Minimality and focus-sensitive adverb placement[*]

Michael Yoshitaka Erlewine

McGill University

1. Two patterns of Minimality

Many syntactic phenomena have been described as being subject to *locality conditions*. When a syntactic dependency holds between nodes α and β, a condition may hold of the structural relationship between α and β. One family of such conditions states that the positions α and β must be *as structurally close as possible* to one another. I here adopt the term *Minimality* to refer to such conditions.

Consider the two patterns of Minimality schematized in (1) and (2) below. In (1), there is a fixed position for the higher dependent α and different options for the choice of β, structurally lower than α. Minimality requires that β be as close as possible to α.

(1) **Minimality with a fixed position for α and different choices for β:**

    a. $\checkmark$[α ... [β ... [β ... [β ...
    b.   *[α ... [β ... [β ... [β ...
    c.   *[α ... [β ... [β ... [β ...

In (2), it is the lower dependent β that has a fixed position, with various options for the position of the higher α. In this case, Minimality entails that the derivation that minimizes the structural distance between α and β is grammatical while others are not.

(2) **Minimality with different choices for α and a fixed position for β:**

    a. $\checkmark$[α ... [α ... [α ... [β ...
    b.   *[α ... [α ... [α ... [β ...
    c.   *[α ... [α ... [α ... [β ...

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Much previous work has described Minimality effects of the form schematized in (1) above. A classic example of Minimality of this form is Superiority in multiple *wh*-questions (Kuno & Robinson 1972, Chomsky 1973). This pattern of Minimality has also been described under banners such as Relativized Minimality (Rizzi 1990), Shortest Move, Minimal Link, Closest Attract (Chomsky 1992, 1995, *et seq*). In contrast, less attention has been paid to the Minimality pattern in (2).

In this paper I discuss the distribution of focus-sensitive adverbs in Vietnamese, which exhibits a Minimality effect of the second type (2). Given a fixed position for focus β, there may be different structural heights within a given phase where an adverb α associating with that focus β can adjoin. The focus-sensitive adverb α must appear in the position which minimizes the structural distance between it and its focus associate β. This translates into a requirement that focus-sensitive adverbs adjoin as low as possible, within a particular set of possible adjunction positions.

Much previous literature on Minimality has focused on whether or not such effects derive from transderivational competition, based primarily on Minimality effects on movement of the form in (1). I show that previous approaches to the well-studied pattern in (1) which avoid transderivational competition do not extend to the pattern in (2). In contrast, we can develop a uniform treatment of Minimality effects of the form in (1) and (2) if we adopt transderivational competition as in early Minimalist work such as Chomsky (1992).

2.   Focus-sensitive adverb placement in Vietnamese

Here I describe the distribution the focus-sensitive ONLY adverb *chỉ* in Vietnamese. *Chỉ*, like the English adverb *only*, occupies a preverbal position and associates with a focused constituent in its scope (Hole 2013). The focused constituent is written in capital letters in examples here.[1] The choice of focus associate affects the truth conditions introduced by *chỉ*, as seen through the minimal pair in (3).[2]

(3)   *Chỉ* 'only' is focus-sensitive:

    a.   Hôm qua Nam **chỉ**   MUA cuốn sách (thôi).
           Yesterday Nam ONLY buy   CL   book PRT
           'Nam only BOUGHT the book yesterday.'
           $\Rightarrow$ Nam didn't do anything else with the book (e.g. read it).
    b.   Hôm qua Nam **chỉ**   mua cuốn SÁCH (thôi).
           Yesterday Nam ONLY buy CL   book   PRT
           'Nam only bought the BOOK yesterday.'
           $\Rightarrow$ Nam didn't buy anything else (e.g. the magazine).

The structural relationship of interest here is that between the position of the focus-sensitive adverb *chỉ* (α) and the focused constituent it associates with (β). I will show that the distribution of *chỉ* exhibits a pattern of Minimality as in (2) above.

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[1] See Jannedy (2007) for a description of the prosodic correlates of focus marking in Vietnamese.

At this point, a brief note on the semantics of focus is in order. Under the widely-adopted Roothian theory of focus (Roth 1985, 1992), focus-sensitive operators such as ONLY quantify over a set of alternatives semantic denotations for the their complement. The placement of focus helps determine this set of alternatives. A consequence of this semantics is that the focused constituent must be within the complement of the focus-sensitive operator (Jackendoff 1972, Tancredi 1990, Aoun & Li 1993, Erlewine 2014).

