

# In defense of Closeness: focus-sensitive adverb placement in Vietnamese and Mandarin Chinese

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In this paper I show that focus-sensitive adverbs in Vietnamese and Mandarin Chinese are required to be as low as possible in their phase while c-commanding their focus associate. This generalization parallels what has been proposed under one approach to German focus-sensitive particles by Jacobs (1983, 1986) and Büring and Hartmann (2001a) under the banner of “Closeness,” but these analyses have been controversial. This “as low as possible” behavior must result from the comparison of competing derivations, which I model using Optimality Theory. The fact that this requirement only holds within each phase shows that transderivational competition must be evaluated cyclically at each phase (Heck and Müller, 2001; Fanselow and Āavar, 2001), and more generally offers a new kind of evidence for the idea of phase-based cyclic Spell Out (Chomsky, 2000, 2001).

In Vietnamese, I study the ‘only’ operator *chỉ*. Vietnamese has a morphologically rich inventory of focus-sensitive operators which makes it clear that *chỉ* is an adverb. In Mandarin Chinese, I study the focus marker *shì* and the ‘only’ operator *zhǐyǒu/zhǐ*. I argue that in the synchronic grammar of Mandarin, despite surface appearances, *zhǐyǒu* is an allomorph of *zhǐ* and that both *shì* and *zhǐyǒu/zhǐ* are adverbs.

**Keywords:** Vietnamese, Mandarin Chinese, German, association with focus, *only*, adverb placement, phases, Optimality Theory

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# 1 Introduction

This paper describes the distribution of focus-sensitive adverbs in Vietnamese and Mandarin Chinese. An example of a focus-sensitive adverb is the Vietnamese ‘only’ *chỉ* in (1). We say that *chỉ* is “focus-sensitive” because the meaning introduced by *chỉ* depends on the placement of *focus*, indicated by capital letters below, elsewhere in the utterance. The focus-sensitivity of *chỉ* parallels the familiar behavior of English *only*, as reflected in the translations in (1).

(1) ***Chỉ* ‘only’ is focus-sensitive:**

- a. Nam **chỉ** MUA cuốn sách.  
Nam ONLY buy CL book  
‘Nam only BOUGHT the book.’  
⇒ Nam didn’t do anything else with the book (e.g. read it).
- b. Nam **chỉ** mua cuốn SÁCH.  
Nam ONLY buy CL book  
‘Nam only bought the BOOK.’  
⇒ Nam didn’t buy anything else (e.g. the magazine).

Focus-sensitive operators such as *chỉ* quantify over a set of alternative propositions, and the placement of focus contributes to the computation of these alternatives (Rooth, 1985, a.o.). This compositional semantics of focus leads to the requirement that the focused constituent must be in the scope of the focus-sensitive operator. Structurally speaking, the semantics then predicts that *focus-sensitive adverbs should be able to associate with any constituent that it c-commands*.

This prediction seems to not hold in the general case. As an adverb, *chỉ* can also attach higher in the clause, for example preceding the subject (2). From this position, *chỉ* takes the subject in its scope and is able to associate with it (2a). However, from this high position in the clause *chỉ* is unable to associate with the constituents ‘buy’ and ‘the book’ as was possible when *chỉ* was preverbal (1), even though *chỉ* still c-commands these constituents in (2b–c).

(2) **Pre-subject *chỉ* cannot associate with foci in the verb phrase:**

- a. **Chỉ** NAM mua cuốn sách.  
ONLY Nam buy CL book  
‘Only NAM bought the book.’  
⇒ Noone else bought the book.
- b. \* **Chỉ** Nam MUA cuốn sách.  
ONLY Nam buy CL book  
Intended: ‘Nam only BOUGHT the book.’ (=1a)
- c. \* **Chỉ** Nam mua cuốn SÁCH.  
ONLY Nam buy CL book  
Intended: ‘Nam only bought the BOOK.’ (=1b)

Further study of the distribution of Vietnamese *chỉ* and similar adverbs in Mandarin Chinese will motivate the generalization in (3) below. As the statement of (3) makes clear, the semantically-motivated c-command requirement on focus association is a necessary but not sufficient condition for the grammatical placement of focus-sensitive adverbs.

- (3) Focus-sensitive adverbs must be as low as possible while c-commanding their focus associate, within a given phase.

On the surface, an attractive alternative explanation for the contrast in (1–2) would be to say that *chỉ* in (2) is adjoined directly to the subject *Nam* and therefore does not c-command the intended associate in (2b–c). Much of this paper will therefore be devoted to establishing that the focus-sensitive operators in question are indeed adverbs. Vietnamese has a morphologically rich inventory of focus-sensitive operators which makes it clear that the ‘only’ operator *chỉ* is an adverb. In contrast, the operators that I study in Mandarin Chinese—the focus marker *shì* and the ‘only’ operators *zhǐ* and *zhǐyǒu*—are not transparently adverbs. I will argue for the novel view that, despite surface appearances, the focus-sensitive operators *shì*, *zhǐ*, and *zhǐyǒu* are synchronically always adverbs and that in fact *zhǐ* and *zhǐyǒu* are allomorphs of a single adverb ‘only.’

The “as low as possible” statement in (3) requires that we consider a set of possible derivations and choose an optimal candidate. I will formally model this competition using the tools of Optimality Theory (Prince and Smolensky, 1993). The candidate set will be limited to converging derivations based on the same input numeration (Chomsky, 1995). The fact that this “as low as possible” behavior resets at phase boundaries shows that this optimization process must happen cyclically at each phase, as proposed previously by Heck and Müller (2001) and Fanselow and Āavar (2001). I will also show that this behavior cannot be explained as a semantically-sensitive process by which adverbs must be as low as possible unless a higher attachment yields a different semantic interpretation (cf Fox, 1995, 2000).

By documenting this “as low as possible” behavior of focus-sensitive adverbs in Vietnamese and Mandarin Chinese, this paper will also contribute to an ongoing debate regarding the analysis of German focus-sensitive particles. For reasons specific to German syntax, reviewed briefly below, it is difficult to determine conclusively whether focus-sensitive operators in German are adverbs or constituent-marking. Jacobs (1983, 1986) and Būring and Hartmann (2001a) make the strong and controversial claim that all German focus-sensitive operators are adverbs. This adverb-only approach requires positing a “Closeness” condition in essence equivalent to (3). This idea of a transderivational Closeness constraint has been strongly questioned by critics, including Reis (2005) who calls it “spurious” and “more than doubtful.” The work here thus contributes to this debate by showing that a grammatical process by which focus-sensitive adverbs are placed as low as possible is independently necessary outside of German.

I will begin in section 2 by introducing some relevant background on the compositional semantics of focus as well as on the German Closeness debate. In section 3, I will briefly introduce the rich inventory of focus-sensitive operators in Vietnamese and present the “as low as possible” distribution of the ‘only’ operator *chỉ*. I will also present my argument that this behavior cannot be

the result of a semantically-sensitive constraint which would allow adverbs to be placed in a higher position if a different meaning is derived. I then turn in section 4 to a discussion of the Mandarin Chinese focus-sensitive operators *shì* and *zhǐ / zhǐyǒu*. Finally in section 5 I will present my formal proposal which models the distribution of these adverbs in Optimality Theory. This will include an argument for cyclic optimization by phase, as well as an extension of the proposal which utilizes covert focus movement. I conclude in section 6.

## 2 Background

In this section I will introduce relevant theoretical background on focus particles, before I turn to my own investigation in section 3. In section 2.1, I will sketch the Roothian theory of focus association, which will be assumed for much of the work here. The compositional semantics of focus motivates a *c-command requirement* which must hold between focus-sensitive operators and their focus associates. I will also briefly discuss covert focus movement approaches, an alternative to the straightforward Roothian theory, which will be discussed much later in section 5.3. In section 2.2, I will briefly review a debate regarding the analysis of focus particles in German. In the remainder of the paper, I will show that Vietnamese and Mandarin Chinese are able to contribute to a key question in this debate.

### 2.1 Association with focus

Operators such as *only*, *even*, and *also* are described as “focus-sensitive,” as their interpretation depends on the placement of *focus* elsewhere in the utterance. In English, as well as many other languages, focus is realized prosodically. Consider, for example, the contrast in (4a–b). Focus-sensitive operators will consistently be bolded in this paper.

- (4) **Only is focus-sensitive:** (examples from Beaver and Clark, 2008)
- a. David **only** wears a bow tie when TEACHING.  
‘David does not wear bow ties in any other, non-teaching situations.’
  - b. David **only** wears a BOW TIE when teaching.  
‘David does not wear any other clothes when teaching.’

The two examples in (4) have very different truth-conditions, as indicated by their paraphrases, although their surface realizations vary only in the position of prosodic prominence. Following Jackendoff (1972), I will assume that the prosodic prominence on *teaching* in (4a) and *bow tie* in (4b) are realizations of an abstract focus-feature, or *F-marking*. In further examples here, I will use *F-marking* to indicate the position of focus, abstracting away from its phonetic realization.

Consider the relationship between the placement of focus and the corresponding change in meaning in (4). The contribution of focus can be thought of as triggering a set of *alternatives* for the focus-sensitive operator to quantify over. In (4a), we can imagine alternative propositions which vary in the position of *teaching*: that David wears a bow tie when writing, or that David wears a

bow tie when sleeping, etc. *Only* quantifies over these alternatives, asserting that those other, non-*teaching* alternative propositions are false (Horn, 1969). In contrast, the alternative propositions for (4b) make reference to other possible pieces of clothing, with *only* again asserting that the other, non-*bow tie* alternatives are false. In this way, focus determines the set of alternative propositions which *only* quantifies over.

Rooth (1985, 1992) proposes that the F-marked constituent which triggers alternatives—the *associate* of the operator—is interpreted in-situ at LF, and offers a compositional semantics for focus which derives the set of alternative propositions. In addition to their ordinary semantic value, each syntactic node has a corresponding *focus semantic value*, which is a set of alternative denotations for the node. Focus semantic values are computed compositionally, as ordinary semantic values are.<sup>1</sup> F-marking introduces alternatives to the F-marked node, which will contribute compositionally to the focus semantic values of dominating nodes. Focus-sensitive operators such as the adverb *only* use the focus semantic value of their complement as the set of alternatives to quantify over.<sup>2</sup>

A consequence of this semantics for focus is that focus-sensitive operators are sensitive to the placement of F-marking in their scope, but not outside their scope. F-marking outside of the scope of the operator will not contribute to the computation of alternatives used by the operator. In terms of the syntactic configuration between the focus-sensitive operator and the F-marked constituent, then, this translates into a *c-command requirement*:

(5) **The c-command requirement on association with focus:**

(Jackendoff, 1972; Tancredi, 1990; Aoun and Li, 1993, a.o.)

A focus-sensitive operator must c-command its associate.

Such a structural requirement was first noted by Jackendoff (1972). Jackendoff noted that the operator *only* in an adverbial position can associate with any focused constituent that it c-commands (6b–f), but not with a focused constituent that it does not c-command (6a).<sup>3</sup>

(6) **Adverb *only* must c-command its associate:** (based on Jackendoff, 1972, pp. 248–250)

- a. \* [John]<sub>F</sub> will **only** lend his daughter a new bicycle.
- b. John will **only** [lend]<sub>F</sub> his daughter a new bicycle.
- c. John will **only** lend [his]<sub>F</sub> daughter a new bicycle.
- d. John will **only** lend his [daughter]<sub>F</sub> a new bicycle.
- e. John will **only** lend his daughter a [new]<sub>F</sub> bicycle.
- f. John will **only** lend his daughter a new [bicycle]<sub>F</sub>.

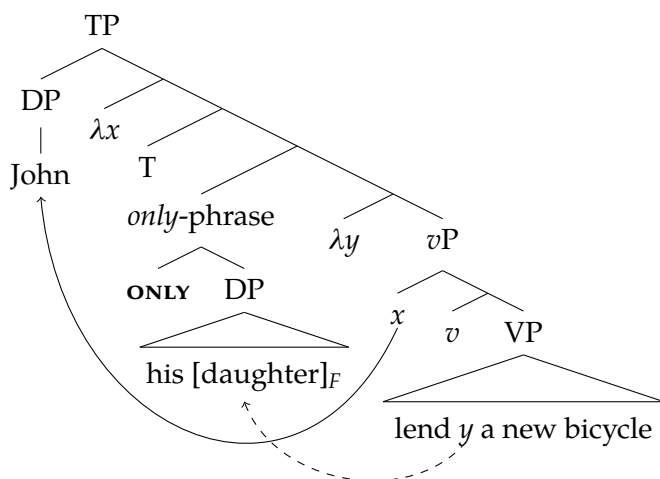
<sup>1</sup>See Rooth (1985, 1992) for a formal definition of the focus semantic value denotation function.

