo inversion (analogously to wh-words). That is, because there is a DP internal position where foci can move in the language, we would expect foci to be attracted to that position if they bore a formal feature. Thus, this pattern presents a puzzle for the "traditional" view that foci are attracted directly in the syntax. If foci *can* move to the specifier of DP in order to subextract, why *don't* they move to the edge of DP when they pied-pipe?

In the following section, I show that this pattern falls out quite naturally when assuming that the target for focus fronting is not the word that is semantically focused, but rather an Alternative Particle that c-commands the focus. Furthermore, the fact that foci can't undergo this movement within the pied-piped constituent and wh-words can, suggests that the lexical status of wh-words allows them to be marked with a formal feature while foci cannot be.

4.3 An Alternative Particle account of inversion

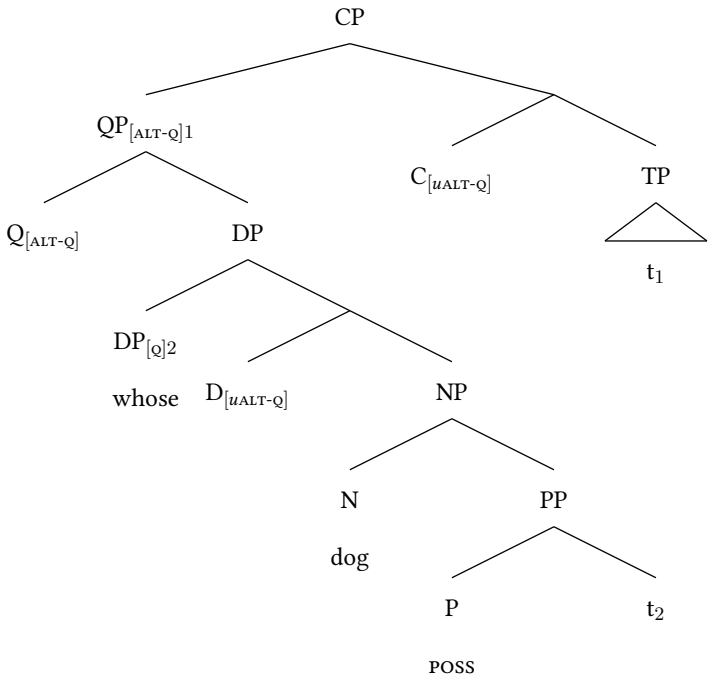
4.3.1 Wh-inversion

To see how the Alternative Particle account of focus displacement proposed in chapter 2 can capture this pattern, let's first consider the case of wh-inversion. Recall from chapter 2 that I assume that pied-piping of wh-words occurs when a Q particle is sister to a constituent that contains a wh-word. When the QP is attracted by C, the constituent containing the wh-word will move, resulting in pied-piping.

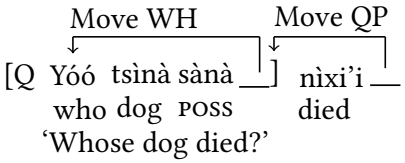
Because wh-words are also able to move *within* the pied-piped constituent, this suggests that they can also be targeted for movement. I follow Coon (2009) in assuming that wh-words also bear a [Q] feature, meaning that a D head that is relativized to search for a constituent bearing the feature [Q] can find either a QP (resulting in subextraction) or a wh-word (resulting in inversion). The difference between these two patterns reflects a difference in position of the merged Q particle. If it merges as a sister of the wh-possessor, then D will attract the QP, facilitating further movement of the QP to spec-CP. If, however, the Q particle takes a possessive DP as its complement, then the probe on D will find the wh-possessor that it c-commands, resulting in inversion.

As alluded to in chapter 2, and as will be argued more explicitly in the next chapter, I assume that probes on both C and D are relativized to search for both the [ALT] feature (that marks all Alternative Particles) and the [Q] feature (which distinguishes Q particles). Consequently, when a QP takes a possessive DP as its sister, the QP itself will move to the specifier of CP, and the wh-word within the possessive DP will be attracted to the specifier of D.

(22) WH-Inversion

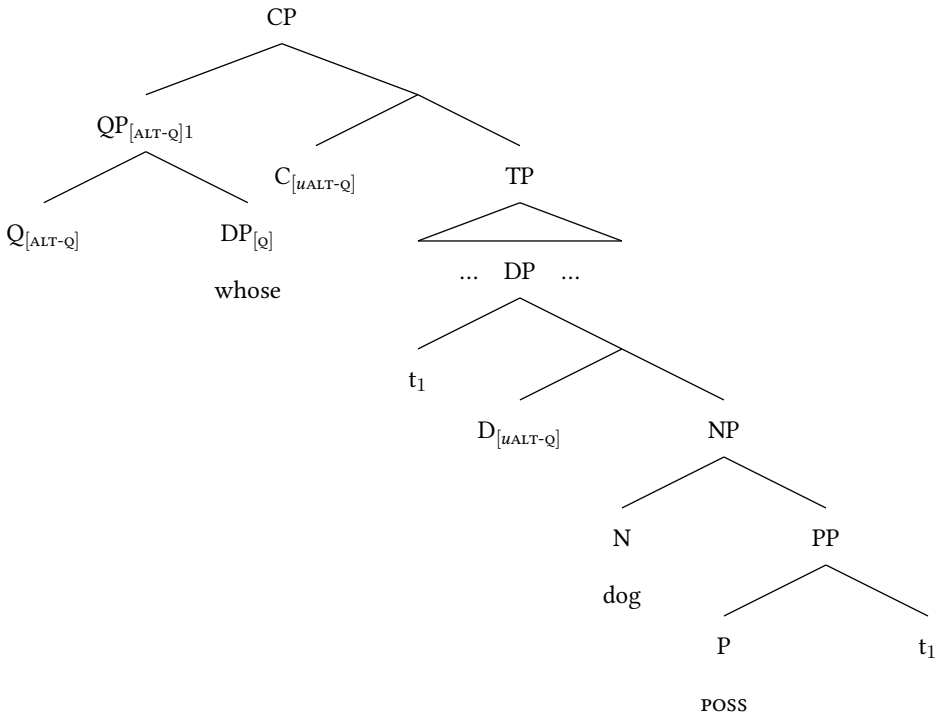


(23)



However, given the syntactic and semantic requirements of the Q particle, it can also attach directly to the wh-word, as the complement of the possessive preposition. In this case, the probe on D will attract the QP to its specifier, making it visible to the probe on C, which can then attract it to spec-CP. In this way, QP can move successive cyclically out of a DP or PP, stranding a possessum or a preposition in situ.

(24) WH-extraction



On the one hand, assuming that wh-words can be directly attracted in the syntax seems contrary to the spirit of Cable (2010)'s Q particle proposal. However, in order to account for Pied-Piping with Inversion (which he calls "Secondary Wh-Fronting"), Cable proposes that an Agreement relationship is established between the Q particle and the wh-word within its scope. Specifically, he proposes that in some languages, Q bears a [uWH] feature, which can Agree with an attract wh-words. So, even though most wh-movement is driven by the movement of QPs, Cable still allows for the possibility that wh-words can be directly attracted.

Moreover, as argued in Hedding (to appear), there is evidence that *some* wh-phrases are directly attracted in the language, without mediation of a Q Particle. Specifically, D-linked wh-phrases can never pied-pipe in San Martín Peras Mixtec, which suggests that they cannot appear within the scope of a QP. D-linked wh-phrases cannot pied-

pipe and invert (25), nor can they pied-pipe without inverting (26).

(25) a. *[Ntsyâ ñáñ=ón kárro ñà'ă __] nìtsiví __
which brother=your car POSS broke.down
Intended: Which of your brother's car broke down?

b. *[Ntsyâ ñá náne ntsyàjyĭ vá'a ñà'ă __] kot=ôn chák=on __
which CLS woman broth good POSS like=you more=you
Intended: Which woman's mole did you like the most?

c. *[Ntsyâ rà táte yó'o shì'in __] tàshă'a Maria __ víkŏ
which CLS man here with danced M. party
Intended: With which of these men was Maria dancing at the party?

(26) a. *[Kárro ñà'ă ntsyâ ñáñ=ón] nìtsiví __
car POSS which brother=your broke.down
Intended: Which of your brother's car broke down?

b. *[Ntsyàjyĭ vá'a ñà'ă ntsyâ ñá náne] kot=ôn chák=on __
broth good POSS which CLS woman like=you more=you
Intended: Which woman's mole did you like the most?

c. ??[Shì'in ntsyâ rà táte yó'o] tàshă'a Maria __ víkŏ
with which CLS man here danced M. party
Intended: With which of these men was Maria dancing at the party?

Instead, D-linked wh-phrases must always subextract out of possessive DPs and PPs

(27) a. Ntsyâ ñáñ=ón nìtsiví [kárro ñà'ă __]
which brother=your broke.down car POSS
'Which of your brother's car broke down?'

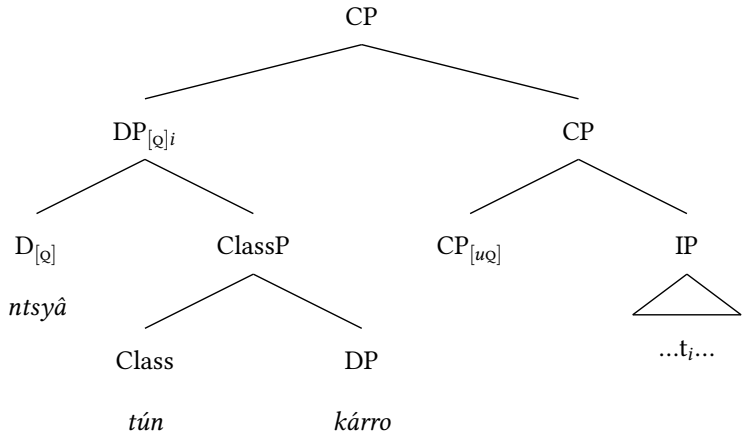
b. Ntsyâ ñá náne kot=ôn chák=on [ndyajyí vá'a ñà'ă __]
which CLS woman like=you more=you broth good POSS
'Which woman's mole did you like the most?'

c. Ntsyâ rà táte yó'o tàshă'a Maria [shì'in __] víkŏ
which CLS man here danced M. with party
'Which of these men was Maria dancing with at the party?'

In Hedding (to appear), I argue that D-linked wh-phrases cannot pied-pipe because

they are semantically incapable of appearing in the scope of a Q particle. Specifically, I propose that the wh-word *ntsyâ* is not semantically deficient (like other wh-words), but introduces a choice function which operates over a contextually salient set introduced by the restrictor (Reinhart, 1997). Syntactically, I propose that *nstyâ* is a D head which bears a [Q] feature. *Ntsyâ* forms a constituent with its restrictor (and the doubled classifier which correlates with D-linking, if present), and the phrase that it projects is directly attracted by C.

(28) Movement of *ntsyâ*-phrases



This syntactic structure correctly predicts that *nstyâ* will not be able to front and strand its restrictor, despite the fact that it directly bears a formal movement feature.

(29) a. [Ntsyâ tún kárro] shĭn Maria __?
which WOOD car bought M.
'Which car did Maria buy?'

b. *[Nstysâ tún] shĭn Maria kárro?
which WOOD bought Maria car
Intended: Which car did Maria buy?

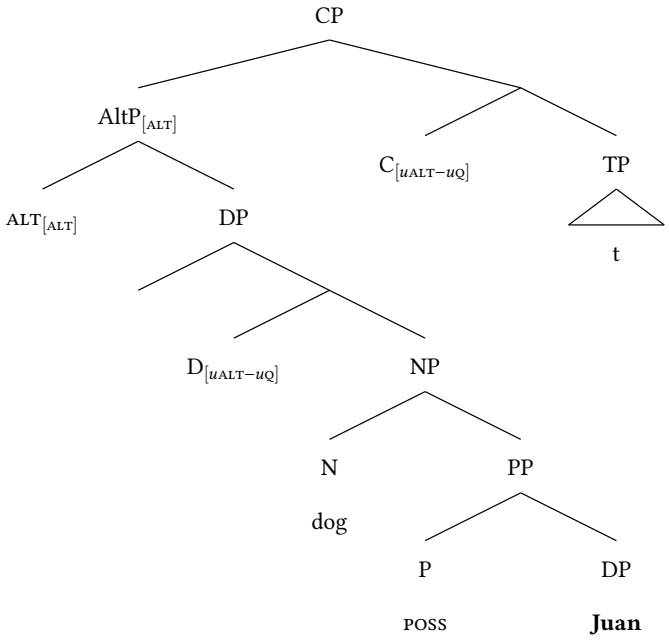
c. *[Ntsyâ] shĭn Maria tún kárro?
which bought M. WOOD car
Intended: Which car did Maria buy?

Thus, this pattern seems to provide independent evidence which suggests that wh-words can be marked with a formal feature and attracted syntactically, independently of the movement of QPs. For D-linked wh-words, this movement targets the specifier of CP, and is directly observable. Because other wh-words are semantically deficient and must appear in the scope of Q, this movement is only observable within the QP.

4.3.2 No focus inversion

With this analysis of wh-inversion in place, let's now move to cases of focus pied-piping. The basic pattern of focus pied-piping is identical to wh-pied-piping, except for the fact that foci do not bear any syntactic feature, and thus are not candidates to undergo movement to spec-DP (and thus, don't invert). In this case, I assume that $D_{[uALT-uQ]}$ can probe and fail to establish an Agreement relationship if there is no Alternative Particle or wh-word in its domain (Preminger, 2014).

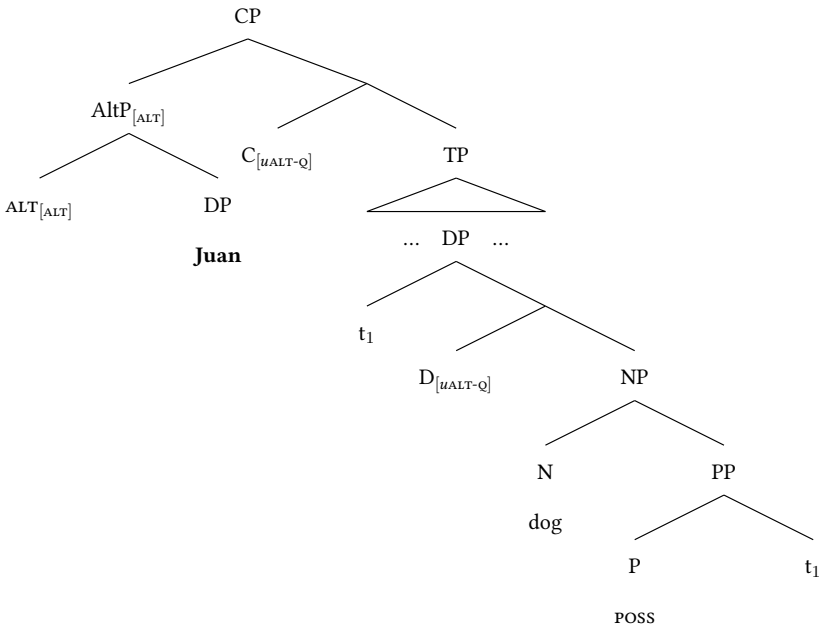
(30)



This provides additional independent evidence to support the claim that foci do not bear any feature. If they did bear a feature like wh-words, then we would expect them to undergo inversion. This is especially true if we adopt a direct attraction account of focus movement. If we adopt that approach, then in order to account for this pattern, we would have to stipulate that foci can move through spec-DP when they undergo subextraction, but can't move there when they are within a larger constituent.

Moreover, unlike the direct attraction account, the Alternative Particle hypothesis can straightforwardly account for the fact that foci can subextract. Recall that I assume that Alternative Particles can attach to different constituents, and therefore they can attach to entire possessive DPs, or to DPs that are the complement of a possessive preposition. Because D bears a probe that searches for [ALT], if there is an Alternative Particle in the c-command domain of D it will be attracted to spec-DP. In this escape-hatch position, the Alternative Particle will be visible to the higher probe on C.

(31) Focus Subextraction



Once the phrase headed by the focus sensitive particle has moved to the specifier of DP, then it is accessible to the probe on C which will attract it to sentence-initial position.

Thus, a welcome consequence of the Alternative Particle approach is that it allows us explain a contrast between wh-words and foci. Part of the theoretical motivation for the Alternative Particle hypothesis is that it allows us to leave foci syntactically unmarked. Pied-piping with inversion gives us some independent evidence that this is indeed the case; foci are not directly attracted by any head.

(32) a. [~ Tsìnà sànà **Juan**] nìxi'i __
dog POSS J. died
'**Juan**'s dog died.'

b. * [~**Juan** tsìnà sànà __] nìxi'i __
J. dog POSS died
Intended: **Juan**'s dog died.

4.4 Conclusion

In this short chapter, I have shown evidence from SMPM which provides additional support for an Alternative Particle analysis of focus displacement. In particular, I have shown that there is a contrast between wh-words and foci: wh-words undergo a secondary step of Ā movement within the pied-piped constituent and foci do not. I have argued that this presents a problem for traditional analyses of focus displacement because foci are able to subextract in SMPM. Thus, simply saying that foci are not attracted within the DP is not sufficient, because in order to subextract focused constituents must be able to move through spec-DP.

On the other hand, assuming the Alternative Particle approach to focus displacement, this contrast falls out quite naturally. Foci do not undergo movement within the

pied-piped constituent because foci are not marked with any formal syntactic movement feature. This contrasts with wh-words, which can undergo inversion within the pied-piped constituent, and thus must be marked with some formal feature. This contrast, I argue, reflects the fact that wh-words are a well-defined morpho-syntactic class, and thus can be defined lexically and assigned features within the lexicon. Foci, on the other hand, are defined relative to a context, and thus are not the type of syntactic object that is marked with a formal movement feature.

In the next chapter, I will continue my investigation into Mixtec by exploring the interaction between wh-words and foci in the language. Specifically, I will show that movement of QPs and other Alternative Particles are no identical, and in fact there is a preference for QPs to move across more local Alternative Particles. This contrast will give us a window into the precise featural representation of QPs and other Alternative Particles.

Chapter 5

On the relationship between WH and Focus

Recall from chapter 1 that there are a number of morphosyntactic parallels between displaced foci and displaced wh-words. For instance, they seem to appear in the same surface position in many languages (Horvath, 1986; Rochemont, 1978, 1986; Chomsky, 1977; Haida, 2007; Aboh, 2007; Rizzi, 1997; É. Kiss, 1998a; Croft, 1990, a.o.). As I demonstrated in chapter 3, this generalization also holds in San Martín Peras Mixtec. Both wh-words and foci surface preverbally, and appear in the same position relative to a number of other syntactic landmarks including adverbs, negation, and quantifiers.

(1) a. Yóó shàshi chìchí?
who ate avocado
'Who ate the avocado'

b. **Maria** shashi rí
M. ate AML
'**Maria** ate it.'

Other clear morphosyntactic parallels between wh-words and foci are common

cross-linguistically. For instance, many languages use the same morphological particle to mark both categories. This is the case in Samoan, for instance.

(2) a. ʼO ā mea'ai na 'aumai e Pita?
ALT what food PST bring ERG P
'What food did Pita bring?'

b. ʼO **le** **talo** na aumai e Pita
ALT DET taro PST bring ERG P.
'Pita brought **the taro**.' Hohaus and Howell (2015): 70-71

Additionally, in some languages, there are co-occurence restrictions on wh-words and foci, or special movement patterns which indicate that they form a natural class. For instance, in Italian, foci and wh-words cannot co-occur within the same clause (Rizzi, 1997), and multiple wh-questions are also not possible (Calabrese, 1984). A similar pattern is described for Quiegolani Zapotec (Black, 1994). By assuming that wh-words and foci form a natural class, restrictions of this type can be described straightforwardly: only one element of this class can be licensed within a clause. In Toba Batak, evidence that wh-words and foci form a natural class comes from movement. Though the language generally disallows multiple fronting—as in other Austronesian languages (Keenan and Comrie, 1977)—multiple foci or a focus and a wh-word can be simultaneously fronted (Erlewine, 2018).