2.1 *Chỉ* in simplex clauses

I begin by demonstrating that *chỉ* can be introduced at different heights on the clausal spine above VP, as illustrated in (4):

(4) **_Chỉ_ adjoined at different heights:**

    a.   Hôm qua **chỉ** NAM (mới) mua cuốn sách (thôi).
            yesterday ONLY Nam (PRT) buy CL book (PRT)
            'Only NAM bought the book yesterday.'

    b.   **Chỉ** HÔM QUA Nam (mới) mua cuốn sách (thôi).
            ONLY yesterday Nam (PRT) buy CL book (PRT)
            'Nam only bought the book YESTERDAY.'

Note, however, that the sentences in (4) have *chỉ* associating with different constituents. In example (4a), where *chỉ* immediately precedes the subject, *chỉ* associates with the subject. In (4b), where *chỉ* is in clause-initial position, it associates with the temporal adjunct 'yesterday' which it immediately precedes. This reflects a general restriction on the distribution of *chỉ* and its associate. Whereas *chỉ* in immediately preverbal position is able to associate with any constituent in its scope (3), *chỉ* in these higher positions must associate with the immediately following constituent or a subpart thereof.[3]

A fruitful way to think of this pattern is to describe where the adverb *chỉ* appears, given a fixed focus associate. Consider a sentence with a focused direct object (3b). *Chỉ* in this sentence must be at the VP edge (5a), even though in general we know that *chỉ* can appear in higher positions in the clause (4).

(5) **Minimality in focus-adverb placement, based on example (3b):**

    a. ✓[yesterday [Nam [ONLY [VP buy the BOOK
    b. *[yesterday [ONLY Nam [[VP buy the BOOK
    c. *[ONLY yesterday [Nam [[VP buy the BOOK

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[2]Examples here may involve the particles *mới* and *thôi*, which are optional and simply glossed as PRT here. For *mới*, see Nguyen (2012) and Hole (2013). For *thôi*, see Hole (2014).

[3]An alternative characterization would be to say that *chỉ* in higher positions is not an adverb but is instead directly adjoined to the adjacent focused constituent. However, we can show that this is not the case because Vietnamese has an independent constituent-marking ONLY particle, *mỗi* (Hole 2013). See also Erlewine (2015) for discussion.

Taking α to be ONLY and β to the fixed position of focus (here, 'book'), this exemplifies the pattern of Minimality described in (2) above. More generally, given a particular focus associate, the position of *chỉ* is deterministic: it must be in the lowest position possible while taking the focus in its scope. This is illustrated in the following schema:

(6)   **In simplex clauses, the choice of focus determines a unique position for *chỉ*:**

    a.   (*ONLY) Adjunct   (*ONLY) Subject   (✓ONLY) Verb OBJECT
    b.   (*ONLY) Adjunct   (*ONLY) Subject   (✓ONLY) VERB Object
    c.   (*ONLY) Adjunct   (✓ONLY) SUBJECT (*ONLY) Verb Object
    d.   (✓ONLY) ADJUNCT (*ONLY) Subject   (*ONLY) Verb Object

We can describe this pattern by saying that, among those positions for *chỉ* which satisfy the compositional semantics of ONLY—where the focused constituent is part of the complement of ONLY—Minimality holds and thus the lowest placement for *chỉ* is chosen.

2.2   *Chỉ* in complex clauses

The data presented thus far on the placement of focus-sensitive *chỉ* all show *chỉ* to be quite close to its associate: either *chỉ* immediately precedes its associate, or *chỉ* is at the VP edge and the associate is the verb or an internal argument. *Chỉ* is also able to associate long-distance with a focused constituent within an embedded clause, as in (7a) below.

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

    a.   (*****Chỉ****) Tôi (✓**chỉ**) nói [$_{CP}$ là   Nam thích NGÂN (thôi).
        ONLY I   ONLY say   that Nam like Ngan (PRT)
        'I only said that Nam likes NGAN.'
    b.   Tôi nói [$_{CP}$ là   (***chỉ**) Nam (✓**chỉ**) thích NGÂN (thôi).
        I   say   that ONLY Nam ONLY like Ngan (PRT)
        'I said that Nam only likes NGAN.'