<sup>2</sup>I assume here, with Rooth (1985, 1992) and many others, that focus-sensitive adverbs take scope in their surface position.

<sup>3</sup>Jackendoff (1972) notes that the configuration in (6a) is however grammatical with *even*, and it is also grammatical with *also* (Krifka, 1998, a.o.). Erlewine (2014b) argues that this is a systematic difference between different focus-sensitive operators based on their semantics: *even* and *also* can associate with focused material which has moved out of its scope, while *only* cannot. Discussion in this paper will therefore concentrate on exclusive particles such as *only* which do obey this strict c-command requirement.

As mentioned above, Rooth (1985, 1992) argues that focused constituents are interpreted in-situ at LF. An alternative hypothesis is that the focus associate moves to be a local argument of the focus-sensitive operator (Chomsky, 1976). An example of such an approach for example (6d) is illustrated in (7) below. (7) represents the LF configuration after covert focus movement with pied-piping of the possessive *his*,<sup>4</sup> indicated with the dashed arrow. Following Wagner (2006), I conceive of this focus movement of *his daughter* as a non-standard form of movement which forms what I label the “*only*-phrase” with *only*, with a corresponding  $\lambda$ -binder  $\lambda y$  adjoined to the complement of the *only*-phrase.

(7) **LF for the covert focus movement approach:**



This covert focus movement approach will also derive the c-command requirement in (5). Under the standard assumption that movement cannot be downward—a consequence of the Extension Condition (Chomsky, 1993)—the focus associate must be in the surface scope of the focus-sensitive operator, in order to covertly move to it.

In what follows, what will be important is the c-command requirement between focus-sensitive operators and their associates (5). I showed, through a brief sketch of the syntax and semantics of focus association, that the compositional semantics of focus necessitates this c-command requirement, whether focus is interpreted in-situ or via covert focus movement. I will generally assume the Roothian position that focus associates are interpreted in-situ, without covert focus movement, but will then return to the possibility of covert focus movement in section 5.3.

<sup>4</sup>See Wagner (2006); Krifka (2006); Erlewine and Kotek (2014) for arguments for the availability of pied-piping in covert focus movement. Covert focus movement with pied-piping was first proposed by Drubig (1994) as an approach to reconcile covert focus movement with the fact that association with focus is apparently not sensitive to syntactic islands (Rooth, 1985).

## 2.2 German focus-sensitive operators and the Closeness debate

The general question that I will address in this paper is whether the semantically-motivated c-command requirement is the sole requirement on the distribution of focus-sensitive adverbs, or whether there are additional constraints. In this section I will briefly review a debate on the analysis of focus-sensitive operators in German, where it has been proposed that focus-sensitive adverbs are additionally subject to a *Closeness* condition.

Cross-linguistically, focus-sensitive operators often appear either as an adverb, adjoining to a verbal projection, or attach more locally to a DP or PP containing F-marking. I will refer to the latter as “constituent-marking.” English has both varieties: *only* and *even* (but interestingly not *also*) can be an adverb or constituent-marking. The pair in (8) shows adverb and constituent-marking *only* associating with the same F-marked constituent, *red wine*. These two sentences are both grammatical and are truth-conditionally equivalent.

(8) **Two types of focus operators in English:**

- a. Sam [<sub>vP</sub> **only** [<sub>vP</sub> drinks [red wine]<sub>F</sub>]] *adverb*  
b. Sam drinks [<sub>DP</sub> **only** [<sub>DP</sub> [red wine]<sub>F</sub>]] *constituent-marking*

While English word order makes it clear that *only* in (8a) is an adverb and the *only* in (8b) is not,<sup>5</sup> in some cases, it is hard to distinguish between a focus-sensitive operator being an adverb or constituent-marking. Such is the case in German. Consider the position of *nur* ‘only’ associating with ‘novel’ in (9) below. We can imagine two possible parses: *nur* could be an adverb adjoined to a VP (9a) or could be adjoined directly to the DP containing focus (9b). Unlike in English, the verb-final order of the German VP does not immediately distinguish between the two options. (All German examples here are taken from Buring and Hartmann (2001a), with some modification.)

(9) **Two hypotheses for German focus operators (Buring and Hartmann, 2001a):**

Ich habe **nur** einen ROMAN gelesen.  
I have ONLY a novel read

‘I read only a [novel]<sub>F</sub>.’

- a. *Nur* as adverb:  
Ich habe [<sub>vP</sub> **nur** [<sub>vP</sub> [<sub>DP</sub> einen [Roman]<sub>F</sub>] gelesen]]  
b. *Nur* as constituent-marking:  
Ich habe [<sub>vP</sub> [<sub>DP</sub> **nur** [<sub>DP</sub> einen [Roman]<sub>F</sub>]] gelesen]

Jacobs (1983, 1986) and Buring and Hartmann (2001a) take the strong position that German focus-sensitive operators are always adverbs. The lack of constituent-marking focus operators is immediately able to explain certain facts. For example, focus-sensitive operators are unable to attach inside

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<sup>5</sup>Although see Kayne (1998) for an approach that derives the constituent-marking word order from an adverbial source, through a series of overt movements.



a PP or DP (10). Parallel structures are grammatical in English, due to English having constituent-marking focus-sensitive operators in addition to adverbs (8).

(10) **German focus-sensitive operators cannot attach inside PPs or DPs:**

- a. \* [PP mit [ **nur** [DP Hans<sub>F</sub>]]]  
 with ONLY Hans  
 Intended: 'with only [Hans]<sub>F</sub>'
- b. \* [DP der Bruder [ **nur** [DP des [Grafen]<sub>F</sub>]]]  
 the brother ONLY the-GEN COUNT-GEN  
 Intended: 'the brother of only the [count]<sub>F</sub>'

On the other hand, there are also challenges for the adverb-only approach of Jacobs, and Buring and Hartmann. One such complication is that focus-sensitive particles often must be adjacent to the DP or PP argument containing focus. Consider the contrast between the grammatical examples in (11a–b) and the ungrammatical example in (11c).

(11) **The adjacency requirement on German focus-sensitive particles:**

- a. ✓ Gestern hat Rufus **nur** dem [Mädchen]<sub>F</sub> Blumen geschenkt.  
 yesterday has Rufus ONLY the.DAT girl flowers given  
 'Yesterday Rufus gave flowers to only the [girl]<sub>F</sub>.'
- b. ✓ Gestern hat **nur** [Rufus]<sub>F</sub> dem Mädchen Blumen geschenkt.  
 yesterday has ONLY Rufus the.DAT girl flowers given  
 'Yesterday only [Rufus]<sub>F</sub> gave flowers to the girl.'
- c. \* Gestern hat **nur** Rufus dem [Mädchen]<sub>F</sub> Blumen geschenkt.  
 yesterday has ONLY Rufus the.DAT girl flowers given  
 Intended: 'Yesterday Rufus gave flowers to only the [girl]<sub>F</sub>.' (=a)

If *nur* is constituent-marking, the contrast between (11a–b) and (11c) is easily explained. *Nur* adjoins to DP constituents which contain focus in the grammatical examples in (11a–b), but *nur* is simply adjoined to the wrong DP in (11c). In (11c), *nur*'s sister is *Rufus* and does not contain the focused constituent, thereby violating the c-command requirement on focus-sensitive operators.

As noted by Jacobs (1983, 1986), under the adverb-only approach, the ungrammaticality of examples such as (11c) is a puzzle. The grammaticality of example (11a) teaches us that the pre-subject position of *nur* in (11c) is a grammatical position for the adverb *nur* to adjoin to. From this position, *nur* would contain the F-marked 'girl' in its scope, satisfying the c-command requirement on focus-sensitive operators, and therefore the structure should be interpretable. The ungrammaticality of (11c) is therefore unexpected under this view.

To account for this gap, Jacobs (1983, 1986) and Buring and Hartmann (2001a) propose a constraint of the following form:

- (12) **Closeness (informal):** (Büring and Hartmann 2001a; following Jacobs 1983, 1986)  
Focus-sensitive adverbs are as close to the focus associate as possible.<sup>6</sup>

As discussed in Büring and Hartmann (2001b), this Closeness principle should be thought of as a *transderivational* constraint. For example, given a fixed choice of F-marking on the indirect object ‘girl,’ the availability of *nur* in the lower position in (11a) “blocks” the option of placing *nur* higher, as in (11c).

An important question for the theory of grammar is whether transderivational constraints such as Closeness (12) exist. Unfortunately the verdict is still out regarding the proper analysis of German focus-sensitive operators. If the constituent-marking analysis of focus-sensitive operators can be rescued, it is possible that grammar would not need the transderivational Closeness constraint. For such reasons, Reis (2005) calls the Closeness constraint “spurious” and “more than doubtful” in her critique of Büring and Hartmann’s adverb-only proposal.

I will have nothing new to contribute to the German debate in this paper. However, I will show that a Closeness constraint akin to (12) indeed holds of focus-sensitive adverbs in two unrelated languages, Vietnamese and Mandarin Chinese. Unlike in German where even the basic category of focus-sensitive operators have been debated, the syntax and morphology of Vietnamese and Mandarin Chinese clearly shows this behavior among focus-sensitive operators which are adverbs. The independent existence of such a process in other languages takes away one potential argument against Jacobs and Büring and Hartmann’s adverb-only approach to German focus-sensitive operators, that Closeness is an otherwise unnecessary addition to the theory of grammar.

### 3 Vietnamese

In this section I will introduce new data on the distribution of focus-sensitive operators—specifically, ‘only’—in Vietnamese. As we will see, the syntax and morphology of Vietnamese allows us to be certain that we are looking at *adverbial* focus-sensitive operators. I will show that the adverbial ‘only’ operator in Vietnamese, *chỉ*, follows a version of the controversial Closeness constraint discussed above.

#### 3.1 A tale of two *only*s

Vietnamese has a morphologically rich system of focus-sensitive operators. Various operators in Vietnamese with *even*, *also*, and *only* semantics, in different configurations, are described in detail in Hole (2013). Here I will concentrate on two ‘only’ particles described there, *chỉ* and *mãi*.<sup>7</sup>

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<sup>6</sup>This statement is part of the informal statement of Büring and Hartmann (2001a, p. 237). In the formal version, the “closeness” only applies between different adjunction sites on the same extended (verbal) projection, which will come very close to what I propose for Vietnamese and Mandarin Chinese. The parallel constraint in Jacobs (1983, 1986) states that focus-sensitive operators should be as far to the right as possible.

<sup>7</sup>I limit attention here to exclusive focus particles, as non-exclusive focus particles are cross-linguistically less strict in their c-command requirement. See footnote 3 above.

Hole (2013) argues that *chỉ* is an adverbial ‘only,’<sup>8</sup> whereas *mỗi* is a constituent-marking ‘only.’ A sentence with a given focus can have one, the other, or both, to yield the same meaning.<sup>9,10</sup> An example is given in (13). I gloss the adverbial *chỉ* as *ONLY<sub>adv</sub>* and the constituent-marking *mỗi* as *ONLY<sub>CM</sub>*.

(13) **Two *onlys* in Vietnamese:**

- a. Nam **chỉ** mua [cuốn sách]<sub>F</sub>.  
 Nam *ONLY<sub>adv</sub>* buy CL book  
 ‘Nam *only* bought [the book]<sub>F</sub>.’
- b. Nam mua **mỗi** [cuốn sách]<sub>F</sub>.  
 Nam buy *ONLY<sub>CM</sub>* CL book  
 ‘Nam bought *only* [the book]<sub>F</sub>.’
- c. Nam **chỉ** mua **mỗi** [cuốn sách]<sub>F</sub>.  
 Nam *ONLY<sub>adv</sub>* buy *ONLY<sub>CM</sub>* CL book  
 ‘Nam bought *only* [the book]<sub>F</sub>.’ (a = b = c)

Compare this situation in (13) to what we have seen in English and German. Like English, the Vietnamese SVO word order allows us to clearly differentiate between *only* in adverbial and constituent-marking positions. Vietnamese goes one step further in pronouncing the adverbial and constituent-marking *onlys* differently, whereas in English they are both pronounced the same, as *only*. These syntactic and morphological properties of Vietnamese make it an ideal testing ground for the syntax and semantics of focus-sensitive operators. Vietnamese similarly distinguishes different *even* and *also* operators; see Hole (2013) for details.