A natural, and fairly common, hypothesis that has been advanced to account for the connection between wh-words and foci is to propose that they are both attracted by the same syntactic head. This claim has been made for Hungarian (É. Kiss, 1998a), Italian (Rizzi, 1997, 2001), Mongolian (Onea and Guntsetseg, 2011), and Toba Batak (Erlewine, 2018), among other languages. Furthermore, some researchers have argued that both are attracted to this position because they bear the same syntactic feature. Throughout this chapter, I refer to this idea as the Identity Hypothesis.

(3) **The Identity Hypothesis**: The displacements of foci and wh-words are formally identical in the syntax. They move to the same syntactic position because their movement is driven by the same feature.

Several versions of this hypothesis have been proposed in the literature. For instance, much work has explicitly proposed that both wh-words and foci are attracted by a left-peripheral Focus head that searches for constituents that bear a [FOC] feature (Bródy, 1990; Rizzi, 1997; Aboh, 2007; Aboh and Pfau, 2011; Aboh, 2016). Along the same line, Erlewine (2018) accounts for the multiple fronting of foci and wh-words in Toba Batak by claiming that they are both "formally focused," and thus share a feature which is subject to attraction by the same head. Finally, Horvath (1986) argues on the basis of Hungarian that [FOC] is a feature that is assigned to the constituent immediately preceding the verb, analogously to Case. She proposes that question wh-words must universally bear a focus feature at LF in order to be interpreted, and thus they move to the same syntactic position as other foci.

So far in this dissertation, I have advanced a view of focus and wh-displacement which is consistent with this hypothesis. Specifically, I have argued that both categories front because they must appear in the scope of Alternative Particles, which bear the feature [ALT] and are moved to the left-periphery. Thus, as it currently stands, the view of focus and wh-displacement that I have advocated here could be seen as a version of (3) where the crucial feature that drives the movement of both categories is [ALT].

In this chapter, I will show evidence that this cannot be the whole story. Specifically, I will show that there is a systematic asymmetry between the behavior of wh-words and foci: though both foci and wh-words move to the same preverbal position in the language, only wh-words can move there when they are in competition. Crucially, this pattern holds even when the wh-word is asymmetrically c-commanded by the fo-

cus, and consequently is syntactically more distant from the probe (4). Put differently, foci can *exceptionally* remain in situ when they co-occur with a wh-word. Throughout this chapter, I refer to this movement pattern as the "Wh-over-Focus Preference."

(4) a. Ntsyâ rí kìtsǐ shǐn **Marta** __
which CLF animal bought M.
'Which animal did **Marta** buy?'

b. *__Marta ñá__ shǐn __ ntsyâ rí kìtsǐ
M. she bought which CLF animal
Intended: Which animal did **Marta** buy?

If we suppose that movement of both constituents is driven by the same feature, as posited in (3), then there is an apparent violation of locality—assuming that probes must attract the closest active goal that they can Agree with (Chomsky, 2000), the most local goal (the Alternative Particle that c-commands the focus) is being skipped by the probe in favor of a non-local goal (the Alternative Particle that c-commands the wh-word).

In this chapter, I argue for more articulated featural representation of the particles that take scope over wh-words and foci. In particular, in order to account for the Wh-over-Focus Preference, I propose that all Alternative Particles in SMPM are lexically specified to bear a formal feature that is associated with their sensitivity to alternatives [ALT]. Q particles, however, represent a subclass of this larger class of focus sensitive particles. In addition to an [ALT] feature, they also bear the the feature [Q] (cf. Cable, 2010).

(5)

Alternative Particles	**Q Particle**
[ALT]	[ALT] | [Q]

Building on insights from the A-domain, I argue that these features are not independent of one another. Instead, I claim that they are arranged hierarchically with respect to one another in a feature geometry (cf. Abels, 2012; Foley and Toosarvandani, 2019). Specifically, I propose that the feature [Q] entails the feature [ALT]. This feature geometry allows us to simultaneously capture the fact that Q particles form a natural class with other Alternative Particles, but also account for the fact that Q particles (and thus, wh-words) will move across more local Alternative Particles (and thus, foci). This featural difference at the level of the Alternative Particle builds on an older, common idea that wh-words themselves are a subtype of foci (Lee, 1999; Bošković, 2002; Sabel, 2000; Kim, 2006; Dong, 2009, a.o.).

While there is a fair amount of work on articulated probing in the A-domain (see e.g., Béjar, 2003; Béjar and Rezac, 2009; Oxford, 2019; Foley and Toosarvandani, 2022; Coon and Keine, 2021, a.o.), there is somewhat less work on articulated probing by probes that trigger phrasal movement in the Ā-domain (though see, Abels, 2012; Kotek, 2014; Hsu, 2017; Aravind, 2017). In this chapter, I argue that the apparent non-local movement of wh-words in (4) can be accounted for using two tools from the A-domain: multiple searches within a locality domain (cf. Béjar and Rezac, 2009; Coon and Keine, 2021) and a constraint that economizes the valuation of probes (cf. Oxford, 2019; Coon and Bale, 2014; van Urk, 2015). Concretely, I propose that a probe relativized to [uALT-uQ] will probe again past an Alternative Particle in subject position, potentially finding a Q particle in object position, due to the fact that an Alternative Particle alone does not completely satisfy the probe's needs. The object will value the probe if it constitutes

a better match for the needs of the probe, and will subsequently be internally merged into the specifier of the probing head.

In addition to my proposal, I consider two alternative hypotheses to explain the Wh-over-Focus Preference. First, I consider whether wh-words and foci are moved by two distinct features. Under this hypothesis, wh-movement and focus movement are superficially similar, but are two distinct movements triggered by two distinct features, albeit to the same apparent position in some languages. Throughout this chapter, I refer to this as the Disjoint Hypothesis.

(6) **The Disjoint Hypothesis**: Foci and wh-words are displaced by distinct syntactic features. The connection between them is epiphenomenal: both happen to move to similar surface positions, which creates the illusion that they are connected with each other.

While this alternative hypothesis could account for some of the facts of SMPM, it encounters both empirical and typological problems. Empirically, I show that the Disjoint Hypothesis struggles to explain why focus movement is normally obligatory in Mixtec, except in the circumstances that a focus co-occurs with a wh-word. Moreover, while it is true that wh-words and foci very often surface in the same position within a single language, the position to where they move varies across languages. Therefore, I argue that if we adopt the Disjoint Hypothesis, we are forced to resign ourselves to viewing the cross-linguistic syntactic connection between wh-words and foci as a mere coincidence. This, I argue, would be an unsatisfactory result.

After presenting my main proposal, I return to the Identity Hypothesis and consider whether it could be maintained by assuming that the preference for wh-movement over focus movement is due to a Focus Intervention Effect (FIE) (Beck, 1996, 2006; Pesetsky, 2000; Li and Law, 2016; Kotek, 2019, a.o.). Given that an *in situ* wh-word in the

scope of a focus operator is ungrammatical in many languages, then it may be the case that fronting a focus instead of a wh-word is impossible in SMPM because it creates this marked structure. However, I show that, in SMPM, the Wh-over-Focus Preference holds even when the focus operator takes narrow, DP-level scope. Thus, I argue that the generalization that wh-words move across more local foci is not reducible to a FIE.

This chapter is organized as follows: in §5.1 I outline the problem of locality presented by the Wh-over-focus preference and show that this preference also seems to hold in other languages besides SMPM. Then, in §5.2, I argue show that proposing disjoint triggers for wh-movement and focus movement leads to undesirable empirical and typological results. Specifically, it resigns us to viewing the morphosyntactic connections between wh-words and focus as epiphenomena, and it leads to empirical problems in the case of SMPM. Then, in §5.3, I present my main proposal for the featural representation of different types of Alternative Particles, as well as the syntactic mechanism that underlies the preference to move a wh-word instead of a more local focus. Finally, in §5.4, I argue that the wh-over-focus preference cannot be reduced to a Focus Intervention Effect. §5.5 concludes.

5.1 The locality problem

Recall from chapter 3 that both foci and wh-words must move to a preverbal position in SMPM; leaving either in situ is ungrammatical.

(7) *Context: What did the dog eat?*
   a. **Kôñù** shìshì rí __
      meat ate AML
      'It (an animal) ate the **meat**.'

b. *Shìshì rí **kôñù**
ate AML meat
Intended: It ate the **meat**.

(8) a. Nă shĭn Marta __?
what bought M.
'What did Marta buy?'

b. *Shĭn Marta nă?
bought M. what
Intended: What did Marta buy?

Moreover, fronted wh-words and foci are in complementary distribution with one another. Movement of a focus to a position between a wh-word and the verb is completely ungrammatical (9a). Instead, the most natural way to form this question is to exceptionally leave the focus in situ (9b).

(9) *Context: My friend Benjamín and I went a party where everyone brought some food or drink to share. We know who brought the meat but we are curious who brought the tortillas. When we go to ask the host, Benjamín mistakenly asks him, "Who brought the meat?" I turn to Benjamin and say, No:*

a. *Yóó **shìtă yá** shìni'ì __ __
who tortilla NEUT brought
Intended: Who brought the **tortillas**?

b. Yóó shìni'ì __ **shìtă yá**
who brought tortilla NEUT
'Who brought **the tortillas**?'

Crucially for the upcoming discussion, a focus will stay in situ regardless of whether it is the subject or the object. That is, a wh-word will move *across* a more local focus.

(10) *Context: My friend Benjamín and I went a party where everyone brought some food or drink to share. We know what Maria brought, but we didn't see what Marta*

brought. When we go to ask the host, Benjamín mistakenly asks him, "What did Maria bring?" I turn to Benjamín and say, No:

Nă kìshashì **Marta ñá** __
what brought M. she
'What did **Marta** bring?'

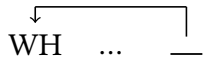
In chapter 3, I argued that Alternative Particles that scope over wh-words and foci move to the same syntactic position in SMPM, as is the case in other languages. In this chapter, I present an account of how to derive this pattern of movement, where a non-local wh-words moves across a more local focus.

Let us begin with the the simplest view on the relationship between wh-words and foci that has been proposed in the literature: wh-words and foci are both marked with a feature, [FOC], which triggers their movement (Horvath, 1986; Aboh, 2016). According to this Identity Hypothesis, wh-words and foci are formally identical in the syntax and the motivation for focus movement and wh-movement is the same. This view makes a concrete prediction about movement that will be fruitful to explore. Specifically, assuming an Attraction-based theory of movement, it predicts that in languages where there is one designated position for foci and wh-words, and only one thing can move to that position, the structurally highest constituent marked [FOC] should move—a type of superiority effect. If wh-words and foci are attracted by the same probe, then we expect that probe to attract the most local goal within its domain (Chomsky, 1993, 2000, 2001a; Pesetsky, 2000; Rizzi, 1990). A probe should not be able to skip any potential goals in order to find a non-local goal. This explains, for instance, why fronting an object wh-word across a more local subject wh-word is generally ungrammatical in English (Kuno and Robinson, 1972; Chomsky, 1973).

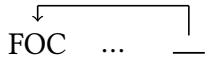
Consequently, under the view that wh-words and foci are attracted by the same feature, we expect to find languages where wh-words and foci display the same pat-

tern. That is, we expect some hypothetical language to move wh-words when they are in subject position and a focus is in object position (11a), but to move the *focus* when it is structurally higher than a wh-word (11b).

(11) a. Subject Wh-word Moves, Object Focus Remains *in situ*

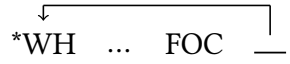


b. Subject Focus Moves, Object Wh-word Remains *in situ*



In addition, the Identity Hypothesis makes another, related prediction: there should be no structually-insensitive preference to front either wh-words or foci. We don't expect, for example, wh-words to be consistently attracted, even if they are structurally lower than a focus in the same clause (12).

(12) Object Wh-Word Moves, Subject Focus Remains *in situ*



Let's scrutinize these predictions. As we have seen, SMPM is a language with obligatory wh-movement and obligatory fronting of foci to a position before the verb. Furthermore, we have reviewed data that suggest they move to the same syntactic position. However, there is a puzzle that arises when we consider clauses with more than one of these elements: wh-movement always takes precedence over focus movement, even if the focus would be a more local goal to the probe, as in (13).

(13) Ntsyâ rí kìtsǐ shǐn **Marta** __
which CLF animal bought M.
'Which animal did **Marta** buy?'

Thus, there is a "Locality Problem" that arises when we consider how wh-words and foci interact in SMPM: namely, attraction to the preverbal position does not seem to respect locality constraints. Instead, there seems to be a general preference to move wh-words.

This locality problem is not restricted to SMPM. For instance, Hungarian is a language where both wh-words (14a) and contrastive foci (14b) move to an immediately preverbal position. Like in SMPM, there is only one syntactic position into which foci and wh-words can move, leading many to argue that focus-fronting and wh-movement should be understood as a unified phenomenon (Horvath, 1986).

(14) a. Hol jártál a nyáron?
where went.you the summer.in
'Where did you go in the summer?'

b. **Olaszországban** jártam
Italy.to went.I
'It was **Italy** where I went.' É. Kiss (1998a): 249-250

As there is only one preverbal focus position in Hungarian, the Identity Hypothesis predicts that the highest element marked [FOC] will move there, be it a wh-word or a contrastive focus. This prediction is not borne out, however. In sentences with both a wh-word and a focus, only wh-words can move to the preverbal position, regardless of whether they originate as the subject (15) or the object (16). Foci will never move instead of a wh-word, even if they originate in a structurally higher position.

(15) a. Ki látogatta meg csak **Marit**
who visited PREV only M.ACC
'Who visited only Mary?'

b. *Csak **Marit** látogatta meg ki
only M.ACC visited PREV who
Intended: Who visited only Mary?

(16) a. Kit látogatott meg csak **Mari**
whom visited PREV only M.NOM
'Who did only Mary visit?'

b. *Csak **Mari** látogatott meg kit
only M.NOM visited PREV whom
Intended: Who did only Mary visit? É. Kiss (1998b): 16-17

Thus, like SMPM, Hungarian seems to display a general preference for wh-movement over focus fronting. Generalizing across both languages, we can state the hypothesis in (17).

(17) **The Wh-over-Focus Preference**: In languages where wh-words and foci are in competition for a single position, only wh-words can front to that position when they co-occur.

This generalization also seems to extend beyond SMPM and Hungarian. A similar preference to move wh-words over foci has been reported in Basque (Hualde and Ortiz de Urbina, 2003, pg. 495) and Georgian (Borise and Polinsky, 2018, pg. 5). While suggestive of a broader cross-linguistic preference to move wh-words over foci, both these cases require caveats. In Basque, some speakers reportedly find wh-words and foci co-occurring within the same clause unacceptable (Ortiz de Urbina, 1999, pg. 315). As for Georgian, Borise and Polinsky (2018) argue that wh-words and foci occupy a preverbal position for prosodic, rather than syntactic reasons. I hope that future investigation into these languages and others clarifies the extent to which the Wh-over-Focus Preference holds cross-linguistically.

Thus, we find an asymmetry that is unexpected if we adopt the Identity Hypothesis: in cases where both foci and wh-words could in theory move, wh-words take precedence. This strongly suggests that there is something about wh-words that makes them special, and that makes them more likely to move than foci. I have not yet seen an

attested language that moves either foci or wh-words, depending on which is structurally highest (11).[1] I take this as evidence that the Identity Hypothesis cannot be maintained for SMPM, nor for other languages which display this preference.

5.2 Against the Disjoint Hypothesis

In the previous section, I outlined a generalization about the interaction between wh-words and foci: in several unrelated languages, wh-movement takes precedent over focus movement when the two are in competition for a single position. There is, however, another hypothesis that should be considered: wh-words and foci are not attracted by the same head, but are instead attracted by two distinct heads which are in complementary distribution with one another. This analysis could feasibly provide an explanation for the preference of wh-movement over focus movement in SMPM, if we assume that the Wh-over-Focus Preference actually reflects a preference to select a head that triggers wh-movement. This hypothesis is especially important to consider given the rich literature which argues for an articulated left-periphery, where the domain of complementizers does not consist of a single head C, but rather a se-

[1] One language that may display this pattern is Amahuaca, a Panoan language spoken in Peru and Brazil (Clem, 2019). Clem reports that is possible for transitive subjects to move to a position in front of an interrogative particle (analyzed as the head of C), leaving a wh-word in object position.

(i) Jan hinan=ra tzova vuchi=hax
3SG.GEN dog.ERG=INT who find=TAM
'Who did his dog find?' (Emily Clem, p.c.)

Clem notes that the context in which (i) appears plausibly allows the subject to be interpreted as a focus, possibly instantiating the prediction of the Identity Hypothesis. However, she cautions that she has not specifically investigated the interaction between wh-movement and focus movement in the language.

If further investigation of Amahuaca indicates that movement of foci and wh-words depends on the structural position of each, then it might be an example of a language where they are indeed represented identically. Alternatively, anticipating the proposal in section 4, it might be the case that the probe on C in Amahuaca is only relativized to [ALT], thus making foci and wh-words an equally good match for the needs of the probe.

ries of functional projections—among them TopicP, FocusP, and InterrogativeP—each of which has a designated function (e.g. Rizzi, 1997, 2001; Aboh, 2016; Frascarelli and Puglielli, 2007a,b; Shlonsky and Bocci, 2019). Broadly speaking, the consensus within the cartographic literature has been that wh-words and foci are attracted by the same head, given the strong correlation between them and the fact that they are in complementary distribution (Rizzi, 1997; Aboh, 2016; Frascarelli and Puglielli, 2007a). However, the logic of the Cartographic Program allows us to consider the possibility that SMPM has multiple attracting heads within the C domain, one which moves wh-words and one which moves foci.

In this section, I explore this alternative hypothesis as a means to explain the complementarity of wh-words and foci, as well as the general preference to move wh-words within SMPM. This hypothesis—which I refer to as the Disjoint Hypothesis—accounts for the locality problem outlined in the previous section by proposing that wh-words and foci do not share any features, nor are they attracted by the same head, despite the fact that they appear to surface in similar syntactic positions. Instead, this hypothesis points to differing licensing conditions as the source of their differing behaviors. As I will show, this alternative can account for some of the facts of SMPM, but it encounters two problems, one empirical and one typological. Empirically, this analysis struggles to explain the fact that focus movement is obligatory in SMPM when no wh-word is present. Typologically, the analysis offers no principled explanation for the robust syntactic correlation between wh-words and foci. Such an account would be forced to conclude that their connection is epiphenomenal—that is, both wh-words and foci are independently attracted by two distinct probes on C, creating the illusion that they are connected with one another. Consequently, this analysis would force us to abandon a deeper generalization about the connection between wh-words and foci, and thus should be dispreferred to an analysis that offers a principled explanation for

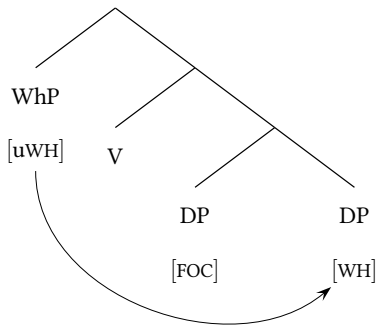
the connection between the two.