In contrast to the simplex clauses presented above, there is now optionality in the placement of *chỉ*. At first glance, this seems to counterexemplify Minimality: the grammatical position of *chỉ* in the embedded clause in (7b) is certainly closer to the focused *Ngân* than *chỉ* in the matrix clause is in (7a). However, the effect of Minimality is still observed *within each clause*: among the possible positions for *chỉ* within each clause, the lowest position that takes the focus in its scope must be used. In Erlewine (2015) I show further that Minimality "resets" at each phase boundary, rather than at each clause boundary as seen in (7). This results in the following generalization:

(8)   **Generalization:**
    Focus-sensitive adverbs must be as low as possible while taking their focus associate in their scope, *within a given phase*.

The pattern presented here in Vietnamese is also observable in the unrelated languages of Mandarin Chinese (Erlewine 2015) and German (Jacobs 1983, 1986, Büring & Hartmann 2001). Büring & Hartmann (2001) describe this behavior as a "Closeness" constraint. However, in the case of German, the claim that the focus-sensitive operators in question are adverbs has been controversial; see for example Reis (2005). The connection between this Closeness behavior of focus-sensitive operators and the Minimality constraints on movement has not been made in previous literature.

2.3   Against a semantically-sensitive characterization

A close look at example (7) above suggests another approach to the Minimality effect and its apparent violations. The two sentences in (7), with different placements of *chỉ*, have different truth conditions. Even though in both cases ONLY associates with *Ngân* in the embedded clause, ONLY takes scope over the matrix verb 'say' in (7a) whereas ONLY is part of the content of the 'saying' in example (7b).

We could hypothesize, then, that focus-sensitive adverbs must be as close as possible to their focus associate, globally, *unless being in a higher position leads to a different interpretation*. The Minimality effect could then be thought to be the result of Scope Economy, the idea that certain syntactic processes cannot take place unless they lead to different semantics (Fox 1995, 2000).

It can be shown, however, that relativizing Minimality to different meanings overgenerates in a way that the non-semantically-sensitive, purely syntactic statement in (8) does not. Consider the baseline example in (9) which shows that a subject universal quantifier[4] necessarily takes scope over a preverbal ONLY which associates with the object 'book'.

(9)   **Subject quantifier baseline:**

    Ai   cũng **chỉ**   mua cuốn SÁCH.
    who also ONLY buy CL   book

✓ 'Everyone only bought the BOOK.'	✓every > only
* 'The book is the only thing that everyone bought.'	*only > every

Under a semantically-sensitive approach to Minimality, we predict it to be possible to place *chỉ* ONLY above the subject quantifier and continue to associate with the object 'book,' as this would yield the *only > every* reading. The ungrammaticality of (10) shows that such a semantically-sensitive approach is untenable.

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

    * **Chỉ** ai   cũng mua cuốn SÁCH.
    ONLY who also buy CL   book
    Intended: 'The book is the only thing that everyone bought.'   only > every

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[4]Universal quantifiers in Vietnamese can be formed using a preverbal *wh*-word (here, *ai* 'who') together with an 'also' operator *cũng* (Bruening & Tran 2006, Nguyen 2012).

3. Explaining the Minimality effect in focus-sensitive adverb placement

In the remainder of this paper, I will discuss different approaches to this Minimality effect on focus-sensitive adverb placement, and its relation to well-studied Minimality effects on movement. For convenience, I repeat from §1 the two patterns of Minimality that I discuss:

(1) **Minimality with fixed α:**
  a. $\checkmark$[α ... [β ... [β ... [β ...
  b. *[α ... [β ... [β ... [β ...
  c. *[α ... [β ... [β ... [β ...

(2) **Minimality with fixed β:**
  a. $\checkmark$[α ... [α ... [α ... [β ...
  b. *[α ... [α ... [α ... [β ...
  c. *[α ... [α ... [α ... [β ...

Much previous work on Minimality of movement follows the schema in (1). In contrast, the distribution of focus-sensitive adverb placement in Vietnamese exhibits the Minimality effect schematized in (2).