To see the advantage that Vietnamese offers us, consider the case of preverbal foci. In English sentences with postverbal foci, we can clearly distinguish adverbial and constituent-marking *onlys* based on word order alone. However, with preverbal foci, as in for example *Only [John]<sub>F</sub> bought the book*, word order alone is unable to determine whether the *only* is a high adverb or whether it is adjoined directly to the subject *John*.<sup>11</sup>

In contrast, in Vietnamese, we see that *chỉ*, *mỗi*, or both can occur with a preverbal focus. Example (14) illustrates these options in the case of subject focus.

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Some examples here will also have a preverbal *mới* (not to be confused with *ONLY<sub>CM</sub>*, which is *mỗi*) and clause-final *thôi*. I gloss both as *PRT* here. For *mới*, see Nguyen (2012); Hole (2013). For *thôi*, see Hole (2014).

<sup>9</sup>The case of both ‘only’ operators cooccurring to yield one semantic invocation of exclusive semantics, in (13c), must be thought of as a type of concord process. I will leave open the question of the compositional semantics of such examples.

<sup>10</sup>See Jannedy (2007) for a description of the prosodic correlates of F-marking in Vietnamese.

<sup>10</sup>*Chỉ* is an apparent Sino-Vietnamese loan, written 只 in Chữ Nôm, the Sino-Vietnamese script no longer in widespread use today. 只 in Mandarin Chinese is *zhǐ*, the distribution of which I will describe in section 4. None of my non-linguist Vietnamese consultants speak any Mandarin Chinese nor knew that this cognate exists in Mandarin.

<sup>11</sup>There are other methods of distinguishing between constituent-marking and adverbial focus-sensitive operators, for example by examining their participation in scope ambiguities (Taglicht, 1984). Such evidence shows that English pre-subject *only* is constituent-marking (Bayer, 1996).

(14) Options for subject *only*:

- a. ✓ **Mỗi** [Nam]<sub>F</sub> mua cuốn sách.  
ONLY<sub>CM</sub> Nam buy CL book  
'Only [Nam]<sub>F</sub> bought the book.'
- b. ✓ **Chỉ** [Nam]<sub>F</sub>...  
ONLY<sub>adv</sub> Nam
- c. ✓ **Chỉ mỗi** [Nam]<sub>F</sub>...  
ONLY<sub>adv</sub> ONLY<sub>CM</sub> Nam
- d. \* **Mỗi chỉ** [Nam]<sub>F</sub>...  
ONLY<sub>CM</sub> ONLY<sub>adv</sub> Nam

Note that when both *chỉ* and *mỗi* cooccur, they must be in *chỉ-mỗi* order (14c), and the reverse *mỗi-chỉ* order is ungrammatical (14d). This is predicted by the view that *chỉ* is an adverb and *mỗi* is constituent-marking: the adverb is necessarily linearized outside of the constituent-marking *only*.

In the remainder of this section I will concentrate on the distribution of the adverbial 'only' operator *chỉ*. The availability of *chỉ* for subject focus in (14) shows that the adverb *chỉ* is able to appear in structurally high positions in the clause, in addition to the immediately preverbal position as in (13). I will show that the variable position of the adverb *chỉ* is subject to a Closeness-type condition which must be modeled transderivationally.

### 3.2 The distribution of adverbial *chỉ*

In this section I will document where *chỉ* can occur in the Vietnamese clause, and what it then can associate with. I will begin with the baseline, simplex sentence in (15), which includes the temporal adjunct 'yesterday' in its unmarked word order.

(15) **Baseline: "Adjunct S V O" order**

Hôm qua Nam mua cuốn sách.  
yesterday Nam buy CL book  
'Nam bought the book yesterday.'

In the following examples, I place the adverbial 'only' operator *chỉ* in different structural positions and present the possible readings for the string. The position of F-marking required for the different readings, which is realized prosodically, is reflected only in the English translations. I begin with *chỉ* in preverbal position:

(16) **"Adjunct S ONLY V O":**

- Hôm qua Nam **chỉ** mua cuốn sách (thôi).  
yesterday Nam ONLY<sub>adv</sub> buy CL book (PRT)
- a. ✓ 'Nam only bought [the book]<sub>F</sub> yesterday.'
- b. ✓ 'Nam only [bought]<sub>F</sub> the book yesterday.'
- c. ✓ 'Nam only [bought the book]<sub>F</sub> yesterday.'
- d. \* 'Only [Nam]<sub>F</sub> bought the book yesterday.'

- e. \* 'Nam only bought the book [yesterday]<sub>F</sub>.'
- f. \* 'It's only that [Nam bought the book yesterday]<sub>F</sub>.'

With *chỉ* in preverbal position (16), 'only' can associate with the verb, the object, or the entire VP—in other words, any constituent that it c-commands. As expected, 'only' cannot associate with the subject *Nam* or the temporal adjunct 'yesterday,' which are not c-commanded by 'only.'

Now consider higher placements of *chỉ* 'only.' In (17), *chỉ* immediately precedes the subject *Nam*, and must associate with it. It is not able to associate with the VP or any subpart thereof, even though they are in the scope of *chỉ*.

(17) "Adjunct ONLY S V O":

Hôm qua **chỉ** Nam (mới) mua cuốn sách (thôi).  
 yesterday ONLY<sub>adv</sub> Nam (PRT) buy CL book (PRT)

- a. \* 'Nam only bought [the book]<sub>F</sub> yesterday.'
- b. \* 'Nam only [bought]<sub>F</sub> the book yesterday.'
- c. \* 'Nam only [bought the book]<sub>F</sub> yesterday.'
- d. ✓ 'Only [Nam]<sub>F</sub> bought the book yesterday.'
- e. \* 'Nam only bought the book [yesterday]<sub>F</sub>.'
- f. \* 'It's only that [Nam bought the book yesterday]<sub>F</sub>.'

Similarly, consider example (18) where *chỉ* is in clause-initial position. Now *chỉ* must associate with the temporal adjunct 'yesterday' that it immediately precedes, or the entire proposition. Like (17), it is not the case that *chỉ* is able to associate with any constituent in its scope.

(18) "ONLY Adjunct S V O":

**Chỉ** hôm qua Nam (mới) mua cuốn sách (thôi).  
 ONLY<sub>adv</sub> yesterday Nam (PRT) buy CL book (PRT)

- a. \* 'Nam only bought [the book]<sub>F</sub> yesterday.'
- b. \* 'Nam only [bought]<sub>F</sub> the book yesterday.'
- c. \* 'Nam only [bought the book]<sub>F</sub> yesterday.'
- d. \* 'Only [Nam]<sub>F</sub> bought the book yesterday.'
- e. ✓ 'Nam only bought the book [yesterday]<sub>F</sub>.'
- f. ✓ 'It's only that [Nam bought the book yesterday]<sub>F</sub>.'

The contrasts observed in (16–18) could be described as an adjacency requirement between the focus-sensitive operator and its focus associate, and parallels the behavior observed in German, described in section 2.2 above (e.g. example (11)). In the case of the German pattern, one possible explanation for the adjacency requirement was that the 'only' operator in question (there, *nur*) is actually constituent-marking. In the case of the Vietnamese data above, however, we can be

certain that the ‘only’ operator being tested is the adverb, as the language also has an independent, constituent-marking ‘only,’ pronounced *mõ̃i*.

Given that the ‘only’ operator here, *chỉ*, is an adverb adjoining to the clausal spine, the unavailability of certain readings in (17–18) becomes unexpected. Specifically, the compositional semantics of focus should allow for *chỉ* to associate with *any* constituent in its scope, including the readings in (17a–c) and (18a–d), contrary to fact.

Instead, the possible patterns of focus association observed above support the following generalization:

(19) **Generalization (first):**

Focus-sensitive adverbs must be *as low as possible* while c-commanding their focus associate.

In other words, the distribution of *chỉ* is subject to a Closeness condition, just as Jacobs (1983, 1986) and Buring and Hartmann (2001a) proposed for German. One property of this generalization, which holds true in (16–18) above, is that, for each intended reading—i.e. choice of F-marking—there is a single grammatical position for *chỉ*. This is illustrated schematically below:

(20) **In simplex clauses, the choice of F-marking determines a unique position for *chỉ*:**

- a. (\*<sub>ONLY</sub>) Adjunct (\*<sub>ONLY</sub>) Subject (✓<sub>ONLY</sub>) Verb [Object]<sub>F</sub>
- b. (\*<sub>ONLY</sub>) Adjunct (\*<sub>ONLY</sub>) Subject (✓<sub>ONLY</sub>) [Verb]<sub>F</sub> Object
- c. (\*<sub>ONLY</sub>) Adjunct (\*<sub>ONLY</sub>) Subject (✓<sub>ONLY</sub>) [<sub>VP</sub> Verb Object]<sub>F</sub>
- d. (\*<sub>ONLY</sub>) Adjunct (✓<sub>ONLY</sub>) [Subject]<sub>F</sub> (\*<sub>ONLY</sub>) Verb Object
- e. (✓<sub>ONLY</sub>) [Adjunct]<sub>F</sub> (\*<sub>ONLY</sub>) Subject (\*<sub>ONLY</sub>) Verb Object
- f. (✓<sub>ONLY</sub>) [<sub>TP</sub> Adjunct (\*<sub>ONLY</sub>) Subject (\*<sub>ONLY</sub>) Verb Object]<sub>F</sub>

When we turn to complex clauses, though, we see that there is apparent optionality in the position of *chỉ*, given a fixed choice of F-marking. Consider the examples in (21).

(21) **Matrix and embedded positions for *chỉ*, given embedded focus:**

- a. Tôi **chỉ** nói [<sub>CP</sub> là Nam thích [Ngân]<sub>F</sub> (thôi).  
I <sub>ONLY<sub>adv</sub></sub> say that Nam like Ngan (PRT)  
‘I only said Nam likes [Ngân]<sub>F</sub>.’
- b. Tôi nói [<sub>CP</sub> là Nam **chỉ** thích [Ngân]<sub>F</sub> (thôi).  
I say that Nam <sub>ONLY<sub>adv</sub></sub> like Ngan (PRT)  
‘I said Nam only likes [Ngân]<sub>F</sub>.’

Note that it is not simply the case that the placement of *chỉ* is not subject to a Closeness constraint in complex clauses. For example, *chỉ* cannot be in a higher position in the matrix clause and associate with the intended associate in the embedded clause:

- (22) \* **Chỉ** tôi nói [<sub>CP</sub> là Nam thích [Ngân]<sub>F</sub> (thôi).  
<sub>ONLY<sub>adv</sub></sub> I say that Nam like Ngan (PRT)  
Intended: ‘I only said Nam likes [Ngân]<sub>F</sub>.’ (=21a)

The generalization in (19) must be revised in light of the data in (21). I propose that the generalization be *relativized to a given syntactic domain*, as in (23). An alternative formulation, based on intended semantic denotation, will be discussed in section 3.3 below.

(23) **Generalization (revised):**

Focus-sensitive adverbs must be as low as possible while c-commanding their focus associate, *within a given clause* (CP).

This revised generalization is able to account for the pattern of grammatical focus associations presented in Vietnamese complex clauses. The long-distance association example in (21a) is grammatical, even though a lower adjunction position for *chỉ* exists, as in (21b). Among the possible adjunction positions in the matrix clause, because *chỉ* in preverbal position (21a) already c-commands the focus associate, *chỉ* cannot be in an even higher position (22).

The revised generalization in (23) is remarkably similar in effect to the formal statement of Closeness in Buring and Hartmann (2001a). Buring and Hartmann's statement relativizes competition to different positions along the same extended projection (Grimshaw, 2000). As we are discussing the distribution of adverbs, the relevant extended projection is naturally that of the extended verbal projection. These two characterizations will diverge in cases where a single CP clause should be thought of as made up of multiple extended verbal projections; such cases will be discussed in section 5.2.

The behavior of a generalization such as in (23) must be thought of as the effect of a transderivational constraint (Buring and Hartmann, 2001b). In section 5, I will therefore present a formalization for this competition between derivations using the tools of Optimality Theory (Prince and Smolensky, 1993). Before concluding the empirical discussion of Vietnamese, however, I will briefly consider an alternative characterization for the revised generalization in (23).