5.2.1 Two heads in the C domain

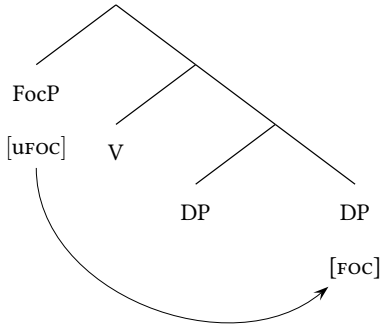
Under the Disjoint Hypothesis, SMPM has two distinct probe-bearing heads in the C domain which are in complementary distribution with one another. One of these probes attracts foci and one attracts wh-words. Under this analysis, foci bear a feature [FOC] which can enter into an agreement relationship with a focus probe, while wh-words bear a distinct feature [WH] which can enter into agreement with a wh-probe. These two distinct probes, along with the disjoint features of foci and wh-words, ensure that there is no single probe that is searching for both foci and wh-words, and thus neither will act as an intervenor for the other.

Under this analysis, the apparently non-local movement of wh-words is attributable to the fact that the probe which attracts wh-words does not interact in any way with foci. Anything that is not a wh-word will not intervene due to the relativization of the probe (18a). The fact that a wh-word moves instead of a more local focus is unsurprising—the focus simply doesn't have the feature that the probe is looking for. Under this analysis, focus movement is driven by a different probe, which is relativized to [uFOC]. When the focus probe is merged, it will move the most local constituent marked as [FOC], ignoring any constituent that doesn't bear a focus feature (18b).

(18) a.

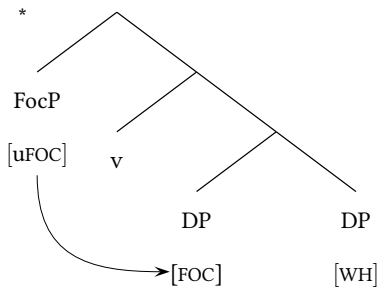


b.



In order to account for the complementarity of wh-words and foci in the left-periphery, this hypothesis would have to stipulate that the probes which target foci and wh-words, respectively, are in complementary distribution with one another. Assuming that either of the two probes could be merged in any given derivation, then there must be some mechanism to ensure that the wh-probe is always merged when a wh-word is present, forcing it to be attracted instead of the focus. Put differently, the derivation needs to be ruled out where the focus probe is merged, attracting a focus in subject position and leaving an object wh-word *in situ*, a configuration which is ungrammatical in SMPM (19).

(19)

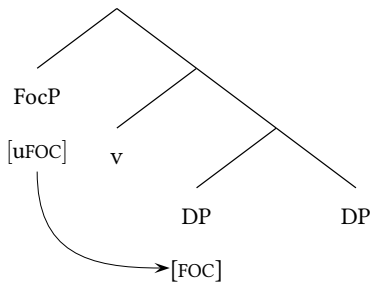


One reasonable way to rule out this configuration would be to say that wh-words have a licensing requirement which forces them to enter into an agreement relationship with a wh-probe (cf. the *wh-criterion* May, 1985; Rizzi, 1996). The effect of this licensing requirement is that a wh-probe must be merged in any derivation that has a wh-word, or else the wh-word will not be properly licensed. Merging the focus probe instead will cause the derivation to crash, as the wh-word will not have its licensing needs met (cf. the *Greed Principle*, Chomsky, 1995; Bošković, 1995). Thus, wh-words will be attracted when they are present in a derivation, while foci will either be attracted or left *in situ*, depending on which probe is merged.

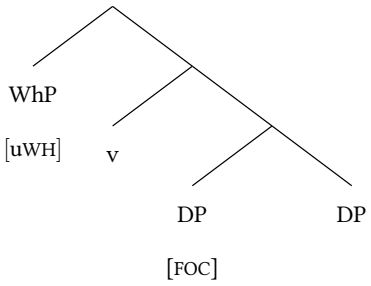
A crucial assumption of this analysis would be that foci do not have the same licensing needs as wh-words in SMPM. That is, foci can surface in a derivation with a wh-probe (as in 18 above), but wh-words cannot appear in a derivation with a focus probe, as they will remain unlicensed (19). Thus, on this account, because wh-words have stricter licensing requirements than foci, they will be attracted in derivations where both occur, accounting for the the locality problem outlined in the previous section.

This assumption encounters an empirical problem, however, when we recall that focus movement is obligatory in SMPM. If the focus probe and the wh-probe are in free variation, and only wh-words are subject to a licensing requirement, then we expect focus fronting to be optional—foci will move if and only if the focus probe is merged (20a) and will remain *in situ* if the wh-probe is merged (20b). Crucially, the assumption required to explain the preference for wh-words—the difference in licensing requirements between wh-words and foci—forces us to conclude that there should be no problem if a focus does not enter into an Agreement relationship with any probe (20b). It is, however, always ungrammatical to leave a focus *in situ* if there is no wh-word in the clause.

(20) a.



b.



Thus, assuming disjoint features confronts an empirical problem: how can we ensure that focus movement will be obligatory if there is no wh-word present in the

derivation, but prohibited if there is one? The Disjoint Hypothesis can explain the preference for movement of wh-words, but the necessary assumptions for that analysis lead us to predict that focus movement should be optional in cases with no wh-words, contrary to fact.

5.2.2 Missing a deeper generalization

Recall the robust cross-linguistic generalization that we began with: in languages where wh-words and foci both move, they seem to move to the same position. Thus, a desideratum of any analysis should be to explain this correlation in a principled way. The alternative analysis sketched in the previous subsection supposes that the reason that wh-words and foci move to the same position is because there happen to be two attracting heads in the C domain in SMPM: one that targets foci and one that targets wh-words. That is, the connection between these two elements boils down to the particular lexical items and probes that are available in the language.

However, when we consider a wider variety of languages, we see that although wh-words and foci consistently move to the same position, the position within the clause that they move to varies from language to language. In some languages, foci and wh-words both move to the complementizer domain (e.g. Italian & Gungbe, Rizzi, 1997; Aboh, 2007) and in other languages, the move to a position within the inflectional domain immediately before the verb (e.g. Hungarian & Malayalam, É. Kiss, 2002; Jayaseelan, 2001). Each of these languages instantiates the correlation between wh-movement and focus movement, yet there is no consistent position to which they move. This is important, because it indicates that the connection between wh-words and focus is not epiphenomenal. That is, it is not the case that they are both connected to a particular position (say, spec-CP), and that these two *independent* connections create the illusion that they are correlated with one another. Rather, wh-words and foci

seem to be tightly connected to *one another*, regardless of the structural position that they ultimately move to.

Given the fact that wh-words and foci can, in principle, appear in multiple positions throughout the clause—especially in the C domain and v domain—if we adopt the Disjoint Hypothesis then we expect to find languages where the two probes that attract them are hosted on distinct heads, even in distinct parts of the clause. In actuality, the generalization that wh-words and foci move to the same position is quite cross-linguistically robust. It is unlikely the case that it is merely a coincidence that in so many languages the probe searching for wh-words and the probe searching for foci happen to be merged in the same position. Adopting any analysis that cannot explain that larger generalization is, it seems to me, theoretically unsatisfying.

Given this desideratum—to explain the syntactic connection between wh-words and foci in a principled way—in the following section, I propose an analysis arguing that movements of both are triggered by the same head. As I will show, this analysis attributes the fact that wh-words and foci seem to move to the same position by supposing that they are attracted by the same head, which can surface in different positions throughout the clause in different languages. Furthermore, I claim that the features associated with each can account for the fact that wh-words move instead of more local foci.

5.3 The features of Alternative Particles

5.3.1 Syntactic properties of Alternative Particles

Much work on the interaction between wh-words and foci has often assumed that wh-words are a specific type of focus. That is, wh-words, like foci, introduce focus alternatives, but they also have some property which distinguishes them from other

foci. Several papers make the explicit claim that wh-words bear two formal features—a [FOC] feature and a [WH] feature—to formalize this intuition (e.g. Lee, 1999; Bošković, 2002; Sabel, 2000; Kim, 2006; Bocci et al., 2020).

However, it is important to distinguish here between two interrelated notions: a semantic property of introducing focus alternatives and a prosodic property of non-canonical pronunciation. While wh-words—like foci—introduce alternatives, they are not always prosodically focused with a pitch accent. This is the case, for instance, in English, where wh-words do not receive primary sentential stress in wh-questions, in contrast to foci (Gunter, 1966; Culicover and Rochemont, 1983). Wh-words *are* prosodically focused, however, when they remain in-situ and are interpreted as an echo question (Erteschik-Shir, 1986; Beck and Reis, 2018). For this reason, it is important to keep separate the notion of introducing focus alternatives and being prosodically focused. These notions are especially important to separate when we consider languages, like SMPM, which mark foci primarily syntactically.

Here, I adopt basic intuition that wh-words are a subclass of foci, but argue that it applies at the level of Alternative Particles. That is, there is a class of particles that are sensitive to focus alternatives and bear the formal feature [ALT]. Q particles, which bear the feature [ALT] by virtue of the fact that they are sensitive to focus alternatives, also bear a separate feature [Q]. Furthermore, I assume that these features are arranged in a feature geometry (cf. Harley and Ritter, 2002). That is, they are not independent of one another, but instead the feature [Q] entails the feature [ALT].

(21)

Focus Sensitive Particles	**Q Particles**
[ALT]	[ALT]
	|
	[Q]

Feature geometries have often been used in syntax and morphology to capture the intuition that syntactic features are not unstructured, but in fact can be related to one another in principled ways (see e.g., Harley and Ritter, 2002; Béjar, 2003; Béjar and Rezac, 2009; Foley and Toosarvandani, 2022; Coon and Keine, 2021, a.o.) For instance, if we accept that the ϕ-features [SPEAKER] and [PARTICIPANT] are part of the grammar of a particular language, then we want our theory of features to capture the fact that all speakers are necessarily participants (Harley and Ritter, 2002; Béjar, 2003, a.o.). In a similar way, if we want to capture the intuition that Q particles are members of a class of Alternative Particles, but subset of that class which has unique properties, one way to represent this relationship is by positing that Q necessarily bears a superset of the features present on other focus sensitive particles.

The idea that Ā-features can be arranged in entailment relationships is not new. Early work by Starke (2001) argued that Relativized Minimality can be sensitive to subclasses of features, accounting for the fact that specific wh-words can extract out of wh-islands. This fact led Starke to propose a representational constraint on wh-movement which allows subclasses to extract across superclasses.

(22) a. $^{*}\alpha\ldots\alpha\beta\ldots\alpha$

b. $\alpha\beta\ldots\alpha\ldots\alpha\beta$ Starke (2001): 8

Building on these ideas, Abels (2012) and Aravind (2017) argue for more articulated Ā-feature geometries that include a common feature [OP] for wh-words and

foci. However, in the feature geometry proposed by Abels (2012) wh-words and foci are not featurally distinct. According to the geometry proposed in Aravind (2017), foci and wh-words bear [FOC] and [WH] features, respectively, in addition to each bearing an [OP] feature. Thus, both argue that wh-words and foci have an overlapping featural representation, however, neither proposes a detailed description of how probing works in the Ā-domain. This will be the aim of the next section.

5.3.2 Articulated probing in the Ā-domain

I assume that movement is the product of two component parts: Agreement and Internal Merge (Chomsky, 2001a; Starke, 2001; van Urk, 2015, a.o.). Furthermore, I assume that Agreement is also split into two distinct operations: i) a *search* operation MATCH (which finds features the probe is relativized to) and ii) a *valuation* operation VALUE (which transfers features to the probe) (Chomsky, 2000). I assume that the search operation is strictly local, but that a probe need not necessarily be valued by the most local goal which it has matched with (Boeckx and Jeong, 2004). Thus, I assume that a probe relativized to some feature will match with the most local syntactic constituent in its domain that is specified for that feature (cf. *Attract Closest* and *Relativized Minimality* Chomsky, 2000; Rizzi, 1990). However, as I will argue below, the goal that ultimately values the probe need not be the first goal that it has matched with. Instead, the goal that can most completely satisfy the probe's needs will value it. Consequently, under certain circumstances, a probe can be valued by, and attract, a non-local goal.

I assume that Internal Merge is not inherently constrained by Attract Closest, and is a "free" operation which simply combines two syntactic objects (Chomsky, 2001a). Internal Merge is, however, constrained by economy, and only combines objects that have entered into an Agree relationship with one another (Chomsky, 1995). For our

purposes, I assume that Internal Merge can only apply to goals which have *valued* the probe, simply matching with the probe is not sufficient for movement. Thus, phrasal movement occurs when a copy of a phrase that has valued the probe is Internally Merged as a specifier of the probing head.

(23) **Valuation is a prerequisite for Internal Merge**: A goal must value the probe in order to be attracted by that probe.

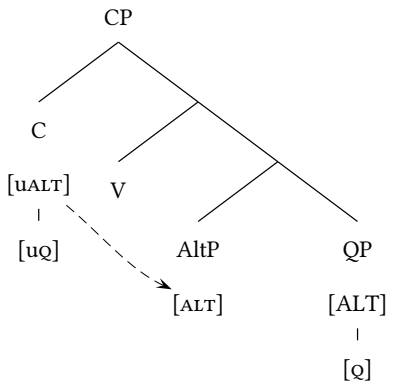
I propose that SMPM has a probe on C that is relativized to the feature geometry [uALT-uQ].[2] When this probe initiates a search, it will find goals within its domain that have matching features. Following Béjar (2003), I assume that any goal that has a feature that entails the root of the probe can match with it. Thus, all types of Alternative Particles can potentially match with the probe, as all bear the [ALT] feature that is at the root of the probe.

Match is an operation that is constrained by locality. That is, if there are two goals that could potentially match with the probe, it will first match with the most local goal (as defined by asymmetric c-command). In the case under investigation, this means that when an Alternative Particle in subject position c-commands a Q particle in object position, the probe on C will first attempt to match with the Alternative Particle in subject position. For presentational purposes, I represent the MATCH operation with a

[2]In other languages, more than just foci and wh-words are attracted to the same position. In Hungarian, for instance, the position occupied by wh-words and foci is also occupied by negative existential quantifiers and negative adverbs. This is not the case in SMPM: recall from section 2.2 that both foci and wh-words surface in a position above fronted negative indefinites and manner adverbs. This suggests that there is cross-linguistic variation related to what class of elements are in complementary distribution with one another. Furthermore, this may suggest that in some languages, multiple probes can be "bundled" onto a single head, leading to complementarity, whereas in other languages, the same probes can be hosted on separate heads (see e.g., Hsu, 2017). This account would predict that the ordering of these bundled probes should be fixed, such that it matches the structurally position of the probes in languages where they are not bundled. Given that in SMPM, fronted foci and wh-words are structurally higher than manner adverbs and negative indefinites, this account predicts that the probe that is looking for wh-words and foci should initiate a search before the probe that searches for negative existentials and negative manner adverbs in languages where these probes are bundled onto a single head. I leave to future work the investigation of this prediction.

dashed arrow in the following trees.

(24) Focus > WH

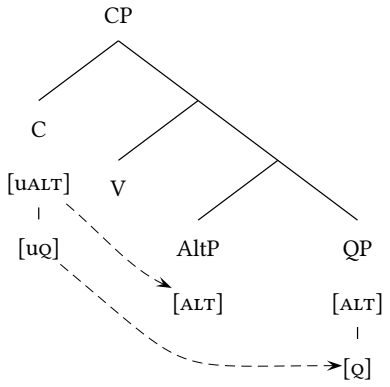


Though this goal matches with one of the features of the probe, it is not a complete match. The [uQ] feature of C has not yet found a match, and thus cannot receive a valuation. I assume, following Béjar and Rezac (2009), that this can trigger a second search cycle to attempt to find a match for [uQ].[3] That is, if any features on the probe remain unmatched after the probe has interacted with the first goal, these features can probe again, possibly finding a different goal within the clause to match with. This means that a single probe can match its features with both the subject and the object, as long as the subject does not exhaustively match its features (cf. *Feature Gluttony*, Coon and Keine, 2021). Concretely, this means that if the probe on C does not find a Q particle in subject position, it will search again, potentially finding one in object

[3]A crucial component of the system proposed in Béjar and Rezac (2009) is the notion that any unvalued features on the probe are reprojected to a structurally higher position. This is important for their analysis because they consider cases where the probe is located on *v*P, and can only find the internal argument on the first cycle of Agreement. In the cases they consider, the external argument is only within the search domain of the probe once it reprojects (termed *Cyclic Expansion*). While there is nothing inconsistent about the concept of reprojection with the facts of SMPM, the configuration that I am considering is different. Specifically, I am considering cases where the probe is located on C can find the subject on the first search cycle. Because the probe is located on C, reprojecting the probe will not allow access to any goals that it did not already c-command. Lacking any empirical motivation for this aspect of their analysis, for simplicity sake I do not adopt it here. However, I do not intend to make any claims about whether features can reproject in general.

position. If there is a Q particle in object position, then the [uQ] feature on the probe will match with it.

(25) Focus > WH



Thus, after two search operations, the probe has matched with two goals:

(26) Set of Matched Goals (S): $\{\text{AltP}_{[\text{ALT}]}, \text{QP}_{[\text{ALT-Q}]}\}$

Because articulated probes have more than one feature that they need to match and value, it is possible that some goals will only partially satisfy their needs, while other goals will completely satisfy their needs. If an articulated probe bears an EPP feature (that is, requires something to move into its specifier), by what mechanism does it decide which of the multiple goals it has matched with will value it and be attracted? I propose that when an articulated probe requires something to be merged into its specifier and it has matched with multiple goals, the goal that more completely satisfies the needs of the probe will value it and be Internally Merged. Formally, I propose the constraint ECONOMIZE VALUATION, defined in (27) (cf. Oxford, 2014, 2019; Coon and Bale, 2014; van Urk, 2015):

(27) ECONOMIZE VALUATION: A probe *P* that has matched with a set of goals *S* is valued by goal *G* in *S* such that the number of features on *G* relevant to *P* is greater than the number of features for any other *G'* in *S*.

At the core of this constraint is the notion that movement is triggered, and only happens to the extent necessary to converge a derivation. Because valuation of a probe with an EPP feature is "costly" (i.e., it triggers an Internal Merge operation), this is an operation this is, in principle, subject to economy. A similar idea is presented in Pesetsky and Torrego (2001):

(28) **Economy Condition:** A head H triggers the minimum number of operations necessary to satisfy the properties (including EPP) of its uninterpretable features.

Pesetsky and Torrego (2001): 359

It is worth briefly considering what it means for an articulated probe to bear an EPP feature. In particular, articulated probes allow us to ask what kinds of syntactic objects EPP features are associated with: heads or individual features? For non-articulated probes, there is no difference between these two analytical options, but in the case that more than one feature is associated with a head, then it may be possible to tell these two possibilities apart. In the case of SMPM, there is a single head that bears an articulated probe consisting of two features: [ALT] and [Q]. The question then, is whether the trigger or movement is associated with one or both of the features, or with the head. Assuming that *valuation* of a probe is what triggers movement, then, in principle, there are three possible ways that the EPP feature could be associated with the probe that is consistent with the facts of SMPM. First, the EPP feature could be associated with the head, triggering movement of whatever goal values the entire

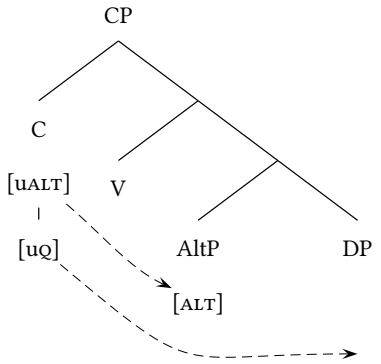
probe. Second, the probe could be associated with *only* the [ALT] feature. Because both Alternative Particles and Q particles bear this feature, either could value this feature, triggering internal merge. Note, however, that this possibility is only consistent with the facts assuming that valuation of [ALT] is delayed until the the search for a [Q] feature is exhausted. Finally, the EPP feature could be associated with *both* the [ALT] feature and the [Q] feature. Under my account, both of these features will be valued by the same goal (or else, the [Q] feature will remain unvalued), so both of these EPP features could be satisfied simultaneously by the same internal merge operation. The fourth logical possibility—the EPP is associated with *only* the [Q] feature—is not consistent with pattern of SMPM. This would predict that only goals that can value the [Q] feature (namely, QPs) would undergo movement to the specifier of C. However, it is worth considering whether this analytical possibility is present in other languages. In fact, many languages move QPs but do not move other Alternative Particles (English, for example). Thus, it is conceivable that these languages have a similar probe to SMPM, but a different pattern of EPP features.