The discussion here addresses two higher-level questions: *Can Minimality effects in (1) and (2) be given a unified treatment?* and *Are there transderivational constraints in syntax?* I will present four different approaches, one of which cannot derive the pattern attested (2) and is therefore immediately rejected. Three distinct approaches remain, with different advantages and disadvantages. I conclude that the only way to offer a unified treatment for both sets of Minimality effects is through transderivational competition. Non-competition approaches to Minimality in (1) do not extend to (2).

3.1 Transderivational competition

Early Minimalist work of Chomsky's explicitly conceived of the pattern in (1) as the result of *competition* between related derivations. Consider the early statement of the Minimal Link Condition (MLC) in (11) below, where the existence of a more economical derivation is claimed to "block" other, competing derivations.

(11)   **The early Minimal Link Condition (MLC)** from Chomsky (1992, p. 48), as quoted in Reinhart (2006, p. 14):
  "Given two convergent derivations D_1 and D_2 [out of the same numeration] ... D_1 blocks D_2 if its links are shorter."

This transderivational MLC works just as well for deriving Minimality in (2) as it does for (1). We can then derive the Minimality effect observed in focus-sensitive adverb placement by taking "links" in (11) to include the relationship between a focus-sensitive operator and its associate. This approach allows for a What You See Is What You Get syntax, where both the focus-sensitive adverb and focused constituent are generated and interpreted in-situ, and has the advantage of directly unifying the Minimality effect on focus-sensitive adverbs with previously studied Minimality effects.

See Erlewine (2015) for a similar competition-based approach that also accounts for the data in §2.2 by evaluating the transderivational constraint cyclically, at each phase.

3.2   Probe-driven movement, as an alternative to competition, does not work

More recently, the use of transderivational competition has fallen out of favor. Minimality effects of the form in (1) are now commonly thought to result from the nature of the operation Attract (or Agree) triggered by a higher probe, which must target the *closest* potential goal (Chomsky 1995, 2000, 2001). The restriction to the closest goal comes naturally as the result of a computationally efficient search strategy: when the probe is merged, it searches its complement top-down for a possible goal and stops when one is found (see e.g. Chomsky 2004, p. 109). This results in the Minimality pattern as in (1), without making reference to competing derivations.

This probe-driven explanation for Minimality, however, does not extend to the Minimality effect observed in focus-sensitive adverb placement in Vietnamese, nor more generally to Minimality patterns of the form in (2). In probe-goal terms, the higher dependent α in (2) (or a head selecting α) must be a probe which searches for β, but β is always in a fixed position in (2a–c) and is always the closest possible goal. While successful for explaining the Minimality pattern in (1), the probe-goal approach to syntactic dependencies is not able to derive the Minimality pattern in (2).[5]

3.3   Deriving Minimality of focus adverb placement from Minimality of movement

In this section I present two approaches to derive the Minimality effect on focus-sensitive adverb placement (§2) as the result of a more general Minimality constraint on movement.

The first approach is to adopt the *covert focus movement* approach to focus association (Chomsky 1976). Under this approach, the focused constituent covertly moves to become a local argument of the focus-sensitive adverb at LF. Under this approach, different options for the placement of adverb ONLY involve covert movement chains of different lengths (dashed arrows below), and the Minimality effect on focus-sensitive adverb placement reduces to a special case of Minimality of movement. The preverbal placement of ONLY blocking a higher placement of ONLY for an object focus clause is illustrated in (12) below.

(12)   **Covert focus movement with Minimality:**

 a. ✓[Subject [ONLY ___ [$_{vP}$ Verb OBJECT

 b. *[ONLY ___ [Subject [$_{vP}$ Verb OBJECT

Structurally higher foci requires the adverb to be introduced higher because movement cannot be downward. This derives the Minimality effect observed in §2.

The second approach is to imagine that focus-sensitive adverbs are always base-generated in a designated position at the *v*P edge, but can then move.[6] If the intended focus associate

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[5]But see recent work on *Upward Agree* (Zeijlstra 2012, Bjorkman & Zeijlstra 2014), which may fare better. I thank Hadas Kotek (p.c.) for discussion.

[6]There is a conceptual problem with this movement. When ONLY is in a higher position in the clause, it takes scope in that higher position. For this reason, this movement would have to be *traceless*, unlike other forms of movement (see e.g. Hartman 2011).