### 3.3 A semantically-sensitive alternative

In the previous section, I showed that the focus-sensitive adverb *chỉ* 'only' in Vietnamese exhibits the effects of a Closeness-type constraint. In simplex clauses, it must be as low as possible while c-commanding the focus. I then showed that in complex clauses, *chỉ* can occur in the matrix or embedded clause, given a fixed choice of focus in the embedded clause, but now must be as low as possible within the given clause. The relevant examples are repeated here from (21–22):

(24) **Configurations of focus association with *chỉ* in a complex clause, repeated:**

- a. Tôi **chỉ** nói [CP là Nam thích [Ngân]<sub>F</sub>] (thôi).  
I ONLY<sub>adv</sub> say that Nam like Ngan (PRT)  
'I only said Nam likes [Ngân]<sub>F</sub>.' only > say
- b. Tôi nói [CP là Nam **chỉ** thích [Ngân]<sub>F</sub>] (thôi).  
I say that Nam ONLY<sub>adv</sub> like Ngan (PRT)  
'I said Nam only likes [Ngân]<sub>F</sub>.' say > only

- c. \* **Chỉ** tôi nói [<sub>CP</sub> là Nam thích [Ngân]<sub>F</sub> (thôi).  
 ONLY<sub>adv</sub> I say that Nam like Ngan (PRT)  
 Intended: ‘I only said Nam likes [Ngân]<sub>F</sub>.’ (=a)

The explanation I proposed in the previous section was that both options for *chỉ* are available because they are in different syntactic domains: specifically, in different CPs. We also note, however, that the two grammatical examples in (24) express different meanings: (24a) asserts that the speaker did not say anything of the form “Nam likes ⟨someone⟩” except for “Nam likes Ngan,” whereas (24b) asserts that the speaker made the claim that “Nam doesn’t like anyone except for Ngan.” An alternative approach, then, is to require that focus-sensitive adverbs be as low as possible, *unless being higher yields a different interpretation*.

The idea that a certain operation cannot take place unless it leads to a different semantics is not new. For example, Fox (1995, 2000) proposes that covert scope-shifting operations such as QR and scope reconstruction are subject to such a semantically-sensitive requirement. This principle is called Scope Economy:

(25) **Scope Economy (Fox, 2000):**

Scope-shifting operations cannot be semantically vacuous.

For our purposes, this alternative revision to generalization (19) is stated in (26):

(26) **A semantically-sensitive revision to generalization (19):**

Focus-sensitive adverbs must be as low as possible while c-commanding their focus associate and *deriving the intended truth conditions*.

In the simple case of the examples in (24), repeated from the previous section, this semantically-sensitive characterization in (26) is able to capture the relevant contrasts. Examples (24a–b) are both grammatical, even though *chỉ* is in a lower position in (24b) than in (24a), because they yield distinct truth conditions. However, note that placing *chỉ* higher, in matrix pre-subject position (24c), will yield the same truth conditions as (24b). (24c) therefore violates (26) and is ungrammatical.

It can be shown, however, that the semantically-sensitive approach in (26) overgenerates in a way that the non-semantically-sensitive, purely syntactic revision in (23) does not. This argument will come from simplex clauses involving quantificational subjects. A baseline of this form is in (27) below. Here I will use a subject universal quantifier. Universal quantifiers in Vietnamese can be formed using a preverbal *wh*-word (here, *ai* ‘who’) together with an ‘also’ operator *cũng* (Bruening and Tran, 2006; Nguyen, 2012).<sup>12</sup> I note first that example (27) must be interpreted with the subject universal quantifier taking scope over ONLY’s quantification over its focus alternatives, i.e. that Vietnamese is scope-rigid for relevant purposes.

<sup>12</sup>See Kratzer and Shimoyama (2002); Shimoyama (2006) for discussion of, and a compositional semantics for, a similar combination of *wh*-phrases and an ‘also’ operator to express universal quantification in Japanese. See also Tran and Bruening (2013) on the semantics of Vietnamese *wh*-words.



(27) **Subject quantifier baseline:**

Ai cũng **chỉ** mua [cuốn sách]<sub>F</sub>.  
who also ONLY buy CL book

✓ 'Everyone only bought [the book]<sub>F</sub>.'

every > only

\* 'The book is the only thing that everyone bought.'

\*only > every

*Chỉ* in (27) is in the lowest position possible while c-commanding its focus associate, and is predicted to be grammatical under both the purely syntactic generalization in (23) as well as the semantically-sensitive alternative formulation in (26).

The test case is what happens if *chỉ* is adjoined above the quantificational subject and continues to associate with 'the book.' Semantically, the alternatives introduced by the F-marked object below will project to the complement of *chỉ*, with the universal quantifier composing pointwise with each alternative. We predict this structure to be interpretable, yielding a different reading with *only* > *every* scope: the book is the only thing that everyone bought. However, this sentence is ungrammatical with the intended reading.

(28) ***Chỉ* cannot be higher, even if it would lead to a different reading:**

\* **Chỉ** ai cũng mua [cuốn sách]<sub>F</sub>.  
ONLY<sub>adv</sub> who also buy CL book

Intended: 'Only [the book]<sub>F</sub> is such that<sub>i</sub> everyone bought it<sub>i</sub>.'

only > every

The intended meaning in (28) can of course be expressed, but it requires fronting the focus associate to a position above the quantificational subject.

(29) **Fronting can be used to force *chỉ* to scope higher, above *every*:**

✓ **Chỉ (mỗi)** [cuốn sách]<sub>F</sub> ai cũng (mới) mua \_\_\_\_.  
ONLY<sub>adv</sub> (ONLY<sub>CM</sub>) CL book who also (PRT) buy

'Only [the book]<sub>F</sub> is such that<sub>i</sub> everyone bought it<sub>i</sub>.'

only > every

Under the semantically-sensitive formulation in (26), the high placement of *chỉ* associating down with 'the book' (28) is predicted to be possible. Even though *chỉ* can be adjoined lower in the clause as in (27), the structure in (28) should yield a distinct truth-condition. The fact that (28) is nonetheless ungrammatical, then, shows that the generalization in (26) cannot be correct. That is, the Closeness behavior observed in Vietnamese cannot be the result of a semantically-sensitive condition.<sup>13</sup>

In contrast, the purely syntactic formulation of the generalization in (23) above correctly predicts the ungrammaticality of (28). The fact that (28) should yield a different semantics is immaterial to the process which determines the position of focus-sensitive adverbs.

<sup>13</sup>Interestingly, the equivalent of Closeness formulated in Jacobs (1983, 1986) is a semantically-sensitive constraint, but Buring and Hartmann (2001a) reanalyzes such cases using their purely syntactic formulation for Closeness. See Buring and Hartmann (2001a) for details.

In this section I described the distribution of the Vietnamese exclusive operators *chỉ* and *mỗi*. I follow Hole's (2013) view that *chỉ* is an adverb whereas *mỗi* is constituent-marking. Vietnamese shows us a case where we can clearly distinguish between adverb and constituent-marking *only*s, and we see that the focus-sensitive adverb, *chỉ*, exhibits a distribution governed by a Closeness-type constraint. Specifically, I showed that the distribution of *chỉ* is captured by the following generalization, repeated from (23) above:

(30) **Generalization (revised):** (=23)

Focus-sensitive adverbs must be as low as possible while c-commanding their focus associate, within a given clause (CP).

In the next section, I will turn to the distribution of focus-sensitive adverbs in Mandarin Chinese, which can also be described by the generalization in (30).

## 4 Mandarin Chinese

In this section I will turn to the distribution of two focus-sensitive operators in Mandarin Chinese: *zhǐ* and *shì*. The goal of this discussion will be to show that these two focus-sensitive operators are adverbs and that they exhibit the same, "as low as possible" behavior observed in Vietnamese. Unlike in Vietnamese where *chỉ* is clearly an adverb, some discussion is necessary to motivate that *zhǐ* and *shì* are adverbs, which will be presented in section 4.1. There are some morphological and lexical complications which affect the analyses of both *zhǐ* and *shì*, which I will discuss. I will then describe the distribution of *zhǐ* and *shì* and establish its Closeness-driven behavior in section 4.2.

### 4.1 *Zhǐ(yǒu)* and *shì* are adverbs

In this section I will present evidence that the Mandarin Chinese focus-sensitive operators *zhǐ* and *shì*—including the *zhǐyǒu* variant of *zhǐ*—are adverbs. Unlike the case of Vietnamese focus-sensitive adverbs which have been analyzed in previous work (Hole, 2013) as adverbs and clearly contrast with distinct constituent-marking variants, the adverbial status of these operators is not transparent and has not been conclusively established in previous literature. Some alternative and previous hypotheses for *zhǐ* and *shì* will be discussed here, with more discussion later in section 4.2.

#### 4.1.1 *Zhǐ* and *zhǐyǒu*

I will begin with a discussion of *zhǐ* and its variant form *zhǐyǒu*. Tsai (2004) shows that *zhǐ(yǒu)* is equivalent to English *only* in both its presuppositional and truth-conditional meaning and I will therefore use the gloss ONLY here. The form *zhǐ* is described in the literature unambiguously as an adverb. The inability of *zhǐ* to adjoin directly to a focused DP in postverbal position or within a PP in examples (31a–b) supports this view.

(31) **Zhǐ has an adverbial distribution:**

- a. Zhāngsān ✓zhǐ [<sub>vP</sub> hē \*zhǐ [hóngjiǔ]<sub>F</sub>].  
Zhangsan ONLY drinks ONLY wine  
'Zhangsan only drinks [wine]<sub>F</sub>.'
- b. Zhāngsān ✓zhǐ [<sub>PP</sub> duì \*zhǐ [Lǐsì]<sub>F</sub>] rēng-le qiú.  
Zhangsan ONLY to ONLY Lisi throw-PERF ball  
'Zhangsan only threw a ball at [Lisi]<sub>F</sub>.'

Things get more complicated when we consider the form *zhǐyǒu*, which must be used instead of *zhǐ* in certain configurations. Consider the examples in (32). In (32a), 'only' is in preverbal position, associating with an F-marked object, and it must be pronounced *zhǐ* here. In contrast, in (32b), 'only' is in a clause-initial, pre-subject position, associating with an F-marked subject, and it must be pronounced *zhǐyǒu*.

(32) **Zhǐ and zhǐyǒu:**

- a. Zhāngsān {✓zhǐ, \*zhǐyǒu} hē [hóngjiǔ]<sub>F</sub>.  
Zhangsan ONLY drink wine  
'Zhangsan only drinks [wine]<sub>F</sub>.' (=31a)
- b. {\*Zhǐ, ✓zhǐyǒu} [Zhāngsān]<sub>F</sub> lái-le.  
ONLY Zhangsan come-PERF  
'Only [Zhangsan]<sub>F</sub> came.'

Here I will make the novel claim that, synchronically, *zhǐ* and *zhǐyǒu* are synchronically allomorphs of the same morpheme, which is unambiguously an adverb. However, before I describe this claim in detail, I will first introduce two common hypotheses regarding the relationship between *zhǐ* and *zhǐyǒu* which I will argue to be incorrect.

The first hypothesis is that *zhǐ* is an adverb but *zhǐyǒu* is its constituent-marking variant, akin to Vietnamese *chỉ* and *mỗi*. *Zhǐ*, then, is restricted to adjoining to the *vP* but not higher. One immediate argument against this view is that *zhǐyǒu* cannot adjoin directly to F-marked constituents in postverbal position or inside preverbal PPs, just as we saw with *zhǐ* above in (31):

(33) **Zhǐyǒu is not constituent-marking:**

- a. \* Zhāngsān hē zhǐyǒu [hóngjiǔ]<sub>F</sub>.  
Zhangsan drinks ZHIYOU wine  
Intended: 'Zhangsan drinks only [wine]<sub>F</sub>.' (cf 31a)
- b. \* Zhāngsān duì zhǐyǒu [Lǐsì]<sub>F</sub> rēng-le qiú.  
Zhangsan to ZHIYOU Lisi throw-PERF ball  
Intended: 'Zhangsan threw a ball at only [Lisi]<sub>F</sub>.' (cf 31b)

The second hypothesis is that *zhǐyǒu* is morphologically complex: *zhǐyǒu* looks, especially orthographically, to be the 'only' operator *zhǐ* (只) together with the existential verb *yǒu* (有). This suggests an analysis where examples such as (32b) are biclausal: the clause '[Zhangsan]<sub>F</sub> came' is

embedded under a matrix verb *yǒu*, and *zhǐ* is simply adjoined to this higher verb. Under this hypothesis, too, we would want to say that the only position where the adverb *zhǐ* can adjoin is at the *vP* level, in immediately preverbal position, but not higher.<sup>14</sup>

I now present two arguments against these two hypotheses, which will also act to motivate my allomorphy account. First, it is not straightforwardly the case that the *zhǐyǒu* form must be used for any preverbal focus. For example, when preceding a PP ‘at home,’ *zhǐ* is used; when preceding a time ‘yesterday,’ *zhǐyǒu* is used:

(34) **Some preverbal adjuncts take *zhǐ*, some *zhǐyǒu*:**

- a. ...{ $\checkmark$ *zhǐ*, \**zhǐyǒu*} zài [jiālǐ]<sub>F</sub>...  
           ONLY                   at home
- b. ...{\**zhǐ*,  $\checkmark$ *zhǐyǒu*} [zúotiān]<sub>F</sub>...  
           ONLY                   yesterday

The second argument comes from the negation of *only*. In configurations where the *zhǐyǒu* form must be used for expressing ‘only,’ if the ‘only’ is preceded by negation to express “not only,” it must then be realized as *bù-zhǐ* ‘NEG-ONLY.’ This is shown in example (35) below, which is based on example (32b) above, where the use of *zhǐyǒu* was obligatory. As we see, it is no longer necessary nor possible to realize ‘only’ as *zhǐyǒu* in the context of adjacent negation.