(27) is also inspired by, though slightly different, than several recent proposals (called "Best Match" in those papers) which attempt to account for patterns where an agreement morpheme will track either the subject or the object, depending on their feature specifications. To account for this, Coon and Bale (2014) and van Urk (2015) argue that a probe can skip a local goal when a non-local goal would better satisfy the needs of the probe. Similarly, Oxford (2014, 2019) shows on the basis of Agreement morphology in Algonquin that a probe on Infl will agree with either the subject, the object, or both, depending on which is a better match for the needs of the probe. That is, the probe, will track the subject or the object, depending on which shares more of its features.

Recall that in derivations with no wh-words, foci move obligatorily to the left

periphery. This fact can be captured using the same assumptions about the Agree mechanism. First, the probe matches with the Alternative Particle. As the [Q] feature remains unmatched after this first cycle, it probes again attempting to find another match. However, as there is no goal that bears the matching feature within the probe's domain, it will not match with any goal. I assume, following Preminger (2014), that it is necessary for a probe to initiate a search, but that failure to Agree does not not crash the derivation.

(29)



After matching all the features that it can, the probe on C has entered into a matching relationship with the following set of goals:

(30) Set of Matched Constituents (S): $\{\text{AltP}_{[\text{ALT}]}\}$

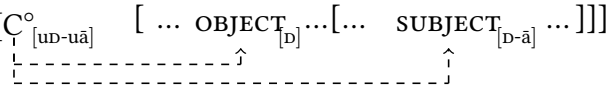
According to ECONOMIZE VALUATION, the probe will be valued by the Alternative Particle that it has matched with. Though it doesn't completely satisfy the probes needs, there is no other goal that the probe has matched with that can satisfy its needs better.

Importantly, the fact that foci move obligatorily in the absence of a wh-word demonstrates that Alternative Particles are not simply invisible to the probe on C—they can be attracted just in case there are no Q particles in the derivation. An inte-

gral part of this system then, is the notion the valuation of a probe is delayed until all possible match operations have been exhausted within its domain. If valuation were immediate after match, then we would expect Alternative Particles to be attracted as soon as they are matched, even if a subsequent match operation would find and attract a Q particle. Assuming that valuing a movement-triggering probe is sufficient to be internally merged into its specifier, then if an Alternative Particle in subject position could immediately value the [uALT] feature as soon as it enters into a match relationship, we would expect it to be able to move regardless of whether a subsequent Match operation finds a Q Particle. Moreover, if the [uQ] feature is subsequently valued by a Q Particle, then we would expect it to also be attracted, contrary to fact. In other words, assuming that all valuation of a movement-triggering probe results in internal merge, only the Q particle is valuing the probe in Wh-over-Focus derivations.

This tendency to delay and economize valuation may not be a universal property of the Agreement mechanism. According to Coon et al. (2021), in Mayan languages, probes can be immediately valued by arguments that they match with, leading in some cases to a derivation crash. Specifically, the authors account for a restriction on Ā-extraction of ergative arguments by positing an articulated probe searching for [uĀ, uD] features. The authors propose that when this probe matches with absolutive argument (which they argue moves to a structurally higher position than the ergative argument), its [uD] feature is immediately valued. If the ergative argument bears an [Ā] feature, then the probe will match with it and also be valued by it. Because each valuation must trigger a movement operation, these two "conflicting" valuations from two separate goals will create irreconcilable demands on the probe, leading to a crash of the derivation. Specifically, the issue relates to the timing of movement: both goals need to move, but they can't move simultaneously or sequentially. Following Coon and Keine (2021), the authors refer to this pattern as "Feature Gluttony."

(31) **"Feature Gluttony" in Ā-Probing**



Coon et al. (2021): 287

Thus, if the account in Coon et al. (2021) is correct, then some languages may not economize over the valuation operation in the same way that SMPM does. However, it is important to note that straightforwardly adopting the approach of Coon et al. (2021) would incorrectly predict that a wh-word could not move across a more local focus in SMPM, given that Q particles bear a superset of the features of other focus sensitive particles. Thus, I propose that in SMPM this derivation crash can be avoided by delaying valuation until all match relationships have been established.

5.3.3 Two alternatives

In the previous subsection, I argued that there is a single probe on C in SMPM which searches for both [ALT] and [Q] features. In order to account for the Wh-over-Focus Generalization, I argued the the grammar economizes valuation, ensuring that a Q particle will value the probe if it is able to. In this subsection, I briefly consider two alternative approaches to bundled Ā-probing.

A bundled probe?

Some previous work has argued that multiple Ā-features can be bundled on a single head. This approach, for instance, is taken by Hsu (2017) to account for languages that have "relaxed" V2 requirements, and by Kotek (2014) to account for the interaction between superiority violating multiple wh-questions and focus intervention effects in Hebrew. In particular, Hsu (2017) adopts the "Feature-Scattering Hypothesis" of Giorgi and Pianesi (1997): in some languages, multiple Ā-features are bundled on a

single head in the left periphery, while in other languages, these same features can be "scattered" across several distinct heads.

Kotek (2014) assumes a similar bundling of features on a single head to account for cases where superiority-violating multiple wh-questions in Hebrew do not trigger Focus Intervention Effects. Abstracting away from the details, she posits a head that bears both a [uWH] probe and a [uQ] probe. Furthermore, she argues that Agreement can be parasitic: when a probe establishes an Agreement relationship with some goal, all other probes on the same head can attempt to establish Agreement with that goal. Kotek (2014) assumes that the order of probing of the [uWH] feature and the [uQ] is not fixed. In principle, either can probe first, and in fact this fact allows her to account for the fact that only some superiority-violation questions in Hebrew display Focus Intervention Effects.

Thus, an alternative account for the Wh-over-Focus Generalization in Mixtec presents itself: [ALT] and [Q] are features bundled on the same probe. When [Q] probes first, it can find a Q particle in object position, ignoring any other structurally higher focus particles. Then, by Parasitic Agreement, the [ALT] probe can also enter into Agreement with the Q particle, bypassing the structurally higher focus particle completely.

In order to evaluate this proposal, it first necessary to establish a key assumption that we would be forced to make. To account for the pattern of Mixtec, the [Q] feature would have to probe before the [ALT] feature. If [ALT] is allowed to probe first, then we would predict a derivation where an Alternative Particle in subject position enters into an Agreement relationship with the [ALT] probe, then the [Q] probe searches for and finds a Q particle in object position. Given that focus sensitive particles move in the absence of a wh-word, it is safe to assume that valuation of the [uALT] feature alone can trigger movement to its specifier. Thus, allowing [ALT] to probe first would make an incorrect prediction. If [uQ] has an independent EPP feature, then we predict that

a focus-over-Wh configuration will trigger movement of both. If, on the other hand, [uQ] does not have an independent EPP feature, then we predict that an Alternative Particle in subject position will be attracted, leaving a Q particle in situ. Given that neither of these possibilities are possible in SMPM, this alternative analysis would require the stipulation that the [Q] feature must always probe first. Furthermore, a fixed order of probing is required to capture the cross-linguistic Wh-over-Focus Generalization. Supposing that other languages (besides SMPM) allowed for [uALT] to probe first, then we would expect to find languages that move either a focus or a wh-word, whichever is structurally higher. To my knowledge, this pattern of movement has not been attested.

Thus, in contrast with the assumption that Kotek (2014) makes about articulated probing in Hebrew, this alternative analysis for the Wh-over-Focus Generalization would be forced to state that [Q] probes before [ALT] cross-linguistically. Consequently, when evaluating this alternative hypothesis, we should ask: is there an empirical or theoretical motivation to stipulate that [uQ] must always probe before [uALT]?

In his theory of bundled probes, Hsu (2017) proposes that the ordering of probing is not variable, but fixed according to a universal ordering constraint (Giorgi and Pianesi, 1997). This constraint ensures that there will be a correlation between languages that realize several Ā-features on a single head, and those that realize the features on distinct heads within the C-domain.

(32) **Universal Ordering Constraint**:

Features are ordered so that given $F_1 > F_2$, the checking of F_1 precedes the checking of F_2.

Giorgi and Pianesi (1997): 14

In short, this constraint states that if two features are realized on two distinct heads

in one language (with F_1 always structurally higher than F_2), then when those two features are bundled together on the same head in another language, F_1 will probe before F_2.

Thus, following the empirical motivation for fixed probing leads us to the following prediction: if [uQ] is universally ordered to precede [ALT], then we expect that fronted wh-words to always precede fronted foci in languages where both can move. In other words, this fixed order of probing should correlate with fixed structurally positions within the left periphery.

Indeed, in some languages, wh-phrases must precede focused elements when they both move to the left-periphery. In Toba Batak (Austronesian), for instance, when both a wh-phrase and a focus are fronted, the wh-word will precede the focus.

(33) Ise holan **indahan** di-allang __ __?
who only rice PASS-eat
'Who ate only rice? Erlewine (2018): 669

To be empirically consistent with the proposal in Universal Ordering Condition proposed in Giorgi and Pianesi (1997), we would expect that this ordering should be universal. However, in other languages, such as Babine-Witsuwit'en (Athabaskan), fronted foci must precede fronted wh-words.

(34) Hoo', **lhës 'iy** nts'ë Lillian __ yunkët
no bread FOC where L. 3SG.bought.3SG
'No, where did Lillian buy the **bread**?' (not the fish) Denham (1997): 64

Furthermore, according to Erlewine (2018), the fixed order of Wh over focus in Toba Batak is driven by semantic, rather than syntactic factors. He argues (fn. 11, pg. 668) that the opposite order (Focus > WH) is ruled out by a semantic Focus Intervention Effect.

Thus, a fixed order of Wh > Focus in languages where they both move does not seem to be empirically or typologically motivated. Consequently, there is no clear motivation to posit a universally fixed order of probing of [uQ] > [uALT].

Finally, it is worth considering the conceptual differences between this approach and the analysis proposed in the previous subsection. If the order of probing is fixed, then there must be some independent principle that restricts lexical entries cross-linguistically, such that the head in (35a) is allowed, but heads of the form (35b) are disallowed (where the order of heads reflects the order of probing, from top to bottom).

(35) a.

H°
[uQ]
[uALT]

b.

* H°
[uALT]
[uQ]

It does not seem clear to me why such a restriction on lexical items would be warranted. It is not so simple as to say that the head in (35b) is unlearnable. In fact, a hypothetical language with that lexical item would display a unique pattern of fronting which would presumably give a child enough information to posit it. Specifically, the head in (35b) would move the structurally highest focus if there are two in the derivation. If a wh-word is structurally higher than a focus, then it would move alone. If, however, a focus was structurally higher than a wh-word, then they would both move. Thus, a language with such a probe would display a complex pattern of fronting related to the structural positions of wh-words and foci. Given that children are often forced to make inferences about lexical items on the basis of complex patterns, I see no reason why this pattern would be particularly unlearnable.

In contrast, my proposal places this cross-linguistic restriction not in the lexicon, but in the syntax proper. It is optimization in probing and valuation that triggers the WH-over-Focus Generalization, not optimization of lexical items across languages.

Interaction and satisfaction?

One of the crucial features of the system proposed above is that a single probe can Agree with multiple goals, so long as it has not found a match for all of its features. Because the probe on C in SMPM is relativized to both [ALT] and [Q] features, this means that the probe will continue probing until it has found a Q particle, or has exhausted all the goals within the domain of its search. This same intuition is formalized by Deal (2015) as a distinction between features that a probe will interact with, and those that can satisfy the probe, thereby halting the search. According to this system, when a probe interacts with a goal, it will copy the φ-features present on the goal. When a probe is satisfied by a goal, the goal will value the probe's features and the search will halt. In principle, there are no restrictions on what features are interaction features and which are satisfaction features. Instead, this information is included as part of the relativization of the probe. One clear contribution of this system is that it formalizes the circumstances in which a probe can Agree with multiple goals, an idea present in earlier work on Cyclic Agree (e.g., Béjar and Rezac, 2009). So long as the probe has not interacted with a goal that satisfies it, it will continue to probe its domain.

There are aspects of Deal's system which seem to translate quite easily to the pattern of wh-movement and focus-fronting in SMPM that I have outlined in this chapter. First, it involves a pattern in which two types of goals interact with the same probe. Second, it is a pattern in which only one of those goals will halt further search. Thus, we could easily imagine translating the above proposal into Deal's terms in the following way: the probe on C interacts with the features [ALT] and [Q], but is only satisfied by [Q]. This means that if an Alternative Particle c-commands a Q particle, the probe on C will interact with the feature of the Alternative Particle, but the search will not be halted until it reaches the Q Particle or all of its possibe goals have been exhausted.

In other words, in focus-over-Wh configurations, the probe must target both the subject and object, because it will not be satisfied upon Agreeing with the Alternative Particle alone. If, however, the Q particle c-commands the Alternative Particle, then the search will be halted upon Agreement with the subject, due to the fact that the probe will be satisfied.

While Deal's system was originally used in the domain of φ-Agreement, we can imagine how the system could be extended to account for the movement patterns of SMPM. First, I have been operating under the hypothesis that valuation of a probe is a precondition for Internal Merge—simply matching with a goal does not trigger movement. If correct, then straightforward application of Deal's system to SMPM would predict that only Q-particles will be attracted by the probe on C. If only [Q] satisfies the probe and triggers valuation, then we would not expect Alternative Particles to be attracted in the absence of a wh-word. However, I believe that an Interaction and Satisfaction Model could be extended to correctly account for the empirical facts of SMPM. In particular, this extension would be committed to one of two possible solutions: (i) simple interaction with a probe is sufficient to trigger Internal Merge. In other words, this solution would reject the hypothesis that a goal must value (i.e., satisfy) a probe in order to be attracted. However, it is important to note that assuming that goals that interact with the probe can be attracted is not enough to account for the Wh-over-focus Preference we find in SMPM. Deal's system would need to be expanded in some way to capture the preference to move non-local foci. Perhaps, we could simply stipulate that probes prefer to attract goals which bear a satisfaction feature, rather than an interaction feature. However, lacking a principled reason in support of this position, it would remain a stipulation. (ii) Alternatively, Deal's system could be extended by claiming that movement of a goal which bears an interaction feature is generally disallowed, but can be done as a last resort, just in case the

probe does not interact with any goal that bears its satisfaction feature. For instance, one could imagine stating that the EPP feature present on C is "important" enough to override a general restriction on movement of goals which do not value the probe.

In principle, I don't see any reason why either of these possible commitments should be automatically rejected, either on conceptual or empirical grounds. Put differently, I think, given a set of reasonable extensions, Deal's system could capture the Wh-over-Focus Preference that we find in SMPM. However, I believe that one advantage of the analysis proposed in the previous section is that it explains the preference to move Q Particles over more local Alternative Particles in terms of economy. In Deal's system, the fact that a given feature satisfies the probe is a purely formal property. If there are not inherent restrictions on the types of features that can satisfy the probe, then we might expect some languages to have probes which interact with [ALT] and [Q] but are satisfied by [ALT]. Such a probe would move an Alternative Particle, potentially leaving a Q particle in situ. However, as discussed in §5.1, the generalization seems to be that languages (even genetically unrelated languages) prioritize movement of wh-words over foci. Thus, the larger cross-linguistic generalization would remain unexplained under this system.

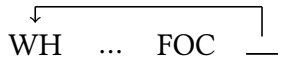
In the system I propose in this chapter, however, this larger cross-linguistic generalization can be explained by a more general economy principle. Because Q particles more completely satisfy the needs of probes that are relativized to search for both [ALT] and [Q], ECONOMIZE VALUATION will force the Q particle alone value the probe (and move), rather than having two distinct goals value the probe.

5.4 Focus intervention and the Identity Hypothesis

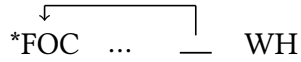
Recall that in §5.1, I considered and rejected the Identity Hypothesis, which proposes that foci and wh-words are formally identical in the syntax. In part, I rejected

that hypothesis because, assuming standard syntactic locality, it predicts that in languages where foci and wh-words are in competition for movement, the structurally highest one will move. In fact, evidence from several languages, including SMPM, suggests that in clauses where wh-words and foci co-occur, a wh-word will front across a focus (36a). Fronting a structurally higher focus, predicted to be possible by the Identity Hypothesis, is impossible (36b).

(36) a. Object Wh-Word Moves, Subject Focus Remains *in situ*



b. Subject Focus Moves, Object Wh-Word remains *in situ*



In this section, I consider whether it is possible to maintain the Identity Hypothesis by identifying an independent constraint that would rule out the configuration in (36b). One reasonable hypothesis is that (36b) is impossible because it triggers a Focus Intervention Effect, sometimes called a "Beck Effect." (Beck, 1996, 2006; Hagstrom, 1998; Pesetsky, 2000; Kim, 2002; Li and Law, 2016; Branan, 2018; Kotek, 2019, a.o.). Broadly speaking, in many languages, there is a surface representational constraint against a focus or quantificational element intervening between a wh-word *in situ* and its licensing complementizer. For example, in Korean, wh-words are normally left *in situ* (37a), however, when a focus sensitive operator like *only* c-commands the wh-word, the sentence becomes ungrammatical (37b). In order to express the meaning intended in (37b), the wh-word must scramble to a position where it is no longer c-commanded by the focus sensitive operator (37c).

(37) a. Minsu-nun nuku-lûl po-ass-ni?
M.-TOP who-ACC see-PST-Q
'Who did Minsu see?'

b. *__Minsu__-man nuku-lûl po-ass-ni?
M.-only who-ACC see-PST-Q
Intended: Who did only **Minsu** see?

c. Nuku-lûl **Minsu**-man __ po-ass-ni?
who-ACC M.-only see-PST-Q
'Who did only **Minsu** see?' Beck (2006): 3

This effect has been demonstrated for a wide range of wh-*in situ* languages, and has also been claimed to hold in some circumstances when wh-words are left *in situ* in languages that normally move them (Beck, 2006; Pesetsky, 2000). In particular, Pesetsky (2000) demonstrates that intervention effects arise in English in superiority-violating multiple wh-questions, but not in superiority-obeying wh-questions (see also, Kotek, 2019).

It is worth considering, then, whether (38) is ungrammatical in SMPM because a focus intervenes between the wh-word *in situ* and its licensing complementizer.

(38) *__Pedro rà__ kìshashì __ nă
P. he brought what
Intended: What did **Pedro** bring?

Under this analysis, movement of a focus instead of a wh-word would be impossible because the resulting derivation would produce a marked structure: namely, a wh-word *in situ* that is preceded by a focus. Consequently, an advocate of this analysis might argue that the Identity Hypothesis can be maintained, as the difference between foci and wh-words is their semantic properties, not their syntactic features; the constraint against syntactic movement of local foci is explainable by other means.

5.4.1 Background on focus intervention

While there have been many attempts to explain focus intervention, much recent work has adopted the basic proposal of Beck (2006): focus intervention arises when a wh-word is in the scope of a focus sensitive operator (see also, Cable, 2010; Kotek, 2019).

(39) **Focus Intervention:**

*[Q…[OP [$_{\phi}$…XP_F…wh…]]] Beck (2006): 12

Beck's analysis relies on the notions of ordinary semantic value and focus semantic value. Recall from chapter 1 that the ordinary semantic value of a phrase (notated $[\alpha]^{\circ}$) is its denotation, and its focus semantic value (notated $[\alpha]^{f}$) is a set of alternatives that is generated by replacing any focus generating element within that phrase with anything of the same semantic type (Rooth, 1992). Thus, the ordinary semantic value of a phrase like *[American]$_F$ farmer* is a function which maps some individual x to the proposition that x is both American and a farmer (40a). The focus semantic value of the same phrase is a set of propositions, stating that x is a farmer, and that is has some other property P.