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of ONLY is in its scope at this position, ONLY stays at the *v*P edge (13a). If the intended associate is not in the *v*P, ONLY will move to a higher position in the clause so that it takes its associate in its scope (13b–c).[7] Moving further than necessary would violate a Minimality constraint on movement.

(13)   **Adverb movement with Minimality:**

   a.   [Adjunct [Subject [ONLY [*v*P Verb OBJECT   (no movement necessary)
   b.   [Adjunct [ONLY [SUBJECT [___ [*v*P ...   (short movement above subject)

   c.   [ONLY [ADJUNCT [Subject [___ [*v*P ...   (long movement above adjunct)

   The approaches presented here have the advantage of taking the Minimality effect observed between focus-sensitive operators and their focus associates—never discussed in previous literature as a type of Minimality effect—and recasting it as the result of Minimality of movement, a very familiar effect. Note, however, that the pattern of Minimality here is still the second type (2) and therefore not amenable to the probe-goal characterization of movement common in current literature. Either transderivational competition must still be used—for example, the early MLC (11) in §3.1 would work nicely for both of these approaches—or, in the case of the adverb movement approach, the movement of the adverb must be thought of as due to *Greed* (Chomsky 1995), i.e. the adverb moves because of its own needs and stops moving when its needs are satisfied, rather than moving because some higher probe attracts it.

3.4   Adjoin as soon as possible

The final approach that I explore is a principle on local derivational choices. In the process of structure-building, there are various choice points where we could immediately adjoin a focus-sensitive adverb or alternatively continue building more of the clausal spine and then adjoin the adverb later. The Minimality effect on focus-sensitive adverb placement motivates the idea that the former is always preferred. This is stated in the following principle:

(14)   **Adjoin As Soon As Possible:**[8,9]
       In the process of bottom-up structure-building, adjuncts should be adjoined as soon as possible while satisfying their semantics.

   This constraint has obvious similarities to principles such as Merge over Move (Chomsky 1995, 2000). The advantage of this approach is that it is able to derive the observed

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[7]We could also think of the adverb movement in (13c) as two short movement steps. ONLY being moved higher than necessary could then be ruled out by an Economy constraint preferring derivations with fewer steps or by a Minimality constraint looking at the total length of movement chains.

[8]The statement here may be too strong. For example, instead of "adjuncts," it could be limited to "adverbs," to make it compatible with the Late Merger of adjuncts, or even just to "focus-sensitive adverbs."

[9]"As soon as possible" here assumes a bottom-up structure-building process. In a model of left-to-right or top-down structure-building, the principle would be restated as Adjoin As Late As Possible.

pattern in §2 through a simple constraint on the derivational process, without reference to competing derivations. Sub-optimal derivations, with higher than necessary adverb placement, will simply not be constructed. Assuming that adverbs are included in the lexical array for a particular phase (Chomsky 2000), this can also explain the fact that Minimality is relativized to different options within the same phase (§2.2).

The great disadvantage, however, is that under this characterization the Minimality effect on focus-sensitive adverb placement is completely unrelated to more familiar Minimality effects. Any resemblance is then purely coincidental.

4.   Conclusion

In this paper I presented data on the distribution of the focus-sensitive adverb *chỉ* ONLY in Vietnamese, which exhibits a Minimality effect: while *chỉ* can in general adjoin at different heights in the clause, its position is always as low as possible while taking its focus in its scope, within a given phase (§2). This pattern is different from previously studied Minimality patterns, schematized in (1) above, in that the lower dependent is fixed, requiring the higher dependent to be as low as possible. It is also different in that previous Minimality patterns have described movement or agreement dependencies, whereas the dependency described here is between a focus-sensitive adverb and its intended focus associate.

In section 3 I presented various approaches to this Minimality effect. The probe-driven approach to movement—successful in explaining previous Minimality effects on movement without transderivational competition—does not help in explaining this pattern of Minimality. Recasting the observed Minimality effect on adverb placement in terms of a Minimality effect on movement does not substantially improve the situation. Ultimately, transderivational competition must be adopted to give a unified account of Minimality effects on focus-sensitive adverb placement and on movement in previous literature.

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Michael Yoshitaka Erlewine
michael.erlewine@mcgill.ca, mitcho@mitcho.com