(35) **ONLY must be *zhǐ* when preceded by negation, even in a position requiring *zhǐyǒu*:**

- { $\checkmark$ *Bù-zhǐ*, \**bù-zhǐyǒu*} [Zhāngsān]<sub>F</sub> lái-le.  
           NEG-ONLY                   Zhangsan   come-PERF

‘Not only [Zhangsan]<sub>F</sub> came.’ (cf 32b)

The availability of the form *zhǐ* with negation in (35) is problematic for both hypotheses described above, which require stating that *zhǐ* is not able to adjoin in a high position, in pre-subject position, in order to derive the distribution of forms in (32). Furthermore, the ungrammaticality of (35) with *zhǐyǒu* is also unexpected under these hypotheses.

I propose instead that *zhǐ* and *zhǐyǒu* are allomorphs of the same morpheme, *ONLY*. The following condition describes the contextual allomorphy of *ONLY*:

(36) **Contextual allomorphy of *zhǐ* vs *zhǐyǒu*:**

- ONLY*  $\leftrightarrow$   $\begin{cases} \textit{zhǐ} & \text{if linearly adjacent to a verb, preposition, or functional morpheme;} \\ \textit{zhǐyǒu} & \text{otherwise} \end{cases}$

<sup>14</sup>Note that there are cases where the surface string *zhǐ yǒu* is indeed made up of the combination of the adverb *zhǐ* and the lexical existential verb *yǒu*. (i) below is such an example:

- (i) Zhāngsān *zhǐ* yǒu [yī]<sub>F</sub> běn shū.  
       Zhangsan ONLY have one CL book  
       ‘Zhangsan only has [one]<sub>F</sub> book.’

Note, however, that in (i), *yǒu* is acting as the main verb of the sentence. In the cases of *zhǐyǒu* that I am describing here, we cannot identify *yǒu* as a lexical verb. Lü (1980) also has a note warning against conflating these two sources for the surface string *zhǐ yǒu*.

A similar case of contextual allomorphy sensitive to the syntactic category of an adjacent word can be observed with English comparative morphology. English comparative morphology has two allomorphs, the synthetic form *-er* and the analytic form *more*. The suffix *-er* is used only for adjectives of a certain size. Other gradable predicates, including adverbs and verbs, must use the *more* form, no matter the phonological shape of the predicate. The sensitivity to syntactic category is particularly clear in the minimal pair in (37). Both *lively* and *slowly* end with a suffix *-ly* and are of the same phonological size, but only the adjective *lively* takes the *-er* allomorph.<sup>15</sup>

(37) **Allomorphy can be sensitive to adjacent syntactic category:**

- a. Lively is an adjective:  
\*more lively, ✓livelier
- b. Slowly is an adverb:  
✓more slowly, \*slowlier

In addition to requiring linear adjacency, contextual allomorphy is only sensitive to content within the same phase (Embick, 2010). This explains the use of the *zhǐyǒu* elsewhere form in example (38) below. Even though ONLY is linearly adjacent to a verb, that verb ‘wear’ is inside a relative clause inside the subject DP, and therefore will already have been Spelled Out at the point of ONLY’s allomorphy determination.

(38) **Allomorphy is sensitive to adjacency within the same syntactic domain:**

{\*Zhǐ, ✓Zhǐyǒu} [DP [dài yǎnjìng]<sub>F</sub> de rén] lái-le.  
ONLY wear glasses DE PERSON COME-PERF

‘Only people who [wear glasses]<sub>F</sub> came.’

The proposed allomorphy account is able to explain the basic alternation between *zhǐ* and *zhǐyǒu* in (32), why the addition of negation (a functional morpheme) triggers *zhǐ* in (35), as well as the sensitivity to the grammatical category of adjacent adjuncts (34). I showed that alternative hypotheses, where *zhǐyǒu* is constituent-marking or is morphologically complex, are unable to explain the distribution of *zhǐ* and *zhǐyǒu*.<sup>16</sup> *Zhǐ* and *zhǐyǒu* are two allomorphs of the same morpheme, ONLY, which is a focus-sensitive adverb.

#### 4.1.2 The focus marker *shì*

Next I will turn to the so-called “focus marker” *shì*, a term which to my knowledge originates with Teng (1979). Bare *shì* is a focus-sensitive operator that associates with a focus, which is often interpreted as contrastive or exhaustive. *Shì* often appears in *wh*-questions (Xu, 2010) and alternative

<sup>15</sup>I thank Heather Newell (p.c.) for suggesting this example. I note that, in certain metalinguistic uses, *more lively* in (37a) can also be grammatical.

<sup>16</sup>An additional argument against the view that *zhǐyǒu* involves the existential verb will be presented in section 4.2.

questions (Erlewine, 2014a), in a position associating with the *wh*-word or the alternative question disjunction, and is also particularly felicitous in answers to constituent questions. Examples are presented in (39) below. I will abstract away from the precise semantics of *shì* here, and will simply gloss it as SHI.

(39) ***Shì* in constituent questions and answers (Erlewine, 2014a):**

- a. Nǐ (**shì**) xiǎng [sǎo dì] háishi [xǐ wǎn] (ne)?  
 you SHI want sweep ground HAISHI<sup>17</sup> wash dishes Q  
 Alternative question: ‘Do you want to sweep the floor or wash dishes?’
- b. Nǐ (**shì**) xiǎng zuò [shénme] (ne)?  
 you SHI want do what Q  
*Wh*-question: ‘What do you want to do?’
- c. Wǒ (**shì**) xiǎng [sǎo dì]<sub>F</sub>.  
 I SHI want sweep ground  
 ‘I want to [sweep the floor]<sub>F</sub>.’

I should quickly note that I am not discussing the *shì* in the so-called *shì...de* construction, which is arguably very different. Because of this potential confusion, the *shì* in question has been called the “bare *shì*,” for example in Cheng (2008) and Paul and Whitman (2008). See Cheng (2008) and Paul and Whitman (2008) for discussion of the relation between *shì...de* construction and the bare *shì* construction, described here.

The analysis of the *shì* focus-sensitive operator is complicated by the fact that *shì* is homophonous and homographous (是) with the copular verb. This apparent parallel can be observed in (40a–b), the key difference being that in (40b) there is an independent main verb, ‘hate,’ present in the clause.<sup>18</sup> This apparent ambiguity and diachronic connection has plagued the synchronic analysis of *shì* in its focus marker usage.

(40) **The superficial similarity of SHI and the copular verb:**

- a. Zhāngsān shì lǎoshī.  
 Zhangsan COPULA teacher  
 ‘Zhangsan is a teacher.’
- b. Zhāngsān **shì** [tǎoyàn]<sub>F</sub> lǎoshī.  
 Zhangsan SHI hate teacher  
 ‘Zhangsan [hates]<sub>F</sub> teachers.’

In the remainder of this section, I will show that *shì* has an adverbial distribution and not a constituent-marking one. Note that the evidence presented in this section will be compatible

<sup>17</sup>Mandarin Chinese is one of a number of languages which has a special disjunction *háishi* used for alternative question disjunction, distinct from the logical disjunction *hùo(zhe/shì)*. See Erlewine (2014a) for discussion and for a semantic proposal for the two types of disjunctions.

<sup>18</sup>This is reminiscent of the discussion of the surface string *zhǐ yǒu*, which sometimes does involve the existential verb *yǒu*. See footnote 14.

with an approach which treats the focus marker *shì* as a copular verb. I will argue against such approaches in section 4.2.

The first argument for the focus marker *shì* being an adverb rather than constituent-marking comes straightforwardly from its surface distribution. Like we saw with (31) above, *shì* is ungrammatical adjoining directly to F-marked constituents in postverbal position or inside preverbal PPs:

(41) *Shì* has an adverbial distribution (cf 31):

a. Zhāngsān ✓*shì* [<sub>vP</sub> hē \**shì* [hóngjiǔ]<sub>F</sub>].

Zhangsan ONLY drinks *SHI* wine

‘Zhangsan only drinks [wine]<sub>F</sub>.’

b. Zhāngsān ✓*shì* [<sub>PP</sub> duì \**shì* [Lǐsì]<sub>F</sub>] rēng-le qiú.

Zhangsan *SHI* to *SHI* Lisi throw-PERF ball

‘Zhangsan only threw a ball at [Lisi]<sub>F</sub>.’

Note that in both of these examples in (41), *shì* associates with a focused constituent in its scope but not immediately adjacent to it. While *shì* can at times be adjacent to its focused constituent, as in example (41b), adjacency is in general not required. This rules out approaches to *shì* which describe such an immediate adjacency requirement (Huang, 1982; Cheng, 2008).<sup>19</sup> We will see examples of even longer-distance association in section 4.2.

A second argument comes from the difference between focus-sensitive adverbs and constituent-marking operators in the availability of *double focus association*.<sup>20</sup> While focus-sensitive operators most often associate with just one focused constituent, it is also possible for them to associate with *two* focused constituents. In such cases, we observe a contrast between adverbs and constituent-marking operators, for example in the English in (42): adverb *only* can associate with an additional focus lower in the structure, outside of the adjacent argument, but constituent-marking *only* cannot:

(42) **Double association with English adverb *only* but not constituent-marking *only*:**<sup>21</sup>

a. Adverb *only* with double focus:

✓ I **only** saw the [children]<sub>F</sub> ask the [adults]<sub>F</sub> to be quiet.

‘The ⟨children, adults⟩ pair is the only combination such that I saw the first ask the second to be quiet.’

b. Constituent-marking *only* preceding a small clause subject:

\* I saw **only** the [children]<sub>F</sub> ask the [adults]<sub>F</sub> to be quiet.

Intended: ‘The ⟨children, adults⟩ pair is the only combination such that I saw the first ask the second to be quiet.’ (=a)

<sup>19</sup>Huang (1982, p. 290) states that “The simplest way of looking at cleft sentence [MYE: bare *shì*, not *shì...de*] formation, then, is to say that it inserts the marker *shì* directly in front of the constituent in focus.” Cheng (2008, p. 254) states the “the focused element in a bare-*shì* sentence is the constituent immediately following *shì*.”

<sup>20</sup>I thank Michael Wagner (p.c.) for suggesting this diagnostic.

<sup>21</sup>Paraphrases for the double focus association readings are given here. Example (42a) contrasts from (42b–c) in that the intended double focus association reading is possible in (42a) but not (42b–c). This is not to say that the examples in (42b–c) are ungrammatical in general; it is possible to parse (42b–c) with *only* associating with the adjacent *children* with independent, free focus on *adults*. I thank Jeanette Gundel (p.c.) for discussion of this point.

c. Constituent-marking *only* preceding a finite subject:

\* **Only** the [children]<sub>F</sub> asked the [adults]<sub>F</sub> to be quiet.

Intended: ‘The ⟨children, adults⟩ pair is the only combination such that the first asked the second to be quiet.’

This contrast is explained by the compositional semantics of focus. Recall that focus-sensitive operators quantify over a set of alternatives computed in their complement. In most cases this set of alternatives will be generated by the placement of one F-marked constituent, but it is also possible to focus two constituents in the complement of the operator. In such cases, the set of alternatives will include propositions that vary in *both* focused positions. A constituent-marking operator is only sensitive to F-marking in its (small) complement, and therefore will not be able to additionally associate with a focus lower in the clause. In contrast, an adverb adjoins to the clausal spine and therefore will be able to associate doubly with an adjacent constituent and also one which is further down.