(40) a. **Ordinary Semantic value of *[American]$_F$ farmer*:**

λx[American(x) $\wedge$ farmer(x)]

b. **Focus Semantic Value of *[American]$_F$ farmer*:**

$\{\lambda x[P(x) \wedge \mathbf{farmer}(x)] | P : E \rightarrow propositions\}$ Rooth (1992): 76-77

Beck (2006) proposes that wh-words have a focus semantic value, but do not have an ordinary semantic value. That is, they introduce alternatives, but do not have a denotation. In normal circumstances, they can be interpreted when they appear in

the scope of a question operator, which converts the focus semantic value of its scope directly to an ordinary semantic value. Thus, a question like (41a) has the focus semantic value in (41b), which is directly converted by the question operator into an ordinary semantic value. This is consistent with the hypothesis that the meaning of a question is the set of propositions which could answer that question (Hamblin, 1973; Karttunen, 1977).

(41) a. Who makes the best mole in Oaxaca?

b. {Teresa makes the best mole in Oaxaca, Vitorino makes the best mole in Oaxaca, Gloria makes the best mole in Oaxaca…}

Thus, the question operator semantically composes with the focus semantic value of its sister, but does not make any reference to its ordinary semantic value. Consequently, a wh-word, which has no ordinary semantic value, can freely occur within the scope of a question operator.

Other focus operators (besides the question operator), use *both* the focus semantic value and the ordinary semantic value of their scope as part of their semantic composition (Beck, 2006; Cable, 2010). In the process of normal focus interpretation, the focus operator "uses up" the focus alternatives of its scope and returns the ordinary semantic value of its scope for use by higher operators. In other words, focus operators require that their scope have a well-defined ordinary semantic value that can be returned. Because wh-words do not have an ordinary semantic value, when they appear in the scope of a focus operator that scope will have an undefined ordinary semantic value, creating an uninterpretable structure. Assuming that every semantic derivation must have a defined ordinary semantic value (Beck's *Principle of Interpretability*), then once a focus operator has acted upon the wh-word, there is no way to salvage the derivation.

Furthermore, even if the focus operator were somehow able to interpret a wh-word in its scope, it would still disrupt the projection of focus alternatives introduced by the wh-word to the Q operator (Kotek, 2019). Because focus operators "reset" the focus semantic value of their scope to an ordinary semantic value, this means that there would then be no focus semantic value for the Q operator to interpret. Without a focus semantic value, the Q operator is not able to generate the right interpretation of a questions as a set of propositions.

A different approach to FIE is advocated by Li and Law (2016). Unlike Beck (2006), Li and Law (2016) argue that wh-words do have an ordinary semantic value, namely they represent a set of ordinary alternatives. A key piece of evidence for this claim comes from the fact that focus sensitive particles can directly associate with wh-words in Mandarin Chinese (Aoun and Li, 1993), as in (42).

(42) Zhiyou shei chuxi-le wanyan?
only who attend-ASP dinner
'Who was the person x such that only x attended the dinner?'

Li and Law (2016): 208

Because Alternative Particles like *only* require an ordinary semantic value in order to be properly interpreted, Li and Law reason that it cannot be that wh-words have an undefined ordinary semantic value (*pace* Beck, 2006, and much subsequent work). Instead, Li and Law argue that wh-words and foci generate two different types of alternatives that operate in different "dimensions." Specifically, wh-words generate "ordinary alternatives" and foci generate "focus alternatives." FIE arrises when a focus-sensitive operator would be forced to quantify over *both* types of alternatives simultaneously

(43) *[…focus sensitive operator [focus alternatives … ordinary alternatives …]]

Li and Law (2016): 218

Finally, some previous work has tried to account for Focus Intervention Effects syntactically by arguing that certain intervenors block covert movement of in-situ wh-phrases (Beck, 1996; Pesetsky, 2000). However, Kotek and Erlewine (2016) and Kotek (2019) argue convincingly that covert movement across an intervener does not trigger a FIE. In fact, covert movement across an intervener is used as a strategy to avoid a FIE, as covert movement allows wh-words to scope outside of focus operators. The crucial evidence for this comes from a series of observations about the relationship between the possibility for covert movement and the presence of intervention effects. Kotek (2019) shows that, in English, the possibility for covert movement correlates with a lack of intervention. However, when covert movement is blocked (for instance, when a wh-phrase contains an NPI that must be licensed, a focus that must be associated with, or an anaphor that must be bound) intervention effects emerge. When there is no restriction on covert movement, there are no intervention effects. Consequently, Kotek argues that intervenors do not block covert movement, but rather, covert movement is a strategy to avoid a semantic intervention effect. Thus, she argues that FIE must be an LF phenomenon, rather than a syntactic or prosodic one.

5.4.2 Determining the scope of the focus operator in SMPM

According to the semantic accounts of FIE introduced in the previous subsection, ungrammaticality should only arise when a wh-word is in the scope of the focus operator (or a wh-word and a focus are simultaneously in the scope of a focus operator). If the focus takes narrow scope (not including the wh-word), then it can return an ordinary semantic value for its scope without problem. Furthermore, if the focus operator doesn't c-command the wh-word, then it will not block the alternatives introduced by the wh-word from being interpreted by the Q operator—the alternatives of the wh-word will not be used up by the focus operator and therefore will remain accessible

to the question operator.

(44) **No Focus Intervention:**

$[Q \ldots [\text{OP } [_{\phi} \ldots XP_F]] \ldots wh \ldots]$ (cf. 39 and 43)

So, in order to determine if the Wh-over-Focus Preference is reducible to a FIE, we first need to establish the scope of the focus operator in SMPM. If the wh-phrase must be within the scope of a focus operator, then the ungrammaticality of this configuration could plausibly be attributed to an FIE. However, if we can demonstrate that moving a focus instead of a wh-word is ungrammatical *even in the case* that the wh-phrase is outside the scope of the focus operator, then we will have good evidence to suggest that the Wh-over-Focus Preference is not reducible to a FIE.

In SMPM, contrastive foci can take narrow, DP-level scope, as they do in English. However, even in cases when a subject in focus is interpreted contrastively, it still cannot move instead of a wh-word. I assume, following Rooth (1992), that contrastive foci are interpreted using the ~ operator. This operator introduces a variable, which can be coindexed with other semantic objects. However, only semantic objects whose ordinary semantic value is part of the set of alternatives of the phrase within the scope of the focus operator can be coindexed with the variable introduced by the focus operator. Put differently, this restriction forces the variable to be coindexed with a phrase that contrasts with the phrase in the scope of the focus operator.

(45) **Contrasting Phrases:** Construe a phrase α as contrasting with a phrase β, if $[\beta]^{\circ} \in [\alpha]^{f}$. Rooth (1992): 81

In a famous example, Rooth shows how *American farmer* and *Canadian farmer* are contrasted with one another in (46).

(46) An ~[**American** farmer] met a ~[**Canadian** farmer]. Rooth (1992): 86

A ~ operator takes *American farmer* in its scope, and introduces a variable that could be contrasted with anything that is part of its alternative set, e.g. Canadian farmer, Mexican farmer, French farmer, etc. A second ~ operator introduces another variable that can be coindexed with anything that is part of the alternative set of *its* scope, e.g. American farmer, Mexican farmer, French farmer, etc. Because each type of farmer is part of the alternative set of the other, they can be interpreted contrastively.

Because of the way that alternative sets are generated, altering the scope of the focus operator will change the set of phrases that can be construed contrastively with the focus. (46) shows that in English, contrastive foci can take narrow scope. If the operator took sentential scope, then the alternatives generated would be of the shape *A* x *farmer met a* y *farmer*. In other words, we would expect (46) to contrast with another meeting event, such as between a Mexican farmer and a Guatemalan farmer. Intuitively, however, this is not the interpretation. Instead, it is meant to convey a contrast between the American and the Canadian. In short, if the focus operator takes DP level scope, then DPs can be contrasted with one another (as in 46). If, however, it takes sentential level scope, then the sentence will only contrast with another sentence.

In SMPM, fronted contrastive foci can be contrasted with other DPs, analogously to contrastive foci in English, as shown in (47).

(47) a. ~[Tsina **tohŭ** rí] ntsíku ~[tsina **yâ**]
dog black AML chases dog white
'The **black** dog is chasing the **white** dog.'

b. ~[Kárro ñà'ă **Pedro** tŭn] kama chága nuhŭ ~[kárro ñà'ă **Juan**]
car POSS P. WOOD fast more than car POSS J.
'**Pedro**'s car is faster than **Juan**'s car.'

In each of these two examples, the natural interpretation is one of contrast between two DPs. In (47a), two different dogs are contrasted with one another, and in (47b) two different cars are contrasted with one another. If the fronted focus took sentential scope, then instead of this interpretation, we would expect (47a) to contrast with other chasing events between two dogs, and (47b) to contrast with other speed comparisons between two cars. Given that this is not the interpretation of this sentences, this suggests that the ~ operator can take DP-level scope in the language.

With this fact in mind, consider again the example in (48). Given the context, it is clear that the fronted focus *Pedro* is interpreted contrastively with respect to the salient alternative *Pablo*. Consequently, the wh-word is not in the scope of the focus operator, which is taking DP-level scope. However, as we have seen, this configuration is still ungrammatical.

(48) *Context: My friend Benjamín and I went a party where everyone brought some food or drink to share. We know what Pablo brought, but we didn't see what Pedro brought. When we go to ask the host, Benjamín mistakenly asks him, "What did Pablo bring?" I turn to Benjamín and say, No:*

*~[**Pedro rà**] kìshashì __ nǎ
P. he brought what
Intended: What did **Pedro** bring?

Thus, straightforwardly adopting the analysis proposed in Beck cannot fully explain the Wh-over-Focus Preference. According to Beck's analysis, (48) should not trigger a Focus Intervention effect, and thus the fact that it is ungrammatical must be explained by other means. Similarly, according to Li and Law (2016)'s analysis, this should not trigger a PIE, as the focus operator is not forced to quantify over two different types of alternatives simultaneously. In other words, the Wh-over-Focus Preference is not reducible to a semantic constraint of this type.

Of course, this doesn't preclude the possibility that *some* instances of moving a focus instead of a wh-word could trigger a FIE. For instance, recall that focus sensitive operators like the equivalent of *only* also move to a preverbal position in SMPM.

(49) Inta **Maria ñá** và'a kása'a rá
only Maria she well makes LIQ
'Only **Maria** can make it (mole).'

If *inta* has similar semantics to English *only*, then the alternatives it operates over are the focus semantic value of the entire sentence (Kotek, 2019). Specifically, the sentence in (49) entails that the alternative propositions in (50) are false.

(50) {**Natalia** can make it, **Gloria** can make it, **Juan** can make it}

If this is correct, then in (51), the wh-word is in the scope of the focus operator. In other words, (51) is ungrammatical for multiple reasons: (1) it is ungrammatical because a focus has moved instead of a wh-word (in violation of ECONOMIZE VALUATION); (2) a wh-word is inside the scope of a focus operator, triggering a focus intervention effect.

(51) *Context: There is some mushroom in the forest that nobody likes the taste of except Maria.*

*Inta **Maria** sháshi __ ntsyâ shì'ǐ?
only M. eats which mushroom
Intended: Which mushroom does only **Maria** eat?

To summarize: there are instances where a focus moving instead of a wh-word will create a structure that is semantically uninterpretable, commonly called a Focus Intervention Effect. However, this marked structure only arises when a wh-word is in the scope of a focus operator. As I have demonstrated in this section, at least some

focus operators can take narrow DP-level scope in SMPM. Consequently, the Wh-over-Focus Preference cannot be reduced to focus intervention alone and the challenge to the Identity Hypothesis remains.

5.5 Conclusion

In this chapter, I have considered several possible formal representations of wh-words and foci. First, I considered the possibility that they might be formally identical. The predictions of this hypothesis, however, are not borne out. In several languages, including San Martín Peras Mixtec, wh-words will always move instead of a focus, even if they are non-local. Second, I considered the possibility that they might have disjoint features, each being attracted by a separate head. This analysis faces empirical problems within SMPM, and also provides no explanation for why wh-words and foci should be attracted to the same apparent position in so many languages.

Instead, I proposed that a class of Alternative Particles are attracted in SMPM: Q particles, which bear [ALT] and [Q] features, and other Alternative particles which only bear [ALT]. Additionally, I proposed a feature geometry which allows us to maintain the generalization that Q particles and other Alternative Particles are attracted by the same head, while giving us a means of explaining the preference for wh-movement over focus movement. By adopting and expanding on two proposals from the A-domain—multiple searches and ECONOMIZE VALUATION—I proposed that an articulated probe could match with both the subject and the object under certain configurations. Furthermore, I claimed that the attracting head would always prefer to move a Q particle rather than another focus sensitive particle, due to the fact that it has a superset of the features. In this way, I showed that a feature geometric analysis can account for the apparent non-local movements of wh-words.

If this analysis is on the right track, then we may find analogies of hierarchy-based

phenomena in the Ā-domain. In a sense, ECONOMIZE VALUATION captures the intuition that a head may prefer to attract a constituent that is higher on some hierarchy, just as some agreement slots preferentially agree with constituents that are higher on some hierarchy. We might, for example, expect to find languages that ban certain configurations of wh-words and focus, analogous to a PCC effect (e.g. Perlmutter, 1971; Bonet, 1991), or languages which use special morphology to mark the structural relationship between wh-words and focus, analogously to inverse morphology in Algonquian (e.g. Oxford, 2019; Aissen, 1997). Going forward, more needs to be done to investigate hierarchy effects in the Ā-domain. The preference for wh-movement over focus movement may be just one of many ways in which feature geometries in the Ā-domain manifest themselves.

Chapter 6

Conclusion

This dissertation has been an investigation into a series of questions: What motivates the displacement of foci? What types of syntactic objects are candidates to be marked with a formal syntactic feature? How are the displacement of foci and the displacement of wh-words related to one another? What syntactic mechanisms facilitate non-local movement? While I have investigated these questions from a broad perspective, my empirical focus throughout has been on San Martín Peras Mixtec, an understudied indigenous language of Mexico. Besides this dissertation, there have been few formal investigations into the syntax of this language (or Mixtecan languages generally), and its use of focus is almost completely unexplored. My hope is that this dissertation represents a first step toward understanding the role that focus plays in determining the clause structure of Mixtecan languages.

More generally, this dissertation has been an investigation into the motivation for focus movement and the precise syntactic mechanisms that underlie it. I have argued throughout this dissertation that focus movement is a syntactic phenomenon in SMPM, despite the fact that foci are prosodified in a distinct way from non-foci. Given the evidence that focus movement is syntactic in the language, I have tried to understand this empirical pattern within a feature-driven attraction model of syntactic

movement. Specifically, I have taken seriously the critique of a formal syntactic feature which marks foci, and I have proposed an alternative account of focus-movement, presented in chapter 2. Under my account, foci themselves are not marked with a formal feature, but instead are moved when they are in the scope of a some particle which is sensitive to the alternatives that they generate. Broadly speaking, I presented two types of evidence for this claim. First, in chapter 3, I showed evidence that foci are not directly attracted when they are associate with an overt alternative particle. Second, I showed in chapter 4 that SMPM allows for Ā-movement within the DP, but that foci do not participate in this process. If foci were directly attracted, this lack of movement is surprising, especially considering that foci can subextract out of DPs, which by hypothesis involves movement to an edge position within the phrase. I argued in those chapters that explanations for these phenomena become tractable if we accept that foci do not move directly and are only displaced when some other particle that takes scope over them moves.

In addition, in this dissertation I have investigated the relationship between displacement of foci and displacement of wh-words, two categories that are often conflated within the syntactic literature. I took as a starting point the notion that these phenomena form a natural class, based on the fact that they share several important properties: in many languages they are Ā-movements to the same syntactic position, they are often marked with the same morphological particle, and they are both interpreted with respect to alternatives. However, I have discussed two phenomena which clearly show that wh-movement and focus displacement cannot be a unified phenomenon in the language. First, in chapter 4, I discussed the asymmetry in pied-piping behavior between these two categories: while wh-words undergo Ā-movement within the DP, foci cannot. Second, as discussed at length in chapter 5, clauses with contain both a focus and a wh-phrase display a pattern of non-local movement which

would be unexpected is these two categories bear the same syntactic feature and are attracted by the same probe. Even when a focus is structurally superior (i.e. more local) than a wh-word, the wh-word will move to spec-CP, not the focus.

Finally, in chapter 5, I outlined a particular theory of the syntactic probing mechanism which can account for non-local movement. Empirically, this mechanism was motivated due to the fact that non-local wh-words move across more local foci. Given the status of these two categories as a natural class, on its face this non-local movement presents a puzzle: how are probes able to see past a local focus and find a non-local wh-word. In that chapter, I proposed that the class of Alternative Particles are distinguished featurally, with Q particle bearing a proper superset of the features that other Alternative particles bear in SMPM. Moreover, I proposed that valuation of the probe happens after all match relationships have been established, subject to a constraint: Economize Valuation. In SMPM, valuation by a Q particle can completely satisfy the needs of the probe, whereas valuation by a focus only partially satisfies its needs. Thus, in a derivation with *both* a wh-word and a focus, there will be a preference for the Q particle to move, instead of other Alternative Particles.

6.1 Open issues

Despite the fact that progress has been made, there remain several important outstanding issues related to the content of this dissertation which I have not addressed here, or have not addressed in a completely satisfactory way. My hope is that future work can address these open issues more fully.

6.1.1 Other roles of alternatives in grammar

This dissertation seeks to connect wh-movement and focus movement, partially through their shared semantics. Both categories introduce alternatives, and consequently, must be in the scope of Alternative Particles. In this dissertation, I have argued that this shared semantic character is reflected in the fact that they form a syntactic natural class.

While there has been more extensive investigation into the way that wh-words and foci use alternatives, the notion of alternatives has also been fruitfully explored in other syntactic and semantic domains. For example, much work has pointed to the interpretation of indefinites as relating to alternatives (e.g. Ramchand, 1997; Hagstrom, 1998; Kratzer and Shimoyama, 2002; Shimoyama, 2006; Alonso-Ovalle and Menéndez-Benito, 2010; Charlow, 2020). Alternatives have also been claimed to be relevant in the domains of disjunction (Aloni, 2003; Alonso-Ovalle, 2006; Hoeks, 2021) and contrastive topics (Constant, 2014; Kamali and Krifka, 2020). While likely relevant to the overall theory presented here, I have not been able to discuss these domains in this dissertation.

If these linguistic phenomena do indeed involve alternatives, then we might expect them to directly interact with focus and wh-words. Indeed, Beck and Kim (2006), for instance, claim that Alternative Questions are subject to Focus Intervention Effects. That is, a normal alternative question reading is impossible if the alternatives are c-commanded by a focus-sensitive operator (1b). Thus, disjunction, like foci, seem to interact semantically with wh-words.

(1) a. Does John drink coffee or tea?

b. ?*Does only John drink coffee or tea? Beck and Kim (2006): 172

However, while there may be some interactions between other types of Alterna-

tive expressions and wh-words and focus, these other types of Alternative Generating expressions do not seem to be *syntactically* correlated with wh-words and foci in the same way that they are correlated with one another. For instance, I am not familiar with any language which systematically displaces indefinites, contrastive topics, or Alternative questions to the same position as foci and wh-words. If these other alternative generating expressions also have to appear in the scope of Alternative Particles to be properly interpreted, then this syntactic difference is puzzling, given the theory advanced in this dissertation.

Perhaps one of the clearest examples of this puzzle comes from languages which use the same morphological form to express a wh-word or a non-interrogative indefinite. Consider, for example, this pair of sentences from San Martín Peras Mixtec. The morpheme *yóó* functions as a wh-word in (2a), but as a non-interrogative indefinite in the antecedent of a conditional (2b).