*Shì* patterns with English adverb *only* but not constituent-marking *only* in the availability of double focus association. This is illustrated in the following example from Cheng (2008):

(43) **Double focus with *shì* (Cheng, 2008):**

**Shì** [érzi]<sub>F</sub> jiào [dàrén]<sub>F</sub> bié chǎo, (bú **shì** [dàrén]<sub>F</sub> jiào [érzi]<sub>F</sub> bié chǎo).  
 SHI son ask adult not noisy NEG SHI adult ask son not noisy

‘The [son]<sub>F</sub> asked the [adult]<sub>F</sub> not to make noise, (not the other way around).’

Having presented the arguments for *zhǐ(yǒu)* and *shì* being focus-sensitive adverbs, I will now describe the distribution and possible association configurations for *zhǐ(yǒu)* and *shì*.

## 4.2 The distribution of adverbial *zhǐ(yǒu)* and *shì*

In this section I will present the distribution of the focus-sensitive adverbs *zhǐ(yǒu)* and *shì* in Mandarin Chinese. We will see that both *zhǐ(yǒu)* and *shì* exhibit Closeness-type behavior, where they must be as low as possible, within a particular domain, while c-commanding their focus associate. In fact, the behavior here will be exactly parallel to what we observed for Vietnamese in section 3.2, further motivating the same generalization on the distribution of focus-sensitive adverbs. I will also show that a semantically-sensitive variant of the generalization would make incorrect predictions, as we saw for Vietnamese in section 3.3.

I begin by placing *zhǐ(yǒu)* and *shì* in different positions in a simplex clause with a temporal adjunct. The examples here are modified from examples of *shì* placement in Huang (1982, p. 290).



(44) “S Adjunct ONLY/SHI V O”:

Wǒ zúotiān zhǐ/shì mǎi-le nèi běn shū.  
I yesterday ONLY/SHI buy-PERF that CL book

- a. ✓ ‘I (only) bought [that book]<sub>F</sub> yesterday.’
- b. ✓ ‘I (only) [bought]<sub>F</sub> that book yesterday.’
- c. ✓ ‘I (only) [bought that book]<sub>F</sub> yesterday.’
- d. \* ‘I (only) bought that book [yesterday]<sub>F</sub>.’
- e. \* ‘(Only) [I]<sub>F</sub> bought that book yesterday.’
- f. \* ‘It’s (only) that [I bought that book yesterday]<sub>F</sub>.’

(45) “S ONLY/SHI Adjunct V O”:

Wǒ zhǐ/shì zúotiān mǎi-le nèi běn shū (thōi).  
I ONLY/SHI yesterday buy-PERF that CL book (PRT)

- a. \* ‘I (only) bought [that book]<sub>F</sub> yesterday.’
- b. \* ‘I (only) [bought]<sub>F</sub> that book yesterday.’
- c. \* ‘I (only) [bought that book]<sub>F</sub> yesterday.’
- d. ✓ ‘I (only) bought that book [yesterday]<sub>F</sub>.’
- e. \* ‘(Only) [I]<sub>F</sub> bought that book yesterday.’
- f. \* ‘It’s (only) that [I bought that book yesterday]<sub>F</sub>.’

(46) “ONLY/SHI S Adjunct V O”:

Zhǐyǒu/shì wǒ zúotiān mǎi-le nèi běn shū.  
ONLY/SHI I yesterday buy-PERF that CL book

- a. \* ‘I (only) bought [that book]<sub>F</sub> yesterday.’
- b. \* ‘I (only) [bought]<sub>F</sub> that book yesterday.’
- c. \* ‘I (only) [bought that book]<sub>F</sub> yesterday.’
- d. \* ‘I (only) bought that book [yesterday]<sub>F</sub>.’
- e. ✓ ‘(Only) [I]<sub>F</sub> bought that book yesterday.’
- f. ✓ ‘It’s (only) that [I bought that book yesterday]<sub>F</sub>.’

The pattern of possible focus associations in (44–46) exactly parallels what we saw in the Vietnamese in (16–18), except that the baseline word order is different in Mandarin Chinese: the temporal adjunct is linearly between the subject and verb here instead of preceding the subject. The behavior here, like what we observed in Vietnamese, supports the preliminary generalization from (19), repeated here:

(47) **Generalization (first):** (=19)

Focus-sensitive adverbs must be *as low as possible* while c-commanding their focus associate.

That Mandarin *zhǐ(yǒu)* and *shì* must be as low as possible has been described in Shyu (1995) (based on Chiu (1993)), Yang (2011), and Erlewine (2014a).<sup>22</sup> However, this previous work generally does not discuss the placement of focus-sensitive operators in complex clauses. Just as we saw in Vietnamese, data from complex clauses shows that this “as low as possible” requirement only holds within each clause:

(48) **Adverb placement in complex clauses with embedded focus:**

- a. ✓ Lǐsì **zhǐ/shì** shūo [<sub>CP</sub> Zhāngsān hē [chǎ]<sub>F</sub>].  
Lisi ONLY/SHI say Zhangsan drink tea  
'Lisi (only) said that Zhangsan drinks [tea]<sub>F</sub>.'
- b. ✓ Lǐsì shūo [<sub>CP</sub> Zhāngsān **zhǐ/shì** hē [chǎ]<sub>F</sub>].  
Lisi say Zhangsan ONLY/SHI drink tea  
'Lisi said that Zhangsan (only) drinks [tea]<sub>F</sub>.'
- c. \* **Zhǐ(yǒu)/Shì** Lǐsì shūo [<sub>CP</sub> Zhāngsān hē [chǎ]<sub>F</sub>].  
ONLY/SHI Lisi say Zhangsan drink tea  
Intended: 'Lisi (only) said that Zhangsan drinks [tea]<sub>F</sub>.' (=a)

The availability of *zhǐ* and *shì* in both the matrix and embedded clauses in (48a–b) associating with the same choice of F-marking, while still needing to be as low as possible within each clause (48a,c), motivates the revised generalization (23), repeated here as (49):

(49) **Generalization (revised):** (=23)

Focus-sensitive adverbs must be as low as possible while c-commanding their focus associate, *within a given clause* (CP).

The pattern of possible and impossible long-distance associations above forms an argument against the views that *zhǐyǒu* and *shì* form biclausal constructions. The argument goes as follows. We learn from examples such as (48a) that *zhǐ* and *shì* are able to associate long-distance into an embedded clause, as long as it is in the lowest position possible within a given clause (49). Note in particular that the association with the embedded object ‘tea’ is grammatical in (48a), even though there are closer constituents which could be F-marked, such as the embedded subject *Zhangsan*.

Now consider the hypotheses, mentioned above in sections 4.1.1 and 4.1.2, that *zhǐyǒu* is morphologically complex and involves an existential verb *yǒu* embedding a clause and that *shì* is the copular verb embedding a clause. (50) below illustrates hypothetical structures for the ONLY and SHI variants of example (46) according to these hypotheses:

<sup>22</sup>Yang (2011) states that focus-sensitive operators are “merged to the closest phase edge c-commanding the focus element.” While this too is an “as low as possible” requirement, I disagree with the idea that the relevant adjunction points are all phase edges. It will become important, in fact, that all three possible positions of *zhǐ/shì* in (44–46) are in the same phase. The relevance of phasehood will be discussed in section 5.



- b. \* **Zhǐ(yǒu)** měi-ge kèrén dōu hē [chǎ]<sub>F</sub>.  
 ONLY every-CL guest all drink tea  
 Intended: ‘Only [tea]<sub>F</sub> is such that<sub>i</sub> every guest drinks it<sub>i</sub>.’
- c. ✓ **Zhǐyǒu** [chǎ]<sub>F</sub> měi-ge kèrén dōu hē \_\_\_\_\_.  
 ONLY tea every guest all drink \_\_\_\_\_  
 ‘Only [tea]<sub>F</sub> is such that<sub>i</sub> every guest drinks it<sub>i</sub>.’ only > every

Just as we saw in section 3.3, then, we see that the “as low as possible” behavior of focus-sensitive adverbs in Mandarin Chinese cannot be the result of a semantically-sensitive condition. This Closeness behavior must be relativized to a syntactic domain instead, as described by the generalization in (49).

In this section I discussed the Mandarin Chinese focus-sensitive operators *zhǐ(yǒu)* ‘only’ and *shì*. Much of the discussion here, in particular in section 4.1, was necessary to pursue the hypothesis that *zhǐ*, *zhǐyǒu*, and *shì* are all adverbs, and that *zhǐyǒu* and *shì* are not synchronically built on the homophonous existential and copular verbs.

However, we note that the behavior of *zhǐ(yǒu)* and *shì* described in section 4.2 is exactly what we have observed for Vietnamese *chỉ*, which is consistently realized as *chỉ*. The complications for *zhǐ(yǒu)* and *shì* discussed here do not apply to Vietnamese *chỉ*: *chỉ* has a clearly adverbial distribution, contrasting with a distinct constituent-marking ‘only’ operator, and there is also no reason to suspect that it is a verb. The independent motivation of the Closeness generalization in (49) in Vietnamese and nativist considerations of parsimony lend further credence to the analysis presented here of Mandarin Chinese *zhǐ(yǒu)* and *shì* as focus-sensitive adverbs, as well as to the adverb-only approach to German focus-sensitive operators (Jacobs, 1983, 1986; Buring and Hartmann, 2001a), reviewed in section 2.2.

## 5 Proposal

In this section I will offer a formal proposal for modeling the distribution of focus-sensitive adverbs observed. I have shown that the distribution of the focus-sensitive operators *chỉ* in Vietnamese and *zhǐ(yǒu)* and *shì* in Mandarin Chinese—all of which I argue are adverbs—are subject to the generalization repeated here in (53).

(53) **Generalization (revised):** (=23)

Focus-sensitive adverbs must be as low as possible while c-commanding their focus associate, *within a given clause* (CP).

As discussed in section 2.1, the c-command requirement on focus association is motivated by the compositional semantics of focus. However, the semantics of association with focus is insensitive to syntactic locality, and therefore the requirement in (53) to be as low as possible is not explained by the semantics of focus alone. Furthermore, we saw that these effects should not be characterized by

a semantically-sensitive condition which allows higher adverb placement if it will lead to a different semantics (section 3.3). The behavior observed shows us that there must be *syntactic constraints*, not just semantic interface requirements, governing the position of adverbs (cf Ernst 2002).

The behavior described in (53) is also very similar what has been described for the distribution of German focus-sensitive operators as adverbs by Jacobs (1983, 1986) and Büring and Hartmann (2001a). As noted in Büring and Hartmann (2001b), the Closeness principle they propose for German must be thought of as a transderivational constraint. This extends to the description in (53) I have motivated for Vietnamese and Mandarin Chinese as well. Identifying the lowest position possible as in (53) requires a mechanism by which different possible derivations are evaluated against certain criteria and the optimal candidate is chosen. Here I will formalize this process using the formal tools of Optimality Theory (Prince and Smolensky, 1993).

I will begin by presenting the basic ingredients of the Optimality-Theoretic analysis in section 5.1. I derive the generalization’s “as low as possible” behavior being relativized to the clause level by optimizing cyclically, at each clause, rather than globally. In section 5.2 I will present evidence from reduced clausal embeddings that this local optimization must proceed phase by phase (Heck and Müller, 2001; Fanselow and Ćavar, 2001). Finally, in section 5.3, I’ll discuss how the results here can be reformulated if covert focus movement is involved.

## 5.1 Competition and local optimization

In this section I will present a system which derives the attested pattern of focus-sensitive adverb placement. The general idea will be that there will be a set of competing derivations which differ minimally in the position of a focus-sensitive adverb. The most optimal candidate will be deemed the grammatical output, as determined by evaluation against a set of strictly ranked, violable constraints.

The “as low as possible” behavior described in (53) can be thought of as the interaction of two competing constraints: one requiring focus-sensitive adverbs to c-command their associate and another preferring lower attachments of focus-sensitive adverbs. These constraints are formalized as follows:

(54) **FocSCOPE**: The scope of the focus-sensitive adverb must contain its intended associate.<sup>24</sup>

(55) **FocADVLOW**: For each focus-sensitive adverb, the number of violations is the number of terminal nodes in its complement.<sup>25</sup>

The **FocSCOPE** constraint is clearly motivated by interface requirements; structures which violate this constraint will not yield the intended interpretation at LF (see section 3.3). I believe a

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<sup>24</sup>Formally, the “intended associate” can be checked by adopting the view that F-marked constituents bear a *focus index*  $F_i$  (Kratzer, 1991; Wold, 1996; Erlewine, 2014b). If the complement of the focus-sensitive adverb is a constant function across different assignments for the relevant focus-index, we yield a violation.