(2) a. **Yóó** shàshi __ kwì'i?
who ate fruit
'Who ate the fruit?'

b. Áto **yóó** kisha, káchi tú'un shi'=í
if who arrives, say word with=me
'If someone arrives, let me know.'

Though this phenomenon is quite common cross-linguistically (Haspelmath, 1997), there seems to be no agreed-upon name for morphemes of this type. These have been called "indeterminate pronouns" (Kuroda, 1965), "wh-indefinites" (Bruening, 2007), and "quexistentials" (Hengeveld et al., 2021).

Given their shared morphology, some work has argued that the source of the similarity between the interrogative and non-interrogative usage of these morphemes relates to how their alternatives are used (Ramchand, 1997; Kratzer and Shimoyama, 2002; Shimoyama, 2006). That is, in both contexts the wh-indefinite generates alterna-

tives, but in question contexts and indefinite contexts they are in the scope of distinct operators. Thus, we might reasonably expect, if some non-interrogative indefinite pronouns generate alternatives and must be in the scope of some Alternative Particle, that they would often surface in the same syntactic position as wh-words and foci.

In fact, there is some suggestive evidence from SMPM which supports this prediction. For instance, non-interrogative wh-words often appear in a preverbal position, as in (3).

(3) Áto ntsyâ nà táshi tùtsyà nda'=ón, tsin yá
if which they gives atole to=you, grab it
'If someone offers you atole[1], take it.'

Additionally, a non-interrogative wh-word cannot surface in preverbal position with an overt focus, suggesting that they are in competition for a single syntactic position (4a). Instead, an overt focus forces a non-interrogative wh-word to remain in situ (4b).

(4) a. *Áto inta Juan ntsyâ nà tasha'a shi'i, vă'a níshiyo víkŏ
if only J. which they danced with, bad was party
Intended: If only Juan danced with someone, then the party was bad.

b. Áto inta Juan tasha'a shi'i ntsyâ nà, vă'a níshiyo víkŏ
if only J. danced with which they, bad was party
'If only Juan danced with someone, then the party was bad.'

However, there are ways to distinguish movement of non-interrogative wh-phrases in SMPM from movement of foci and wh-words. First, while non-interrogative indefinites almost always appear preverbally, they do not have to. For instance, consider the contrast between (5a), which has a moved indefinite, and (5b), which does not move the indefinite. This contrasts with Alternative Particles that scope over wh-words and foci, which cannot remain in situ (expect when wh-words and foci are in competition

[1] Atole is a hot corn drink with a porridge-like consistency common in Mexico.

with one another).

(5) a. Vá'a ntsyâ nà ná-ka'=on shi'i
good which they HORT-talk=you with
'I suggest you talk with someone'

(lit. It's good for you to talk with someone.)

b. Tuku ka'í shi'i=on ná-ka'=on shi'i ntsyâ nà
again say=I with=you HORT-talk=you with which they
'I insist that you talk with someone.'

(lit. I'm telling you again to talk with someone.)

Second, though fronted foci and wh-words cannot occur with preverbal temporal adverbs, fronted non-interrogative indefinites can, as in (6).

(6) a. Áto itsyân ntsyâ nà ná-kushi shit=í, sah=í shí'i
if tomorrow which they HORT-eat.POT tortilla=my mad.POT=I with
nà
them
'If someone eats my tortillas tomorrow, I will be mad at them.'

b. Áto itsyân ntsyâ nà ná-ku'u nù ndóva, kúú tanda'=e
if tomorrow which they HORT-go.POT town Oaxaca, can send=we
tutu ku'u nuhu presidente
paper send to president
'If someone goes to Oaxaca City tomorrow, we can send a letter to the president.'

This suggests that non-interrogative wh-phrases might not move to the same exact position as other Alternative Particles.

Moreover, there is a typological reason to be skeptical that non-interrogative wh-phrases move to the same position as fronted foci. Hengeveld et al. (2021) argue that these types of expressions are interpreted as interrogatives when they are focused, and interpreted as non-interrogatives when they are not focused, leading them to

propose the following biconditional statement (they coin the term "quexistential" for wh-words that can also be used as non-interrogative indefinites):

(7) **The Quexistential-Focus Biconditional**:

Quexistentials are interpreted as question words if and only if they are focused.

(Hengeveld et al., 2021): 11

Some supporting evidence for this biconditional comes from Dutch, which has a morpheme *wat* which can be used as a wh-word (8a) or as a non-interrogative indefinite (8b).

(8) a. Wat heeft Miranda gegeten?
QUEX has M. eaten
'What has Miranda eaten?'

b. Miranda heeft wat gegeten
M. has QUEX eaten
'Miranda has eaten something.' Hengeveld et al. (2021): 1-2

Notice, however, that *wat* is fronted in its wh-usage, but not its non-interrogative usage. Moreover, *wat* can be interpreted interrogatively in situ if (and only if) it is prosodically focused (marked here with small caps).

(9) a. Wie heeft hem **WAT** gegeven?
who has him QUEX given
✓'Who gave him what?'

*'Who gave him something?'

b. Wie heeft hem **wat** geGEven?
who has him QUEX given
*'Who gave him what?'

✓'Who gave him something?' Hengeveld et al. (2021): 2

If we assume that these non-interrogative indefinites generate alternatives, then we might reasonable suspect that they are in the scope of a different Alternative particle than either foci or wh-words. However, allowing that they might be in the scope of some Alternative Particle leads us to expect that they should surface in the same position as foci and wh-words (at least in some languages). If the biconditional proposed in Hengeveld et al. (to appear) is correct, then this expectation seems to be on the wrong track.

So, though we can understand the syntactic correlations between wh-words and foci by using their shared semantic character as alternative generating elements, more work needs to be done to understand how general these syntactic correlations are, and whether they also apply to other expressions that generate alternatives. If other alternative generating expressions besides foci and wh-words do appear in the scope of Alternative Particles, then it remains unexplained why these other Alternative Particles are not targeted for movement.

Another place that we might expect to find correlations with wh-words and foci is in the domain of topics, especially topics that are interpreted contrastively. Indeed, there are languages in which contrastive topics seem to form a natural class with foci and wh-words. For instance, in Samoan, not only wh-words and foci, but also certain types of topics are marked morphologically with the particle *o*.

(10) a. ʻO ā mea'ai na 'aumai e Pita?
ALT what food PST bring ERG P
'What food did Pita bring?'

b. ʻO **le talo** na aumai e Pita
ALT DET taro PST bring ERG P.
'Pita brought **the taro**.'

c. 'Afai o mea'ai, e fiafia Luka i panikeke
if ALT food TAM like L. PREP pancakes
'As far as food is concerned, Luke likes pancakes.'

Hohaus and Howell (2015): 70-71

This fact leads Hohaus and Howell (2015) to describe the particle as an "Alternative Marker." While the authors argue that fronted constituents marked with *'o* undergo syntactic movement, they do not precisely specify what position these constituents move to, nor whether all *'o*-marked constituents move to the same position.

Another language that seems to display this pattern is the Mayan language Q'anjob'al. In this language, both fronted foci and contrastive topics can be marked with the particle *a*, once again, suggesting that they form a natural class on the basis of their shared alternative generation properties.

(11) [A] ix Lucia [a] **no txay** xil ix, [a]yin [a] **no tz'ikin** x-w-il-a'
ALT CL L. ALT CL fish saw CL, ALT.I ALT CL bird saw
'[Lucia]$_{CT}$ saw a **fish**. [I]$_{CT}$ saw a **bird**.'

Adapted from Sharf (2016): 21

On one hand, these data suggest that the syntax of a wide range of languages makes direct reference to alternatives, and consequently, constituents that introduce alternatives form a natural class. However, there are several open questions about these data which must be explored further in future work. First, cross-linguistically, topics do not have the same syntactic distribution as foci and wh-words, leading Rizzi (1997) and others to propose a designated functional head that attracts topics. So, one of the main motivations for unifying wh-movement and focus fronting—namely, the fact that the move to the same position cross-linguistically—does not straightforwardly extend to topics. This does not, of course, mean that the syntax cannot directly encode alternative sensitivity, but it suggests that there may be different types of Alternative Particles, which may have slightly different syntactic properties.

A second challenge related to these particles is that the alternatives generated

by foci, wh-words, and contrastive topics are used in distinct ways to create each of those meanings, yet, at least in some languages, they are all marked with the same particle. Certainly, the fact that they are all realized with the same particle suggests that alternatives are crucially implicated in the meaning of these particles, but in this dissertation I have only given a cursory account of the semantics of Alternative Particles. Much more work is needed to understand the precise ways in which distinct Alternative Particles associate with alternative generating elements.

6.1.2 The correlation between focus and non-canonical prosody

Some of the earliest investigations into focus in English investigated the way that focus affects prosody (Jackendoff, 1972; Chafe, 1976; Rochemont, 1986). Moreover, it seems generally true that, in many languages at least, foci are pronounced with a non-canonical prosody (e.g., Büring, 2009). As I demonstrated in chapter 3, this is also the case for SMPM: in SMPM, the pitch of high tones at the right edge of fronted foci are raised in pitch. Despite this, in chapter 3 I argued that focus displacement was not motivated by a need to realize foci with a particular prosody, and ultimately argued that the right edge of the constituent that fronts along with a Alternative Particle (whether given or focused) will undergo this pitch raising due to a tone sandhi process.

While I believe that this is the most empirically adequate explanation of how focus prosody is realized in SMPM, it is worth recognizing that the Alternative Particle theory does not provide a *general* explanation for the correlation between foci and distinct prosody. Put differently, one benefit of the Alternative Particle approach to focus displacement is that it allows us to divorce the notions of displacement and prosodic prominence, which in SMPM, are correlated but separable. Recall that, for instance, not all displaced foci are realized with a non-canonical prosody, only those that end in a high tone. However, if adopting the Alternative Particle approach to

focus displacement, one might reasonable wonder *why* there is such a tight connection between focus and prosody in other languages, such as English. Moreover, the particular explanation for the prosodic realization of foci in SMPM—an affect of tone sandhi—does not seem to be applicable to non-tonal languages.

If the argumentation in this dissertation is convincing, then, at least in some languages, the displacement of foci is triggered by movement of an Alternative Particle. If this is correct, however, then there remains a deep, unresolved puzzle: why are foci often pronounced differently, even in languages where they syntactically displace? While I will not attempt to answer this puzzle in these pages, I hope that the account of focus displacement (and focus prosody in SMPM) will expand the analytical possibilities in future works on these topics.

6.2 Concluding remarks

Prior to this dissertation, there has been a long tradition of work which suggests that wh-movement and focus displacement are a unified phenomenon. This work has been an attempt to understand and make precise they ways in which they are related, and the ways in which they come apart. Syntactically and semantically, wh-words and focus share many properties, however, I have demonstrated two clear contrasts between the two in San Martín Peras Mixtec: (i) only wh-words invert within pied-piped constituents, (ii) wh-words will move across more local foci. In this work, I have accounted for these differences using two different mechanisms. I suggested that the contrast in (i) reflected a lexical difference between wh-words and foci: wh-words form a morpho-syntactic class, and consequently can be marked with a formal feature. Foci are not a morpho-syntactic class, so, by hypothesis, cannot be marked with a feature. This result has clear consequences for our understanding of focus displacement, but also for our theory of features more generally. I suggested that the contrast

in (ii) reflects a difference in the kinds of Alternative Particles that associated with wh-words and foci, respectively. Specifically, because Q particles bear a superset of features of the features of other Alternative particles, the syntactic movement mechanisms prioritizes their movement. This analysis, if correct, allows us to probe deeper into the precise syntactic Agreement mechanism.

Undoubtedly, this dissertation will not be the final word on wh-movement, focus displacement, or the ways that they are related to each other. Many questions remain beyond those briefly sketched above. Moreover, beyond the theoretical questions raised by this work, there remain many empirically under-explored domains of Mixtecan syntax, which will no doubt bear interesting and rich puzzles if and when they can be investigated more thoroughly. My hope is that this dissertation represents a step forward on that path.

Bibliography

Abels, K. (2012). The Italian left periphery: A view from locality. *Linguistic Inquiry*, 43(2):229–254.

Aboh, E. O. (2004). *The Morphosyntax of Complement-Head Sequences: Clause Structure and Word Order Patterns in Kwa*. Oxford University Press.

Aboh, E. O. (2007). Focused versus non-focused wh-phrases. In Aboh, E. O., Hartmann, K., and Zimmermann, M., editors, *Focus Strategies in African Languages: The interaction of Focus and Grammar in Niger-Congo and Afro-Asiatic*, pages 287–314. Mouton de Gruyter.

Aboh, E. O. (2010). Information structuring begins with the numeration. *Iberia*, 2(1):12–42.

Aboh, E. O. (2016). Information structure: A cartographic perspective. In Féry, C. and Ishihara, S., editors, *The Oxford Handbook of Information Structure*, chapter 8, pages 147–164. Oxford University Press.

Aboh, E. O. and Pfau, R. (2011). What's a wh-word got to do with it? In Benincà, P. and Munaro, N., editors, *Mapping the Left Periphery: The Cartography of Syntactic Structures*, volume 5, chapter 3. Oxford University Press.

Adler, J., Foley, S., Pizarro-Guevara, J., Sasaki, K., and Toosarvandani, M. (2018). The derivation of verb initiality in Santiago Laxopa Zapotec. In Merchant, J., Mikkelsen, L., Rudin, D., and Sasaki, K., editors, *A Reasonable Way To Proceed: Essays in Honor of Jim McCloskey*, pages 31–49.

Aissen, J. (1992). Topic and focus in Mayan. *Language*, 68(1):43–80.

Aissen, J. (1996). Pied-piping, abstract agreement, and functional projections in Tzotzil. *Natural Language and Linguistic Theory*, 14:451–485.

Aissen, J. (1997). On the syntax of obviation. *Language*, 73(4):705–750.

Aissen, J. (to appear). Documenting topic and focus. *Language Documentation and Conservation*.

Alexander, R. M. (1988). A syntactic sketch of Ocotepec Mixtec. In Bradley, C. H. and Hollenbach, B. E., editors, *Studies in the Syntax of Mixtecan Languages*, number 83, pages 151–304. The Summer Institute of Linguistics.

Alexiadou, A., Haegeman, L., and Stavrou, M. (2007). *Noun Phrase in the Generative Perspective*. De Gruyter.

Aloni, M. (2003). Free choice in modal contexts. In *Proceedings of Sinn und Bedeutung 7*.

Alonso-Ovalle, L. (2006). *Disjunction in Alternative Semantics*. PhD thesis, University of Massachusetts, Amherst.

Alonso-Ovalle, L. and Menéndez-Benito, P. (2010). Modal indefinites. *Natural Language Semantics*, 18:1–31.

Aoun, J. and Li, Y. A. (1993). Wh-elements in situ: Syntax or LF? *Linguistic Inquiry*, 24(2):199–238.

Aoyagi, H. (2006). On the predicate focus construction in Korean and Japanese. In Kuno, S., Lee, I., Whitman, J., Malin, J., Kang, Y.-S., Sells, P., and Sohn, H.-S., editors, *Harvard Studies in Korean Linguistics*, volume 11, pages 359–372. Hanshin Publishing.

Aravind, A. (2017). Ā-interactions and feature geometries. In Halpert, C., Kotek, H., and van Urk, C., editors, *A Pesky Set: Papers for David Pesetsky*, pages 333–342. MIT Working Papers in Linguistics.

Arellanes Arellanes, F. and de la Parra Aguilar, D. (n.d.). Towards a typology of wh-movement in prepositional and postpositional phrases. Manuscript, Universidad Nacional Autónoma de México.

Arregi, K. (2003). Clausal pied-piping. *Natural Language Semantics*, 11:115–143.

Bax, A. C. (2020). *Language Ideology, Linguistic Differentiation, and Language Maintenance in the California Mixtec Diaspora*. PhD thesis, University of California Santa Barbara.

Beaver, D. and Clark, B. (2003). *Always* and *only*: Why not all focus-sensitive operators are alike. *Natural Language Semantics*, 11:323–362.

Beck, S. (1996). *Wh-Constructions and Transparent Logical Form*. PhD thesis, Universität Tübingen.

Beck, S. (2006). Intervention effects follow from focus interpretation. *Natural Language Semantics*, 14(1):1–56.

Beck, S. and Kim, S.-S. (2006). Intervention effects in alternative questions. *Journal of Comparative Germanic Linguistics*, 9:165–208.

Beck, S. and Reis, M. (2018). On the form and interpretation of echo wh-questions. *Journal of Semantics*, 35:369–408.

Béjar, S. (2003). *Phi-syntax: A theory of Agreement*. PhD thesis, University of Toronto.

Béjar, S. and Rezac, M. (2009). Cyclic agree. *Linguistic Inquiry*, 40(1):35–73.

Belletti, A. (2004). Aspects of the low IP area. In Rizzi, L., editor, *The Structure of CP and IP: The Cartography of Syntactic Structures*, volume 2, pages 16–51. Oxford University Press.

Bennett, R., Elfner, E., and McCloskey, J. (2016). Lightest to the right: An apparently anomalous displacement in Irish. *Linguistic Inquiry*, 47(2):169–234.

Black, C. A. (1994). *Quiegolani Zapotec Syntax*. PhD thesis, UC Santa Cruz.

Bocci, G., Bianchi, V., and Cruschina, S. (2020). Focus in wh-questions. *Natural Language and Linguistic Theory*.

Boeckx, C. (2003). *Islands and Chains: Resumption as Stranding*. John Benjamins Publishing Company.

Boeckx, C. and Jeong, Y. (2004). The fine structure of intervention in syntax. In Kwon, C. and Lee, W., editors, *Issues in Current Linguistic Theory: A festschrift for Hong Bae Lee*, pages 83–116. Kyungjin.

Boneh, N. and Sichel, I. (2010). Deconstructing possession. *Natural Language and Linguistic Theory*, 28(10):1–40.

Bonet, E. (1991). *Morphology after Syntax*. PhD thesis, MIT.

Borise, L. and Polinsky, M. (2018). Focus without movement: Syntax-prosody interface in Georgian. In Hucklebridge, S. and Nelson, M., editors, *Proceedings of NELS 48*, volume 1, pages 97–110.

Bošković, Ž. (1995). Case properties of clauses and the greed principle. *Studia Linguistica*, 49(1):32–53.

Bošković, Ž. (2002). On multiple wh-fronting. *Linguistic Inquiry*, 33(3):351–383.

Bošković, Ž. (2005). On the locality of left branch extraction and the structure of NP. *Studia Linguistica*, 59(1):1–45.

Branan, K. (2018). *Relationship Preservation*. PhD thesis, MIT.

Branan, K. and Erlewine, M. Y. (2020). Anti-pied-piping. Manuscript.

Bresnan, J. W. (1971). Sentence stress and syntactic transformations. *Language*, 47(2):257–281.

Broadwell, G. A. (2001). Optimal order and pied-piping in San Dionicio Zapotec. In Sells, P., editor, *Formal and Empirical Issues in Optimality Theoretic Syntax*, pages 197–224. CSLI Publications.

Broadwell, G. A. (2005). Pied-piping and optimal order in Kiche (K'iche'). Manuscript.

Broadwell, G. A. (2006). Alignment, precedence, and the typology of pied-piping with inversion. In Butt, M. and King, T. H., editors, *Proceedings of the LFG06 Conference*.

Bródy, M. (1990). Some remarks on the focus field in Hungarian. *University College London Working Papers in Linguistics*, 2:201–226.

Bruening, B. (2007). Wh-in-situ does not correlate with wh-indefinites or question particles. *Linguistic Inquiry*, 38(1):139–166.

Büring, D. (2009). Towards a typology of focus realization. In Zimmermann, M. and Féry, C., editors, *Information Structure: Theoretical, Typological, and Experimental Perspectives*, chapter 8. Oxford University Press.

Büring, D. (2015). Unalternative semantics. In D'Antonio, S., Moroney, M., and Little, C.-R., editors, *Semantics and Linguistic Theory (SALT)*, volume 25, pages 550–575. LSA and CLC Publications.

Burzio, L. (1986). *Italian Syntax: A Government-Binding Approach*. Springer.

Caballero, G., Juárez Chávez, C., and Yuan, M. (2021). The representation of tone in San Juan Piñas Mixtec: Phonological and orthographic implications. Presentation at WCCFL 39.

Cable, S. (2008). Wh-fronting (in Hungarian) is not focus-fronting. Manuscript.

Cable, S. (2010). *The Grammar of Q: Q-Particles, Wh-Movement and Pied-Piping*. Oxford University Press.

Calabrese, A. (1984). Multiple questions and focus in Italian. In de Geest, W. and Putseys, T., editors, *Sentential Complementation*, pages 67–74. Foris.

Calhoun, S. (2015). The interaction of prosody and syntax in Samoan focus marking. *Lingua*, 165:205–229.

Campbell, E. W. (2017). Otomanguean historical linguistics: Exploring the subgroups. *Language and Linguistics Compass*, 11(e12244).

Campbell, L., Kaufman, T., and Smith-Stark, T. C. (1986). Meso-America as a linguistic area. *Language*, 62(3):530–570.

Caponigro, I., Torrence, H., and Cisneros, C. (2013). Free relative clauses in two Mixtec languages. *International Journal of American Linguistics*, 79(1):61–96.

Carroll, L. (2015). *Ixpantepec Nieves Mixtec Word Prosody*. PhD thesis, University of California, San Diego.

Chafe, W. L. (1976). Givenness, contrastiveness, definiteness, subjects, topics, and point of view. In Li, C. N., editor, *Subject and Topic*, pages 25–55. Academic Press.

Charlow, S. (2020). The scope of alternatives: Indefiniteness and islands. *Linguistics and Philosophy*, 43:427–472.

Chomsky, N. (1971). Deep structure, surface structure, and semantic interpretation. In Steinberg, D. D. and Jakobovits, L. A., editors, *Semantics: An Interdisciplinary Reader*, pages 183–216. Cambridge University Press.

Chomsky, N. (1973). Conditions on transformations. In Anderson, S. R. and Kiparsky, P., editors, *A Festschrift for Morris Halle*, pages 232–285. Holt, Rinehart and Winston.

Chomsky, N. (1976). Conditions on rules of grammar. *Linguistic Analysis*, 2(4):303–350.

Chomsky, N. (1977). On wh-movement. In Culicover, P., Wasow, T., and Akmajian, A., editors, *Formal Syntax*, pages 71–133. Academic Press.

Chomsky, N. (1993). A minimalist program for linguistic theory. In Hale, K. and Keyser, S. J., editors, *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, pages 1–52. MIT Press.

Chomsky, N. (1995). *The Minimalist Program*. MIT Press.

Chomsky, N. (2000). Minimalist inquires: The framework. In Martin, R., Michaels, D., and Uriagereka, J., editors, *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, pages 89–156. MIT Press.

Chomsky, N. (2001a). Beyond explanatory adequacy. In *MIT Occasional Papers in Linguistics*, volume 20. MIT Press.

Chomsky, N. (2001b). Derivation by phase. In Kenstowicz, M., editor, *Ken Hale: A Life in Language*, pages 1–52. MIT Press.

Chomsky, N., Gallego, A. J., and Ott, D. (2019). Generative grammar and the faculty of language: Insights, questions, and challenges. *Catalan Journal of Linguistics*, pages 229–261.

Chomsky, N. and Halle, M. (1968). *The Sound Pattern of English*. Harper and Row.

Cinque, G. (1980). On extraction from NP in Italian. *Journal of Italian Linguistics*, 5:47–99.

Cinque, G. (1990). *Types of Ā-Dependencies*. The MIT Press.

Cinque, G. (1999). *Adverbs and Functional Heads: A Cross-Linguistic Perspective*. Oxford University Press.

Cisneros, C. (2019). Definiteness in Cuevas Mixtec. In Aguilar-Guevara, A., Pozas Loyo, J., and Vázquez-Rojas Maldonado, V., editors, *Definiteness across Languages*, chapter 2, pages 39–81. Language Science Press.

Cisneros, C. (2020). *Free Choice from Indiscriminacy: A Study of Free Choice Indefinites and Indiscriminatives in English and Cuevas Mixtec*. PhD thesis, University of Chicago.

Citko, B. (2006). The interaction between across-the-board *wh*-movement and left-branch extraction. *Syntax*, 9(3):225–247.

Citko, B. (2014). *Phase Theory: An Introduction*. Cambridge University Press.

Clem, E. (2019). *Agreement, case, and switch-reference in Amahuaca*. PhD thesis, UC Berkeley.

Collins, C. and Essizewa, K. E. (2007). The syntax of verb focus in Kabiye. In Payne, D. L. and na, J. P., editors, *Proceedings of the 37th Annual Conference on African Linguistics*, pages 191–203. Cascadilla Proceedings Project.

Connell, B. (2001). Downdrift, downstep, and declination. In *Typology of African Prosodic Systems Workshop*.

Connell, B. and Ladd, D. R. (1990). Aspects of pitch realisation in Yoruba. *Phonology*, 7(1):1–29.

Constant, N. (2014). *Contrastive Topics: Meanings and Realizations*. PhD thesis, University of Massachusetts, Amherst.

Coon, J. (2009). Interrogative possessors and the problem with pied-piping in Chol. *Linguistic Inquiry*, 40(1):165–175.

Coon, J. (2010). VOS as predicate fronting in Chol. *Lingua*, 120:354–378.

Coon, J., Baier, N., and Levin, T. (2021). Mayan agent focus and the ergative extraction constraint: Facts and fictions revisited. *Language*, 97(2):269–332.

Coon, J. and Bale, A. (2014). The interaction of person and number in Mi'gmaq. *Nordlyd*, 40(1):85–101.

Coon, J. and Keine, S. (2021). Feature gluttony. *Linguistic Inquiry*, 52(4):655–710.

Corver, N. (1992). On deriving certain left branch extraction asymmetries: A case study in parametric syntax. In *Proceedings of NELS 22*, pages 67–84.

Corver, N. (2006). Freezing effects. In Everaert, M. and van Riemsdijk, H., editors, *The Blackwell Companion to Syntax*, volume 2, pages 383–406. Wiley.

Croft, W. (1990). *Typology and Universals*. Cambridge University Press.

Cruschina, S. (2011). *Discourse-Related Features and Functional Projections*. Oxford University Press.

Cruschina, S. (2021). The greater the contrast, the greater the potential: On the effects of focus in syntax. *Glossa*, 6(1):1–30.

Culicover, P. and Rochemont, M. (1983). Stress and focus in English. *Language*, 59(1):123–165.

Davis, C. (2013). Surface position and focus domain of the Ryukyuan focus particle *du*: Evidence from Miyara Yaeyaman. *International Journal of Okinawan Studies*, 4(1):29–49.

de Hollenbach, E. E. (2013). *Gramática del mixteco de Magdalena Peñasco (sa'an ñuu savi)*. Number 13 in Gramáticas de lenguas indígenas de México. The Summer Institute of Linguistics.

Deal, A. R. (2015). Interaction and satisfaction in ϕ-agreement. In Bui, T. and Ozyildiz, D., editors, *Proceedings of NELS 45*, pages 1–14.

Denham, K. E. (1997). *A Minimalist Account of Optional Wh-movement*. PhD thesis, University of Washington.

DiCanio, C., Benn, J., and García, R. C. (2018). The phonetics of information structure in Yoloxóchitl Mixtec. *Journal of Phonetics*, 68:50–68.

DiCanio, C. and Bennett, R. (2020). Prosody in Mesoamerican languages. In Gussenhoven, C. and Chen, A., editors, *The Oxford Handbook of Language Prosody*, pages 408–427. Oxford University Press.

Dobrovie-Sorin, C. (1990). Clitic doubling, wh-movement, and quantification in Romanian. *Linguistic Inquiry*, 21:351–397.

Dong, H. (2009). *Issues in the Semantics of Mandarin Questions*. PhD thesis, Cornell University.

Eberhard, D. M., Simons, G. F., and Fennig, C. D., editors (2020). *Ethnologue: Languages of the World*. SIL International, Dallas, Texas, 23 edition.

Eberhardt, R. (1999). Questions and inversion in Ocotepec Mixtec. In *Work Papers of the Summer Institute of Linguistics, University of North Dakota Session*, volume 43.

Egland, S. and Bartholomew, D. (1983). *La inteligibilidad interdialectal en México: Resultados de algunos sondeos*. Summer Institute of Linguistics, 2nd edition.

Eischens, B. (2020). Decomposing negative indefinites in San Martín Peras Mixtec. Presentation at the Society for the Study of the Indigenous Languages of the Americas Meeting.

Eischens, B. (2021a). Classifying negative nominals across Mixtec. Manuscript, University of California Santa Cruz.

Eischens, B. (2021b). Decomposing negative indefinites in San Martín Peras Mixtec. In *Proceedings of WSCLA 24*.

Eischens, B. (2021c). Laryngealization and word reduction in Mixtec: Phonetics in phonology. Manuscript, University of California Santa Cruz.

Eischens, B. (2021d). Phonology is phonetically grounded but not phonetically detailed. Poster presented at the 2021 Annual Meeting of Phonology.

Eischens, B. (to appear). Polar question formation in San Martín Peras Mixtec. In *Proceedings of WSCLA 25*.

É. Kiss, K. (1998a). Identificational focus versus information focus. *Language*, 74(2):245–273.

É. Kiss, K. (1998b). Multiple topic, one focus? *Acta Linguistica Hungarica*, 45(1/2):3–29.

É. Kiss, K. (2002). *The Syntax of Hungarian*. Cambridge University Press.

Elfner, E. (2015). Recursion in prosodic phrasing: Evidence from Connemara Irish. *Natural Language and Linguistic Theory*, 33:1169–1208.

Elordieta, G. (2015). Recursive phonological phrasing in Basque. *Phonology*, 32:49–78.

Embriz Osorio, A. and Zamora Alarcón, O., editors (2012). *México: lenguas indígenas nacionales en riesgo de desaparición*. Instituto Nacional de Lenguas Indígenas.

Erlewine, M. Y. (2014). Explaining leftward focus association with *even* but not *only*. In Etxeberria, U., Fălăuş, A., Irurtzun, A., and Leferman, B., editors, *Proceedings of Sinn & Bedeutung 18*, pages 128–145.

Erlewine, M. Y. (2018). Extraction and licensing in Toba Batak. *Language*, 94(3):662–697.

Erteschik-Shir, N. (1986). Wh-questions and focus. *Linguistics and Philosophy*, 9(2):117–149.

Escala Rabadán, L. and Rivera-Salgado, G. (2018). Festivals, Oaxacan immigrant communities and cultural spaces between Mexico and the United States: The Guelaguetzas in California. *Migraciones Internacionales*, 9(3):37–63.

Fanselow, G. (2006). On pure syntax (uncontaminated by information structure). In Brandt, P. and Fuß, E., editors, *Form, Structure and Grammar*, pages 137–157. Akademie Verlag.

Fanselow, G. (2008). In need of mediation: The relation between syntax and information structure. *Acta Linguistica Hungarica*, pages 397–413.

Fanselow, G. and Lenertová, D. (2011). Left peripheral focus: Mismatches between syntax and information structure. *Natural Language and Linguistic Theory*, 29:169–209.

Farris, E. R. (1992). A syntactic sketch of Yosondúa Mixtec. In Bradley, C. H. and Hollenbach, B. E., editors, *Studies in the Syntax of Mixtecan Languages 4*, number 111, pages 7–171. The Summer Institute of Linguistics.

Féry, C. (2013). Focus as prosodic alignment. *Natural Language and Linguistic Theory*, 31:683–734.

Féry, C. and Ishihara, S. (2010). How focus and givenness shape prosody. In Zimmermann, M. and Féry, C., editors, *Information Structure: Theoretical, Typological, and Experimental Perspectives*, pages 36–63. Oxford University Press.

Féry, C. and Samek-Lodovici, V. (2006). Focus projection and prosodic prominence in nested foci. *Language*, 82(1):131–150.

Foley, S. and Toosarvandani, M. (2019). Pronoun cliticization, wh-movement, and the Principle of Minimal Compliance. In Baird, M. and Pesetsky, J., editors, *Proceedings of NELS 49*, volume 1, pages 251–264.

Foley, S. and Toosarvandani, M. (2022). Extending the Person–Case Constraint to gender: Agreement, locality, and the syntax of pronouns. *Linguistic Inquiry*, 53(1):1–40.

Frascarelli, M. and Puglielli, A. (2007a). Focus in the force-fin system: Infomation structure in Cushitic languages. In Aboh, E. O., Hartmann, H., and Zimmermann, M., editors, *Focus Strategies in African Languages: The Interaction of Focus and Grammar in Niger-Congo and Afro-Asiatic*, pages 161–184. Gruyter Mouton.

Frascarelli, M. and Puglielli, A. (2007b). Focus markers and universal grammar. In Amha, A., Mous, M., and Savá, G., editors, *Omotic and Cushitic Language Studies: Papers from the Fourth Cushitic Omotic Conference*, pages 119–134.

Gavruseva, E. (2000). On the syntax of possessor extraction. *Lingua*, 110:743–772.

Giorgi, A. and Longobardi, G. (1991). *The Syntax of Noun Phrases: Configuration, Parameters, and Empty Categories*. Cambridge University Press.

Giorgi, A. and Pianesi, F. (1997). *Tense and Aspect: From Semantics to Morphosyntax*. Oxford University Press.

Grice, H. P. (1975). Logic and conversation. In Cole, P. and Morgan, J. L., editors, *Syntax and Semantics 3: Speech Acts*, pages 41–58. Academic Press.

Grimshaw, J. (1979). Complement selection and the lexicon. *Linguistic Inquiry*, 10(2):279–326.

Grimshaw, J. (1981). Form, function and the language acquisition device. In *The Logical Problem of Language Acquisition*, pages 165–182. MIT Press.

Grimshaw, J. (2005). Extended projections. In *Words and Structure*, pages 1–73. CSLI Publications.

Grubic, M. (2014). Lakka and the ghosts. http://www.totemfieldstoryboards.org.

Gunter, R. (1966). On the placement of accent in dialogue: A feature of context grammar. *Journal of Linguistics*, 2:159–179.

Gussenhoven, C. (2004). *The Phonology of Tone and Intonation*. Research Surveys in Linguistics. Cambridge University Press.

Hagstrom, P. (1998). *Decomposing Questions*. PhD thesis, MIT.

Haida, A. (2007). *The Indefiniteness and Focusing of Wh-Words*. PhD thesis, Humboldt-Universität.

Halliday, M. (1967). Notes on transitivity and theme in English: Part 2. *Journal of Linguistics*, 2:199–244.

Hamblin, C. L. (1973). Questions in Montague English. *Foundations of Language*, 10:41–53.

Harley, H. and Ritter, E. (2002). Person and number in pronouns: A feature-geometric analysis. *Language*, 78(3):482–526.

Hartmann, K. and Zimmermann, M. (2007a). Exhaustivity marking in Hausa: A reanalysis of the particle *nee/cee*. In Aboh, E. O., Hartmann, K., and Zimmermann, M., editors, *Focus Strategies in African Languages: The interaction of Focus and Grammar in Niger-Congo and Afro-Asiatic*, pages 241–263. De Gruyter.

Hartmann, K. and Zimmermann, M. (2007b). In place — out of place: Focus in Hausa. In Schwabe, K. and Winkler, S., editors, *On Information Structure, Meaning and Form: Generalizations across Languages*, pages 365–403. John Benjamins Publishing Company.

Hartmann, K. and Zimmermann, M. (2009). Morphological focus marking in Gùrùntùm (West Chadic). *Lingua*, 119(9):1340–1365.

Haspelmath, M. (1997). *Indefinite Pronouns*. Oxford University Press.

Hayes, B. (1995). *Metrical Stress Theory: Principles and Case Studies*. The University of Chicago Press.

Hedding, A. A. (2019). New information and the grammar of focus: Evidence from San Martín Peras Mixtec. Manuscript, University of California Santa Cruz.

Hedding, A. A. (2020). Can selection explain stranding?: Revisiting a structural asymmetry. In Hedding, A. A. and Hoeks, M., editors, *Syntax and Semantics at Santa Cruz*, volume 4, pages 63–76. Linguistics Research Center, University of California, Santa Cruz.

Hedding, A. A. (to appear). *Which*-phrases cannot pied-pipe in San Martín Peras Mixtec. In *Proceedings of WSCLA 25*.

Hengeveld, K., Iatridou, S., and Roelofsen, F. (2021). Quexistentials and focus. *Linguistic Inquiry*.

Hills, R. A. (1990). A syntactic sketch of Ayutla Mixtec. In Bradley, C. H. and Hollenbach, B. E., editors, *Studies in the Syntax of Mixtecan Languages 2*, number 90, pages 3–260. The Summer Institute of Linguistics.

Hoeks, M. (2021). The role of focus marking in disjunctive questions and quexistentials: A QUD-based approach. Manuscript, University of California Santa Cruz.

Hofmann, L. and Ostrove, J. (2020). Míí and classifiers in SMPM. WLMA Presentation at UCSC.

Hohaus, V. and Howell, A. (2015). Alternative semantics for focus and questions: Evidence from Sāmoan. In Camp, A., Otsuka, Y., Stabile, C., and Tanaka, N., editors, *The Proceedings of the 21st Meeting of the Austronesian Formal Linguistics Association*, pages 69–86. Asia-Pacific Linguistics.

Hollenbach, B. E. (2015). A preliminary reconstruction of Mixtec pronouns. Manuscript.

Horn, L. R. (1969). A presuppositional analysis of *only* and *even*. In Binnick, R. I., Davison, A., Green, G. M., and Morgan, L. L., editors, *Papers from the Fifth Regional Meeting of the Chicago Linguistic Society*, pages 98–107. Chicago Linguistics Society.

Horrocks, G. and Stavrou, M. (1987). Bounding theory and Greek syntax: Evidence for wh-movement in NP. *Journal of Linguistics*, 23(1):79–108.

Horvath, J. (1986). *FOCUS in the Theory of Grammar and the Syntax of Hungarian*. Foris.

Horvath, J. (1995). Structural focus, structural case, and the notion of feature-assignment. In É. Kiss, K., editor, *Discourse Configurational Languages*, pages 28–64. Oxford University Press.

Horvath, J. (2007). Separating "focus movement" from focus. In Karimi, S., Samiian, V., and Wilkins, W. K., editors, *Phrasal and Clausal Architecture: Syntactic Derivation and Interpretation*, pages 108–145. John Benjamins Publishing Company.

Horvath, J. (2010). "Discourse features", syntactic displacement and the status of contrast. *Lingua*, 120(6):1346–1369.

Horvath, J. (2013). Focus, exhaustivity and the syntax of wh-interrogatives: The case of Hungarian. In Brandtler, J., Molnár, V., and Platzack, C., editors, *Approaches to Hungarian: Papers from the 2011 Lund Conference*, volume 13, pages 97–132.

Howell, A., Hohaus, V., Berezovskaya, P., Sachs, K., Braun, J., Burmaz, Ş., and Beck, S. (2022). (No) variation in the grammar of alternatives. *Linguistic Variation*, 22(1):1–77.

Hsu, B. (2017). Verb second and its derivations: An argument for feature scattering in the left periphery. *Glossa*, 2(1):1–33.

Hualde, J. I. and Ortiz de Urbina, J. (2003). *A Grammar of Basque*. Mouton de Gruyter.

Huang, C.-T. J. (1982). *Logical Relations in Chinese and the Theory of Grammar*. PhD thesis, MIT.