<sup>25</sup>The formulation here is somewhat arbitrary. Here I will count only pronounced terminals. Radek Šimík (p.c.) notes that Hagstrom (1998, p. 185) entertains a principle, dubbed “Avoid Flexible Functional Application,” which similarly encourages focus-sensitive operators to merge low.

functional motivation can be also given for the constraint FocAdvLow: namely, the avoidance of potential ambiguity. Focus-sensitive operators associate with an F-marked constituent in their scope. Even though the choice of F-marked constituent is reflected prosodically, this process does not perfectly encode the choice of F-marking (see e.g. Selkirk, 1984, 1996). Including fewer nodes in the complement of a focus-sensitive operator means that there are fewer logically possible choices of focus associate, and therefore a greater chance that the intended focus associate is successfully communicated.<sup>26</sup>

I will assume that competing derivations are all elements of the same “reference set” (Chomsky, 1995), a set of converging derivations with the same input numeration. This approach allows for the explicit construction of a finite candidate set. In our case, because adverbs can be grammatically adjoined at different heights in the clause, if the numeration contains a focus-sensitive adverb, different derivations which place the focus-sensitive adverb in different positions along the clausal spine will be in the candidate set.<sup>27</sup>

Consider (56), which determines the placement of *only* in a simplex clause with F-marking on the VP-internal object (e.g. 16a). There are three points in the derivation when the adverb ONLY could be merged: at the very end of the derivation (56a), after the subject is merged (56b), or right at the edge of the *v*P (56c). In this example, all three candidates satisfy the FocSCOPE constraint, and therefore the candidate with the lowest violation count for FocAdvLow will win—that is, the candidate with the structurally lowest position for *only*.

(56) **Tableau for simplex clause with object focus (16a):**

	ONLY, yesterday Nam buy [CL book] <sub>F</sub>	FocSCOPE	FocAdvLow
a.	ONLY yesterday Nam buy [CL book] <sub>F</sub>		***!*
b.	yesterday ONLY Nam buy [CL book] <sub>F</sub>		***!
☞ a.	yesterday Nam ONLY buy [CL book] <sub>F</sub>		***

The tableau in (56) is based on the Vietnamese example (16a), but note that for all examples in this section, the same process would also apply to the parallel Mandarin Chinese examples.

Because there is no effect of the constraint FocSCOPE in determining the winner in (56), the ranking between these two constraints cannot be determined by this example. The ranking can be

<sup>26</sup>This logic and its functional utility are also recognized consciously by speakers. Prescriptivists of written English style often suggest that constituent-marking varieties of focus-sensitive operators be used instead of their corresponding adverbs. For example, Strunk and White (1959/2000) states that *She found only two mistakes* is preferable to *She only found two mistakes* when writing. Strunk and White (1959/2000, p. 30) explain that such words should “be arranged so that no wrong relation is suggested,” explicitly appealing to the avoidance of potential ambiguity.

To be clear, this advice is an instance of conscious grammatical prescription of one grammatical variant over another; descriptively, both constituent-marking and adverb variants of *only* are of course available in English and one does not block the other. In contrast, the “as low as possible” behavior observed in the distribution of focus-sensitive adverbs in Vietnamese and Mandarin Chinese, described here, results in strict grammaticality contrasts and is not simply a matter of stylistic choice.

See also Aissen and Bresnan (2002) for discussion on the functional basis of constraints in Optimality-Theoretic syntax.

<sup>27</sup>For ease of presentation, I will limit the candidate set to derivations which differ only in adverb position. I will also include pronounced nodes in the input numeration and will list elements of the numeration which are not focus-sensitive adverbs in their final word order.

determined by the interaction in example (57) where focus is on the subject and the two constraints conflict. Both (57a) and (57b) satisfy the FocSCOPE constraint but (57c) does not, while (57c) is the optimal candidate in terms of violations of FocADVLow. The grammatical form is the option in (57b), with ONLY immediately preceding the subject, which teaches us that the FocSCOPE constraint must be ranked above FocADVLow.

(57) **Tableau for simplex clause with subject focus (17d):**

		FocSCOPE	FocADVLow
	ONLY, yesterday [Nam] <sub>F</sub> buy CL book		
	a. ONLY yesterday [Nam] <sub>F</sub> buy CL book		*****!
☞	b. yesterday ONLY [Nam] <sub>F</sub> buy CL book		****
	c. yesterday [Nam] <sub>F</sub> ONLY buy CL book	*!	***

(58) **Constraint ranking for “as low as possible” (Closeness) behavior:**

FocSCOPE ≫ FocADVLow

The tableaux above with this ranking are able to derive the correct placement of focus-sensitive adverbs in simplex clauses. I now turn to complex clauses with a fixed focus in the embedded clause. Consider the placement of ONLY in a sentence of the form ‘I said that Nam likes Ngan’ with focus on Ngan, as in example (21):

(59) **Tableau for a complex clause with embedded focus (21), using global optimization:**

		FocSCOPE	FocADVLow
	ONLY, I said [CP that Nam likes [Ngan] <sub>F</sub> ]		
	a. ONLY I say [CP that Nam likes [Ngan] <sub>F</sub> ]		***!***
☺	b. I ONLY say [CP that Nam likes [Ngan] <sub>F</sub> ]		***!***
	c. I say [CP that ONLY Nam likes [Ngan] <sub>F</sub> ]		***!
☞	d. I say [CP that Nam ONLY likes [Ngan] <sub>F</sub> ]		**

The tableau in (59) will result in one optimal candidate, (59d), where ONLY is placed in immediately preverbal position in the embedded clause. While this indeed results in an attested, grammatical form (21b), this predicts that the placement of ONLY preverbally in the *matrix* clause (59b) will be ungrammatical, contrary to fact (21a). Intuitively, we want (59d) to compete with and rule out (59c), but not compete with (59b).

This illustrates a problem with optimizing *globally*, across all possible positions for the focus-sensitive adverb in the utterance. As we noted in sections 3.2 and 4.2 on Vietnamese and Mandarin Chinese, respectively, this “as low as possible” behavior must be relativized to the clause. The solution is to optimize cyclically, discriminating only between derivations which vary locally (Ackema and Neeleman, 1998; Heck and Müller, 2001; Fanselow and Ćavar, 2001; Müller, 2003; Erlewine, to appear, a.o.).

In this case, the focus-sensitive adverb can be included in the numeration for the embedded clause or the matrix clause. Consider first the case where ONLY is introduced in the embedded CP. The winning candidate for the embedded CP will be chosen, as in (60) below, in a process of local optimization which can be thought of as part of the process of cyclic Spell Out (Chomsky,

2000, 2001). (I will return to this connection in the next section.) The matrix clause is built using the output of the embedded CP as one element in its numeration, resulting in the grammatical Vietnamese complex clause in (21b). The logic here applies similarly for the Mandarin Chinese equivalent in (48b).

(60) **Introducing ONLY in the embedded CP:**

ONLY, that Nam likes [N <sub>gan</sub> ] <sub>F</sub>	FocSCOPE	FocAdvLow
a. that <b>ONLY</b> Nam likes [N <sub>gan</sub> ] <sub>F</sub>		***!
☞ b. that Nam <b>ONLY</b> likes [N <sub>gan</sub> ] <sub>F</sub>		**

⇒ ‘I say that Nam **ONLY** likes [N<sub>gan</sub>]<sub>F</sub>.’ (21b)

Alternatively, we could choose to include **ONLY** in the numeration for the matrix clause. This is illustrated in (61) below. The embedded clause here has already been Spelled Out and can be thought of as one precompiled chunk, and will count as one terminal node in the numeration of the matrix clause. I will use graying and quotation marks to indicate this status.

(61) **Introducing ONLY in the matrix CP:**

ONLY, I say “that Nam likes [N <sub>gan</sub> ] <sub>F</sub> ”	FocSCOPE	FocAdvLow
a. <b>ONLY</b> I say “that Nam likes [N <sub>gan</sub> ] <sub>F</sub> ”		***!
☞ b. I <b>ONLY</b> say “that Nam likes [N <sub>gan</sub> ] <sub>F</sub> ”		**

⇒ ‘I **ONLY** say that Nam likes [N<sub>gan</sub>]<sub>F</sub>.’ (21a)

This process allows for the grammatical derivation of the Vietnamese complex clause with **ONLY** in the matrix clause (21a), which was incorrectly ruled out in a process of global optimization in (59). The same logic again applies to the Mandarin Chinese equivalent in (48a). At the same time, this process correctly predicts the ungrammaticality of the candidate in (61a), corresponding to the ungrammatical examples in Vietnamese (22) and Mandarin Chinese (48c).

The process of cyclic, local optimization described here accords with the spirit of incremental structure building in the Minimalist Program (Chomsky, 2000, 2001). Here I have illustrated this as a process of optimization at each clause, as in Ackema and Neeleman (1998). It’s worth noting that this optimization cannot be extremely local, for example occurring at the completion of each maximal projection. Optimizing at each phrase would not allow for the competition between different adjunction heights across the clausal spine that we have seen to hold empirically in Vietnamese and Mandarin Chinese. The behavior of focus-sensitive adverbs in these languages then necessitates a process of cyclic, local optimization that is not *too* local.

A strong candidate for the appropriate points of optimization is the *phase*. In Chomsky (2000, 2001) and much subsequent work, derivations are conceived of as being built incrementally by phase, here *vP* and *CP* being the relevant domains. In the next section I will present additional data suggesting that the phase is indeed the correct size for the domains over which the “as low as possible” behavior holds.



## 5.2 Reduced clausal embeddings and optimization by phase

In this section I will consider the distribution of focus-sensitive adverbs in clauses with control verbs which embed reduced clausal structure. Interestingly, this will be our one point where the grammars of Vietnamese and Mandarin Chinese diverge, in that the complement of control verbs are unable to host the adverb *ONLY* in Vietnamese, but are able to in Mandarin Chinese. Evidence from the Mandarin Chinese case will motivate a refinement to the proposal presented in the previous section: optimization must occur *phase by phase*.

The basic data that I consider is the Mandarin Chinese pair in (62) below. Fixing the focus on the object ‘vegetables’ of the embedded verb ‘eat,’ the focus-sensitive adverb *ONLY* can surface at two positions: immediately preceding the control verb ‘want’ (62a) or immediately preceding the embedded verb ‘eat.’

(62) *Zhǐ* before and after the control verb *xiǎng* ‘want’:

- a. ✓ Zhāngsān **zhǐ** xiǎng chī [shūcài]<sub>F</sub>.  
Zhangsan *ONLY* want eat vegetables.  
‘Zhangsan only wants to eat [vegetables]<sub>F</sub>.’
- b. ✓ Zhāngsān xiǎng **zhǐ** chī [shūcài]<sub>F</sub>.  
Zhangsan want *ONLY* eat vegetables.  
‘Zhangsan wants to only eat [vegetables]<sub>F</sub>.’

The apparent optionality in the position of *zhǐ* ‘only’ in (62) indicates that the derivation in (62b) does not “block” the availability of (62a). Given the proposal in the previous section, it must be that the complement of the control verb is a domain which undergoes local optimization before the matrix ‘want’ verb phrase is built. The question, then, is what size such control embeddings are. Thus far we have consistently optimized cyclically at each CP level. If control complements are also CP in size, we need not modify our existing theory.

There is, however, evidence that the complement of control verbs in Mandarin Chinese is reduced, lacking a CP layer, independent aspectual morphology, as well as TP-internal landing sites for information structure-driven movements. I will briefly illustrate the last argument here: Mandarin Chinese has obligatory movement of *lián* ‘even’ focus associates which targets a TP-internal, preverbal position (63).<sup>28</sup> The example in (64) below shows that *lián* focus fronting is clause-bound.

(63) *Lián* ‘even’ focus fronting baseline:

- Zhāngsān lián [gǒu ròu]<sub>F</sub> dōu chī-le \_\_\_\_.  
Zhangsan *EVEN* dog meat all eat-PERF  
‘Zhangsan even eats [dog meat]<sub>F</sub>.’

<sup>28</sup>The argument here can also be made using the movement of certain topics to a similar preverbal position (Ernst and Wang, 1995; Paul, 2005), as discussed in Grano (2012, 2013).

(64) *Lián* ‘even’ focus fronting is clause-bound: (Grano, 2012, p. 274)

\* Zhāngsān lián [gǒu ròu]<sub>F</sub> dōu rènwéi [<sub>CP</sub> Lìsì chī-le \_\_\_\_].  
 Zhangsan EVEN dog meat all believe Lisi eat-PERF

Intended: ‘Zhangsan even believes that Lisi ate [dog meat]<sub>F</sub>.’

In cases involving a control verb such as *xiǎng* ‘want,’ *lián* focus fronting must target the position above the control verb (65). The availability of this movement in (65a) shows that control complements are not barriers for this movement as full CP complements are (64). At the same time, the inability to front to a position immediately preceding the embedded verb in (65b) indicates that the control complement is lacking certain functional material above the *v*P edge.

(65) *Lián* ‘even’ focus fronting with control verbs:

a. ✓ Zhāngsān lián [gǒu ròu]<sub>F</sub> dōu xiǎng chī \_\_\_\_.  
 Zhangsan EVEN dog meat all want eat

‘Zhangsan even wants to eat [dog meat]<sub>F</sub>.’ (Grano, 2012, p. 275)

b. \* Zhāngsān xiǎng lián [gǒu ròu]<sub>F</sub> dōu chī \_\_\_\_.  
 Zhangsan want EVEN dog meat all eat

Intended: ‘Zhangsan wants to even eat [dog meat]<sub>F</sub>.’

Grano (2012, 2013) argues that such evidence shows that control complements in Mandarin are uniformly *v*P in size. Returning now to the availability of *zhǐ* ‘only’ in two positions in (62) above, then, we must revise our empirical generalization as in (66). I assume here that *v*P and CP are phases.

(66) **Generalization (final):**

Focus-sensitive adverbs must be as low as possible while c-commanding their focus associate, *within a given phase*.

To derive this behavior, the explicit Optimality-Theoretic proposal introduced in the previous section must be modified so that *optimization occurs at each phase* (Heck and Müller, 2001; Fanselow and Ćavar, 2001). Both options in (62) are available because ONLY can be introduced as part of the numeration for the higher *v*P phase, where the control verb is introduced, or in the CP phase. Tableau for these local optimization steps are presented here:

(67) **Introducing ONLY in the higher *v*P phase:**

	ONLY, want “eat [vegetables] <sub>F</sub> ”	FocSCOPE	FocAdvLow
a.	ONLY want “eat [vegetables] <sub>F</sub> ”		**!
b.	want ONLY “eat [vegetables] <sub>F</sub> ”		*

⇒ ✓ ‘Zhangsan want ONLY eat [vegetables]<sub>F</sub>.’ (62a)

(68) **Introducing ONLY in the CP phase:**

ONLY, Zhangsan “want eat [vegetables] <sub>F</sub> ”	FocSCOPE	FocAdvLow
a. ONLY Zhangsan “want eat [vegetables] <sub>F</sub> ”		**!
☞ b. Zhangsan ONLY “want eat [vegetables] <sub>F</sub> ”		*

⇒ ‘Zhangsan ONLY want eat [vegetables]<sub>F</sub>.’ (62b)

Interestingly, this is one point where Vietnamese and Mandarin Chinese diverge. Vietnamese control complements simply do not allow the inclusion of ‘only’ *chi* (69). I suggest that in Vietnamese, unlike in Mandarin Chinese, focus-sensitive adverbs are simply unable to adjoin to such reduced clauses.

(69) ***Chi* must precede the control verb ‘want’:**

- a. ✓ Tôi **chi** muốn đọc quyển sách [này]<sub>F</sub>.  
I ONLY want read CL book that  
‘I only want to read [that]<sub>F</sub> book.’
- b. \* Tôi muốn **chi** đọc quyển sách [này]<sub>F</sub>.  
I want ONLY read CL book that  
Intended: ‘I want to only read [that]<sub>F</sub> book.’

The argument presented here from Mandarin Chinese for phase-by-phase cyclic optimization therefore cannot be reproduced in Vietnamese. Note, however, that it is not the case that the Vietnamese behavior in (69) is problematic for the revised proposal. The placement of *chi* ‘only’ is still as low as possible within the relevant phase; it is simply the case that ONLY cannot be grammatically adjoined right above the verb ‘read’ in the reduced embedding, eliminating the equivalent of the Mandarin Chinese candidate (67b). The general logic of cyclic optimization, including its application phase by phase, also holds in Vietnamese.

In this section I presented additional data from Mandarin Chinese regarding the placement of focus-sensitive adverbs around control verbs. This motivated a slight modification to our theory, whereby cyclic optimization occurs at each phase (Heck and Müller, 2001; Fanselow and Ćavar, 2001). As mentioned briefly at the end of section 5.1, the idea that optimization occurs at each phase accords with the more general idea that syntactic derivations are built incrementally by phase, with each phase being Spelled Out cyclically (Chomsky, 2000, 2001). The behavior of focus-sensitive adverb placement in Mandarin Chinese offers a new kind of evidence in support of this phase-by-phase cyclic Spell Out model.

### 5.3 Modeling Closeness with covert focus movement

In the analysis and discussion thus far of the distribution of focus-sensitive adverbs in Vietnamese and Mandarin Chinese, I have adopted the Roothian view that surface-in-situ F-marked constituents are interpreted in-situ at LF. However, as briefly mentioned in section 3.3, this is not the only proposal for how focus association works. Chomsky (1976), Drubig (1994), and more recently Wagner

(2006), Krifka (2006), and Erlewine and Kotek (2014) have argued that association with in-situ focus involves *covert movement* of the focus associate. In this section I will discuss this alternative. I will not present any data which distinguishes between the LF-in-situ and covert focus movement theories for Mandarin Chinese or Vietnamese; instead, I will simply show how my general Optimality-Theoretic proposal is also compatible with a covert focus movement approach to focus association.

The basic approach here will be the same as what I have proposed earlier in this section. An optimal candidate will be chosen among a set of derivations which differ in the position where the focus-sensitive adverb is merged. The twist is that, in each candidate derivation, the merger of the focus-sensitive operator will trigger covert focus movement of the F-marked constituent. This opens up the possibility of deriving the “as low as possible” placement of the focus-sensitive adverb using existing constraints which prefer derivations with shorter movements, instead of the FocAdvLow constraint that I have introduced here specifically for focus-sensitive adverbs.

Following Ackema and Neeleman (1998), I will use a version of the constraint STAY (Grimshaw, 1997) which assigns more violations for longer movement chains (see also Nakamura, 1998). The violation count will be determined by the length of the movement chain, using a definition for chain length in Baker (1996) and Nakamura (1998).

(70) **STAY:** (based on Ackema and Neeleman, 1998; Nakamura, 1998, cf Grimshaw 1997)

For each movement chain, assign one violation for each maximal projection that dominates the tail of the chain and does not dominate the head of the chain.

The idea of minimizing the length of movement chains is a familiar one. As discussed by Ackema and Neeleman (1998) and Nakamura (1998), when the candidate set includes different constituents moving to a fixed landing site, a constraint of the form in (70) can derive effects similar to Relativized Minimality (Rizzi, 1990), the Minimal Link Condition, or Attract Closest (Chomsky, 1995). Our use of this constraint will be different, though. Consider the derivation of (17d) using covert focus movement in (71) below.<sup>29</sup> This tableau can be compared to that which uses in-situ association in (57) above. The tableau in (71) results in the correct winning candidate.

(71) **Tableau for example (17d) using covert focus movement:**

	ONLY, yesterday [Nam] <sub>F</sub> “buy CL book”	FocSCOPE	STAY
a.	[ONLY ___] yesterday [Nam] <sub>F</sub> “buy CL book” <sup>^</sup> -----!		**!
b.	yesterday [ONLY ___] [Nam] <sub>F</sub> “buy CL book” <sup>^</sup> -----!		*
c.	yesterday [Nam] <sub>F</sub> ONLY “buy CL book”	*!	

⇒ ‘Yesterday ONLY [Nam]<sub>F</sub> buy CL book.’ (17d)

<sup>29</sup>The FocSCOPE constraint ranked above STAY is necessary to rule out candidate (71c). (71c) is a candidate where ONLY is merged before its associate is. Here I include this derivation in (71c) as a possible candidate, under the assumption that the failure of operations such as probing for a covert movement target does not lead to an immediate crash. See

Although in most of this paper I have assumed the common, Roothian view that focus associates are interpreted in-situ, in this section I showed that the behavior described here is also compatible with covert focus movement approaches. The adoption of covert focus movement allows us to think about this behavior slightly differently: derivations can compete in terms of the structural distance that the focus associate will covertly move. This would let us eliminate the new FocAD-vLow constraint in favor of a more general constraint which prefers shorter movements, such as STAY (Ackema and Neeleman, 1998; Nakamura, 1998; Grimshaw, 1997), as well as, perhaps, the FocSCOPE constraint (see footnote 29). STAY will express a preference for derivations where the focus associate moves a shorter distance, which in turn will translate into a preference for candidates where the focus-sensitive adverb is merged lower. As attractive as this alternative approach may be, its adoption will ultimately depend on independent evidence to establish the existence of covert focus movement in Mandarin Chinese and Vietnamese.

## 6 Conclusion

In this paper I described the distribution of focus-sensitive adverbs in Vietnamese and Mandarin Chinese, which can be described by the following generalization:

(72) **Generalization (final):** (=66)

Focus-sensitive adverbs must be as low as possible while c-commanding their focus associate, *within a given phase*.

The contributions of this paper fall largely into two categories. Empirically, I motivated the generalization in (72) for Vietnamese and Mandarin Chinese, including establishing the operators in question as adverbs. Theoretically, this work shows the necessity of syntactic constraints on adverb placement, in particular a transderivational constraint to yield the “as low as possible” behavior of (72), which has also been proposed by Jacobs (1983, 1986) and Büring and Hartmann (2001a) for German.

The syntax and morphology of Vietnamese makes an important contribution to this work through its rich inventory of focus-sensitive operators. Unlike languages such as English, where the operator *only* has a life as a focus-sensitive adverb and as a constituent-marking operator, different kinds of ‘only’ operators in Vietnamese have distinct realizations (Hole, 2013). This allows us to clearly identify the adverbial ‘only’ and show that its distribution follows that in (72).

I also argued for a new, unified approach to the syntax of the Mandarin Chinese focus-sensitive operators *shì*, *zhǐ*, and *zhǐyǒu*. The analysis of these operators has been complicated by the fact that *shì* is homophonous and homographous with the copular verb, and *zhǐyǒu* seems to involve the existential verb *yǒu*. I argue instead that all of these operators are adverbs, which explains the fact

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Preminger (2011, 2014) for discussion. For our purposes, though, we could imagine (71c) not being included as a converging derivation, due to the failure of ONLY to attract a focus associate, in which case the FocSCOPE constraint will not be necessary.

that *shǐ*'s distribution parallels that of *zhǐ* and *zhǐyǒu* when taken together as a unit. *Zhǐ* and *zhǐyǒu* are in fact two different allomorphs of the same morpheme, an adverb 'only.'

I have noted that the generalization here in (72) is very similar to Büring and Hartmann's (2001a) formal statement of Closeness, proposed for an adverb-only view of focus-sensitive operators in German. I believe the formalization here, including the proposed process of cyclic optimization at the phase level, is able to derive the Closeness behavior in German, if the adverb-only approach of Jacobs (1983, 1986) and Büring and Hartmann (2001a) is assumed. This adverb-only approach is not without challenges, though, which I do not have solutions for; see for example the discussion of verb-second in Büring and Hartmann (2001a).

Finally, I note again that the "as low as possible" behavior observed in Vietnamese and Mandarin Chinese (72) shows the necessity of grammatical processes which are the result of transderivational competition. I presented an Optimality-Theoretic account utilizing cyclic optimization at each phase level (Heck and Müller, 2001; Fanselow and Ćavar, 2001) which is able to derive this behavior. However, this formalization also introduces important architectural questions. For example, consider the FocSCOPE constraint, which reflects an interpretational requirement enforced at the LF interface. All of the data discussed here is, in fact, compatible with a view where the FocSCOPE is not a violable constraint. In other work in preparation, however, I have identified behaviors in other languages which reflect the reverse ranking of FocADVLOW  $\gg$  FocSCOPE. More generally, the approach illustrated here offers a powerful framework for modeling different patterns of focus association configurations cross-linguistically.

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