Hyman, L. M. (2010). Focus marking in Aghem: Syntax or semantics? In Fiedler, I. and Schwartz, A., editors, *The Expression of Information Structure: A Documentation of Its Diversity Across Africa*, pages 95–116. John Benjamins Publishing Company.

Instituto Nacional de Estadística y Geografía (2020). Censo de población y vivienda.

Instituto Nacional de Lenguas Indígenas (2008). Catalogo de las lenguas indígenas nacionales: Variantes lingüísticas de México con sus autodenominaciones y referencias geoestadísticas.

Ito, J. and Mester, A. (2012). Recursive prosodic phrasing in Japanese. In Borowsky, T., Kawahara, S., Shinya, T., and Sufahara, M., editors, *Prosody matters: Essays in honor of Elisabeth Selkirk*, pages 280–303. Equinox.

Jackendoff, R. (1972). *Semantic interpretation in generative grammar*. MIT Press.

Jayaseelan, K. A. (2001). IP-internal topic and focus phrases. *Studia Linguistica*, 55(1):39–75.

Johnson, A. F. (1988). A syntactic sketch of Jamiltepec Mixtec. In Bradley, C. H. and Hollenbach, B. E., editors, *Studies in the Syntax of Mixtecan Languages*, number 83, pages 17–150. The Summer Institute of Linguistics.

Johnson, K. (2003). Towards an etiology of adjunct islands. *Nordlyd*, 31(1):187–315.

Josserand, J. K. (1983). *Mixtec Dialect History*. PhD thesis, Tulane University.

Kabagema-Bilan, E., López-Jiménez, B., and Truckenbrodt, H. (2011). Multiple focus in Mandarin Chinese. *Lingua*, 121:1890–1905.

Kamali, B. and Krifka, M. (2020). Focus and contrastive topic in questions and answers, with particular reference to Turkish. *Theoretical Linguistics*, 46(1-2):1–71.

Karttunen, L. (1977). Syntax and semantics of questions. *Linguistics and Philosophy*, 1:3–44.

Karttunen, L. and Peters, S. (1976). What indirect questions conventionally implicate. In *Papers from the 12th Regional Meeting of the Chicago Linguistics Society*, pages 351–368.

Karttunen, L. and Peters, S. (1979). Conventional implicature. In Oh, C.-K. and Dinneen, D. A., editors, *Presupposition*, volume 11 of *Syntax and Semantics*, pages 1–56. Academic Press.

Katz, J. and Selkirk, E. (2011). Contrastive focus vs. discourse-new: Evidence from phonetic prominence in English. *Language*, 87(4):771–816.

Keenan, E. L. and Comrie, B. (1977). Noun phrase accessibility and universal grammar. *Linguistic Inquiry*, 8:63–99.

Kim, S.-S. (2002). Intervention effects are focus effects. *Japanese/Korean Linguistics*, 10:615–628.

Kim, S.-S. (2006). *Intervention Effects in Questions*. PhD thesis, University of Frankfurt.

Kishimoto, H. (2005). *WH*-in-situ and movement in Sinhala questions. *Natural Language and Linguistic Theory*, 23:1–51.

Kitagawa, Y. (1986). *Subjects in Japanese and English*. PhD thesis, University of Massachusetts Amherst.

Klatt, D. H. (1976). Linguistic uses of segmental duration in English: Acoustic and perceptual evidence. *The Journal of the Acoustical Society of America*, 59(5):1208–1221.

König, E. (1991). *The Meaning of Focus Particles: A Comparative Perspective*. Routledge.

Koopman, H. and Sportiche, D. (1991). The position of subjects. *Lingua*, 85:211–258.

Kotek, H. (2014). *Wh*-fronting in a two probe system. *Natural Language and Linguistic Theory*, 32:1105–1143.

Kotek, H. (2019). *Composing Questions*. MIT Press.

Kotek, H. and Erlewine, M. Y. (2016). Covert pied-piping in English multiple wh-questions. *Linguistic Inquiry*, 47:669–693.

Köylü, Y. (2021). An overview of the NP versus DP debate. *Language and Linguistics Compass*, 15(3).

Kramer, R. (2014). Clitic doubling or object agreement: The view from Amharic. *Natural Language and Linguistic Theory*, 32:593–634.

Kratzer, A. and Selkirk, E. (2020). Deconstructing information structure. *Glossa*, 5(1):1–53.

Kratzer, A. and Shimoyama, J. (2002). Indeterminate pronouns: The view from Japanese. In *Proceedings of the 3rd Tokyo Conference on Psycholinguistics*, pages 1–25.

Kresge, L. (2007). Indigenous Oaxacan communities in California: An overview. Report published by the California Institute for Rural Studies.

Krifka, M. (1992). A framework for focus-sensitive quantification. In Barker, C. and Dowty, D., editors, *Proceedings of SALT 2*, pages 215–236.

Kuiper, A. and Oram, J. (1991). A syntactic sketch of Diuxi-Tilantongo Mixtec. In Bradley, C. H. and Hollenbach, B. E., editors, *Studies in the Syntax of Mixtecan Languages 3*, number 105, pages 185–408. The Summer Institute of Linguistics.

Kuno, S. and Robinson, J. J. (1972). Multiple wh questions. *Linguistic Inquiry*, 3(4):463–487.

Kuroda, S.-Y. (1965). *Generative Grammatical Studies in The Japanese Language*. PhD thesis, MIT.

Ladd, D. R. (1986). Intonational phrasing: The case for recursive prosodic structure. *Phonology*, 3:311–340.

Ladd, D. R. (2008). *Intonational Phonology*. Cambridge University Press, 2nd edition.

Lasnik, H. and Park, M. (2003). The EPP and the Subject Condition under sluicing. *Linguistic Inquiry*, 34(4):649–660.

Lecarme, J. (1999). Focus in Somali. In Rebuschi, G. and Tuller, L., editors, *The Grammar of Focus*, pages 275–311. John Benjamins Publishing Company.

Lee, F. (1999). *Antisymmetry and the Syntax of San Lucas Quiaviní Zapotec*. PhD thesis, UCLA.

Li, H. and Law, J. H.-K. (2016). Alternatives in different dimensions: A case study of focus intervention. *Linguistics and Philosophy*, 39:201–245.

Lillehaugen, B. D. (2003). The categorial status of body part prepositions in Valley Zapotec languages. UCLA Masters Thesis.

Lillehaugen, B. D. (2004). The syntactic and semantic development of body part prepositions in Valley Zapotec languages. In Castillo, J., editor, *Proceedings from the 6th Workshop on American Indigenous Languages*, volume 14, pages 69–82. Santa Barbara Papers in Linguistics.

Littell, P. (2010a). Animal party. http://www.totemfieldstoryboards.org.

Littell, P. (2010b). Thank-you notes. http://www.totemfieldstoryboards.org.

Macaulay, M. (1996). *A Grammar of Chalcatongo Mixtec*. University of California Press.

Macaulay, M. (2005). The syntax of Chalcatongo Mixtec: Preverbal and postverbal. In *Verb First: On the Syntax of Verb Initial Languages*, pages 341–366. Linguistik Aktuell.

Macaulay, M. and Salmons, J. C. (1995). The phonology of glottalization in Mixtec. *International Journal of American Linguistics*, 61(1):38–61.

Marantz, A. (1997). No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. In *University of Pennsylvania Working Papers in Linguistics*, volume 4.

May, R. (1985). *Logical Form: Its Structure and Derivation*. MIT Press.

Mendoza, G. (2020). Syntactic sketch of San Martín Peras Tu'un Savi. UC Santa Barbara BA Thesis.

Mines, R., Nichols, S., and Runsten, D. (2010). California's indigenous farmworkers. Final Report of the Indigenous Farmworker Study to the California Endowment.

Moore, B. C. J. and Glasberg, B. R. (1983). Suggested formulae for calculating auditory-filter bandwidths and excitation patterns. *The Journal of the Acoustical Society of America*, 74(3):750–753.

Nespor, M. and Vogel, I. (1986). *Prosodic Phonology*. Foris.

Nevins, A. (2011). Multiple agree with clitics: Person complementarity vs. omnivorous number. *Natural Language and Linguistic Theory*, 29:939–971.

North, J. and Shields, J. (1977). Silacayoapan mixtec phonology. In Merrifield, W. R., editor, *Studies in Otomanguean Phonology*, pages 21–34. The Summer Institute of Linguistics.

Oller, D. K. (1973). The effect of position in utterance on speech segment duration in English. *The Journal of the Acoustical Society of America*, 54(5):1235–1247.

Onea, E. and Beaver, D. (2011). Hungarian focus is not exhausted. In Cormany, E., Ito, S., and Lutz, D., editors, *Proceedings of Semantics and Linguistic Theory (SALT) 19*, pages 342–359.

Onea, E. and Guntsetseg, D. (2011). Focus and wh-questions in Mongolian. In Reich, I., Horch, E., and Pauly, D., editors, *Proceedings of Sinn & Bedeutung 15*, pages 467–481.

Ortiz de Urbina, J. (1999). Focus in Basque. In Rebuschi, G. and Tuller, L., editors, *The Grammar of Focus*, Linguistik Aktuell, chapter 11, pages 311–333. John Benjamins Publishing Company.

Ostrove, J. (2018). *When φ-Agreement Targets Topics: The View from San Martín Peras Mixtec*. PhD thesis, University of California Santa Cruz.

Ostrove, J. (to appear-). Givennes in the syntax of San Martín Peras Mixtec. In *Proceedings of of SULA 11*. GLSA.

Ostrove, J. (to appear). Impersonals in San Martín Peras Mixtec. In *Proceedings of WSCLA 25*. UBCWPL.

Oxford, W. (2014). *Microparameters of agreement: A Diachronic Perspective on Algonquian verb Inflection*. PhD thesis, University of Toronto.

Oxford, W. (2019). Inverse marking and multiple agree in Algonquin: Complementarity and variability. *Natural Language and Linguistic Theory*, 37:955–996.

Panizza, D. and Sudo, Y. (2020). Minimal sufficiency with covert *even*. *Glossa*, 5(1):1–25.

Perlmutter, D. (1971). *Deep and Surface Structure Constraints in Syntax*. Holt, Rinehart and Winston, Inc.

Perlmutter, D. (1978). Impersonal passives and the unaccusative hypothesis. In *Proceedings of the Annual Meeting of the Berkeley Linguistics Society 38*, pages 157–189.

Pesetsky, D. (1982). *Paths and Categories*. PhD thesis, MIT.

Pesetsky, D. (2000). *Phrasal Movement and Its Kin*. MIT Press.

Pesetsky, D. and Torrego, E. (2001). T-to-C movement: Causes and consequences. In Kenstowicz, M., editor, *Ken Hale: A Life in Language*, chapter 11, pages 355–426. MIT Press.

Peters, S. L. (2018). The inventory and distribution of tone in Tù'un Ndá'vi, the Mixtec of Piedra Azul (San Martín Peras), Oaxaca. Master's thesis, University of California, Santa Barbara.

Pike, K. L. (1948). *Tone Languages*. University of Michigan Press.

Postal, P. M. (1974). *On Raising: One Rule of English Grammar and Its Theoretical Implications*. MIT Press.

Preminger, O. (2014). *Agreement and Its Failures*. MIT Press.

R Core Team (2019). *R: A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing.

Ramchand, G. (1997). Questions, polarity and alternative semantics. In Kusumoto, K., editor, *Proceedings of NELS*, volume 27, pages 383–396.

Reinhart, T. (1997). Quantifier scope: How labor is divided between QR and choice functions. *Linguistics and Philosophy*, 20(4):335–397.

Reinhart, T. (2006). *Interface Strategies: Optimal and Costly Computations*. MIT Press.

Rizzi, L. (1990). *Relativized Minimality*. MIT Press.

Rizzi, L. (1996). Residual verb second and the wh-criterion. In Belletti, A. and Rizzi, L., editors, *Parameters and Functional Heads: Essays in Comparative Syntax*. Oxford University Press.

Rizzi, L. (1997). The fine structure of the left periphery. In Haegeman, L., editor, *Elements of Grammar*, pages 281–337. Springer.

Rizzi, L. (2001). On the position of Int(errogative) in the left periphery of the clause. In Cinque, G. and Salvi, G., editors, *Current Studies in Italian Syntax: Essays Offered to Lorenzo Renzi*, pages 287–296. Elsevier.

Rochemont, M. S. (1978). *A Theory of Stylistic Rules in English.* PhD thesis, University of Massachusetts, Amherst.

Rochemont, M. S. (1986). *Focus in Generative Grammar.* John Benjamins Publishing Company.

Rooth, M. (1985). *Association with Focus.* PhD thesis, University of Massachusetts.

Rooth, M. (1992). A theory of focus interpretation. *Natural Language Semantics*, 1(1):75–116.

Ross, J. (1967). *Constraints on Variables in Syntax.* PhD thesis, MIT.

Sabel, J. (2000). Partial wh-movement and the typology of wh-questions. In Lutz, U., Müller, G., and von Stechow, A., editors, *Wh-Scope Marking*, pages 409–446. John Benjamins Publishing Company.

Saeed, J. (1984). *The Syntax of Focus and Topic in Somali*, volume 3 of *Kuschitische Sprachsudien.* Helmut Buske Verlag Hamburg.

Saeed, J. (1999). *Somali.* John Benjamins Publishing Company.

Safir, K. (2019). The A/Ā distinction as an epiphenomenon. *Linguistic Inquiry*, 50(2):285–336.

Samek-Lodovici, V. (2005). Prosody-syntax interaction in the expression of focus. *Natural Language and Linguistic Theory*, 23(3):687–755.

Samko, B. (2016). *Syntax and Information Structure: The Grammar of English Inversions.* PhD thesis, UC Santa Cruz.

Schachter, P. (1973). Focus and relativization. *Language*, 49(1):19–46.

Schwarzschild, R. (1999). GIVENness, avoidF and other constraints on the placement of focus. *Natural Language Semantics*, 7:141–177.

Selkirk, E. (1978). On prosodic structure and its relation to syntactic structure. In Fretheim, T., editor, *Nordic Prosody*, pages 111–140. TAPIR.

Selkirk, E. (1995). Sentence prosody: Intonation, stress and phrasing. In Goldsmith, J. A., editor, *The Handbook of Phonological Theory*, chapter 16, pages 550–569. Blackwell.

Selkirk, E. (2011). The syntax-phonology interface. In Goldsmith, J. A., Riggle, J., and Yu, A. C. L., editors, *The Handbook of Phonological Theory*, pages 435–484. Wiley-Blackwell, 2nd edition.

Sharf, E. (2016). First and second person pronouns in Q'anjob'al (Maya). Undergraduate Thesis, Brown University.

Shields, J. (1988). A syntactic sketch of Silacayoapan Mixtec. In Bradley, C. H. and Hollenbach, B. E., editors, *Studies in the Syntax of Mixtecan Languages*, number 83, pages 305–449. The Summer Institute of Linguistics.

Shimoyama, J. (2006). Indeterminate phrase quantification in Japanese. *Natural Language Semantics*, 14:139–173.

Shlonsky, U. and Bocci, G. (2019). Syntactic cartography. In *Oxford Research Encyclopedia of Linguistics*. Oxford University Press.

Sichel, I. (2018). Anatomy of a counterexample: Extraction from relative clauses. *Linguistic Inquiry*, 49(2):335–378.

Small, P. C. (1990). A syntactic sketch of Coatzospan Mixtec. In Bradley, C. H. and Hollenbach, B. E., editors, *Studies in the Syntax of Mixtecan Languages 2*, number 90, pages 267–479. The Summer Institute of Linguistics.

Smith Stark, T. (1988). 'Pied-piping' con inversión en preguntas parciales. Manuscript, Centro de estudios lingüísticos y literarios, Colegio de México y Seminario de lenguas indígenas.

Starke, M. (2001). *Move Dissolves into Merge: A Theory of Locality*. PhD thesis, University of Geneva.

Suñer, M. (1988). The role of agreement in clitic-doubled constructions. *Natural Language and Linguistic Theory*, 6(3):391–434.

Svenonius, P. (2004). On the edge. In Adger, D., de Cat, C., and Tsoulas, G., editors, *Peripheries: Syntactic Edges and their Effects*, chapter 11, pages 259–287. Kluwer.

Szabolcsi, A. (1984). The possessor that ran away from home. *The Linguistics Review*, 3:89–102.

Szabolcsi, A. and Lohndal, T. (2017). Strong vs. weak islands. In Everaert, M. and van Riemsdijk, H., editors, *The Wiley Blackwell Companion to Syntax*. John Wiley and Sons, 2nd edition.

Szendrői, K. (2001). *Focus and the Syntax-Phonology Interface*. PhD thesis, University College London.

Tancredi, C. D. (1990). Not only EVEN, but even ONLY. Manuscript.

TFS Working Group (2011). Bake-off. http://www.totemfieldstoryboards.org.

Toosarvandani, M. (2010). *Association with Foci*. PhD thesis, University of California, Berkeley.

Tran, T. and Bruening, B. (2013). Wh-phrases as indefinites: A Vietnamese perspective. In Hole, D. and Löbel, E., editors, *Linguistics of Vietnamese: An International Survey*, chapter 8, pages 217–241. De Gruyter.

Truckenbrodt, H. (1995). *Phonological Phrases: Their Relation to Syntax, Focus and Prominence*. PhD thesis, MIT.

Uriagereka, J. (1988). *On Government*. PhD thesis, University of Connecticut.

Uriagereka, J. (1995). Aspects of the syntax of clitic placement in western romance. *Linguistic Inquiry*, 26(1):79–123.

van Urk, C. (2015). *A Uniform Syntax for Phrasal Movement: A Case Study of Dinka Bor*. PhD thesis, MIT.

Vázquez Álvarez, J. J. and Coon, J. (2020). Headless relative clauses in Ch'ol. In Caponigro, I., Torrence, H., and Zavala Maldonado, R., editors, *Headless Relative Clauses in Mesoamerican Languages*, chapter 11. Oxford University Press.

Velasco Ortiz, L. (2005). *Mixtec Transnational Identity*. The University of Arizona Press.

Wedgwood, D. (2005). *Shifting the Focus: From Static Structures to the Dynamics of Interpretation*. Elsevier.

Wedgwood, D., Pethő, G., and Cann, R. (2006). Hungarian 'focus position' and English *it*-clefts: The semantic underspecification of 'focus' readings. Manuscript.

Wexler, K. and Culicover, P. (1980). *Formal Principles of Language Acquisition*. MIT Press.

Wightman, C. W., Shattuck-Hufnagel, S., Ostendorf, M., and Price, P. J. (1992). Segmental durations in the vicinity of prosodic phrase boundaries. *The Journal of the Acoustical Society of America*, 91(3):1707–1717.

Xu, Y. (1999). Effects of tone and focus on the formation and alignment of f_0 contours. *Journal of Phonetics*, 27:55–105.

Yuan, M. (2017). Movement to complement in Kikuyu and the syntax of focus association. Manuscript, MIT.

Yuan, M. (2021a). Diagnosing object agreement vs. clitic doubling: An Inuit case study. *Linguistic Inquiry*, 52(1):153–179.

Yuan, M. (2021b). VP-movement in a VSO language: A case study from San Juan Piñas Mixtec. Presentation at the Center for Research in Syntax, Semantics, and Phonology at KU Leuven.

Zhang, J. (2004). Contour tone licensing and contour tone representation. *Language and Linguistics*, 5(4):925–968.

Zubizarreta, M. L. (1998). *Prosody, focus, and word order*, volume 33 of *Linguistic inquiry monographs*. MIT Press.

Zylstra, C. F. (1991). A syntactic sketch of Alacatlatzala Mixtec. In Bradley, C. H. and Hollenbach, B. E., editors, *Studies in the Syntax of Mixtecan Languages 3*, number 105, pages 1–177. The Summer Institute of Linguistics.