

# Some Notes on Bounding

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In this paper I argue for a specific way to understand successive cyclic movement by showing that (i) the conceptualization of successive cyclicity I examine requires a ban on movement that is too short, and (ii) the ban required is the one that is empirically superior to recent alternative ways of defining lower bounds on movement. Empirical arguments come from the domains of applicative and psych constructions.

**Keywords:** anti-locality, applicative, locality, psych-verb, successive cyclicity.

## 1. Introduction

Much research within the Minimalist Program tries to offer a better understanding of phenomena and generalization that research of the past 30 years has firmly established. One such phenomenon is successive cyclic movement, the fact that movement steps have an upper bound, that movement cannot be “too long” (see Chomsky (1973) and much subsequent work). In this paper I offer an argument in favor of a specific conception of successive cyclicity within the minimalist program on the basis of considerations having to do with lower bounds on movement steps, that is, the idea that movement cannot be “too short.” Specifically, I argue for a version of successive cyclic movement that minimizes chain links (Takahashi 1994, Boeckx 2003, among others) because that version requires a ban on movement internal to the projection from which movement originates. I show on the basis of data from applicative and psych constructions that this ban on movement is superior to alternative ways of defining lower bounds on movement.

## 2. Successive Cyclic Movement

There is substantial empirical evidence for the existence of successive cyclic movement in natural languages. That movement indeed proceeds in short steps (alternatively, that chains consists of short links) can be seen on the basis of various tests, for both A- and A-bar movement. Consider the following

binding facts in the case of A-movement. Castillo, Drury, and Grohmann (1999: 94) discuss the following paradigm as evidence for successive cyclic A-movement.

- (1) a. John<sub>i</sub> seems to Mary [<sub>i</sub> t''<sub>i</sub> ✓ to appear to himself<sub>i</sub> [(t'<sub>i</sub>) to be [(t<sub>i</sub>) happy]]]  
 b. \*Mary seems to John<sub>i</sub> to appear to himself<sub>i</sub> to be happy  
 c. \*Mary<sub>k</sub> seems to John<sub>i</sub> [<sub>k</sub> t''<sub>k</sub> to appear to himself<sub>i</sub> [(t'<sub>k</sub>) to be [(t<sub>k</sub>) happy]]]

Standard assumptions about binding tell us that the binding of the reflexive in (1a) is unproblematic since *John* has raised from its base position over the reflexive to the specifier of *to appear* and then subsequently raised to its surface position. Thus we understand the reflexive to be locally bound by virtue of the trace/copy in the intermediate position (indicated by ✓). (1b), on the other hand, is ruled out by virtue of a kind of blocking effect since *Mary*, by hypothesis, has raised through the specifier of *to appear* as in (1c). Thus, typical binding requirements could be said to rule out (1b) on the assumption that the intermediate movement really takes place.

That A-bar movement also proceeds in short steps can be seen from examples like (2).

- (2) a. [Which pictures of himself<sub>i/j</sub>] does John<sub>i</sub> think ✓ that Bill<sub>j</sub> bought  
 b. Who said that John<sub>i</sub> thinks that Bill<sub>j</sub> bought pictures of himself<sub>i/j</sub>

Movement of the *wh*-phrase in (2a) brings the anaphor to a position where it is c-commanded by *John* but not by *Bill* (position indicated by ✓).

Additional arguments for successive cyclic movement can be constructed on the basis of Quantifier Float data (under Sportiche's 1988 influential analysis of Q-stranding, and McCloskey's 2000 extension of it to the A-bar domain). (Data in (3) are from standard English. Data in (4) come from West Ulster Irish English.)

- (3) a. All the boys seem to appear to like ice cream  
 b. The boys seem *all* to appear to like ice cream  
 c. The boys seem to appear *all* to like ice cream  
 d. The boys seem to appear to *all* like ice cream
- (4) a. What *all* did you get for Christmas  
 b. What did you get *all* for Christmas  
 c. What *all* did John say that Peter ate for breakfast  
 d. What did John say that Peter ate *all* for breakfast  
 e. What did John say *all* that Peter ate for breakfast

### 3. Conceptions of Successive Cyclicity

Although the facts around successive cyclic movement are clear, the underlying cause is much less so. Consider McCloskey's (2002: 184-185) telling quote:

“If locality conditions are at the heart of syntax (as increasingly seems to be the case), then the existence of apparently unbounded dependencies like [long-distance wh-movement] represents an anomaly. Since Chomsky (1973), it has come to be widely believed that the apparently distant connection between antecedent and variable position in such cases is mediated by a sequence of more local connections. (...) In all variants of this core idea, the specifier of CP is one of the crucial left-peripheral positions establishing these connections (...) Movement is always at least this local. (...) A much harder question is what makes this true – what property of language-design determines that this is how things work.”

The conceptual problem posed by successive cyclicity has been around ever since the advent of the minimalist program and its insistence on movement as last resort. Put simply, there doesn't seem to be obvious features triggering *intermediate* steps of movement.

Various featural options have been tried, but I agree with McCloskey (2002: 186) that all of them boil down to “spurious,” or “pseudo-”features (Q, Op, Wh, etc.) – movement-triggering features optionally present on intermediate landing sites, whose presence is required neither by lexical requirements or by considerations of interpretability.

It has sometimes been suggested (see, e.g., Hornstein (2001: 119)) that the checking of  $\phi$ -features should be implicated in the formulation of successive cyclic movement on the basis of so-called wh-agreement phenomena in languages like Chamorro (see Chung (1998)). However, this conception of wh-agreement (agreement triggered by successive cyclic movement of the wh-phrase) appears to rest on a factual misunderstanding (noted by various experts on the languages exhibiting overt ‘wh’-agreement). As noted in Boeckx (2003: 57), building upon observations in Chung and Georgopoulos (1988), Georgopoulos (1991), and Chung (1988), for Palauan and Chamorro (see also Rackowski and Richards (2003) on Tagalog, Pearson to appear on Malagasy, and Finer (1997) on Selayarese), ‘wh-agreement’ is only *indirectly* conditioned by overt wh-movement. That is, although wh-movement induces a morphological change on intermediate verbs (verbs along the wh-movement path), the morphological change refers to a special kind of agreement between the verb and the clause from which the wh-phrase has been extracted. In particular, when overt wh-movement takes place, the verbs along the way to the ultimate [+wh] SpecCP bears the morphology they would bear if the complement

clause out of which wh-movement took place were extracted.<sup>1,2</sup>

Boskovic (2002) provides additional arguments that intermediate landing sites are not checking sites. The clearest piece of evidence comes from the generalization going back to Lobeck (1995) and Saito and Murasugi (1990), according to which ellipsis is licensed in the complement of a head taking part in Spec-Head agreement. Boskovic argues that the unacceptability of (5) is puzzling if Spec-Head agreement (feature checking) takes place in the intermediate C position. By contrast, if no checking takes place, (5) is excluded on a par with (6b, d).

- (5) \*John met someone, but I don't know who Peter said ~~(that) John met~~
- (6) a. John's talk about the economy was interesting, but Bill's ~~talk about the economy~~ was boring

<sup>1</sup> I here set aside differences among the relevant languages pertaining to whether 'wh-agreement' on intermediate verbs is obligatory (Tagalog) or optional (Chamorro) depending on the nature of the moving wh-phrase (D-linked or not). I also set aside the fact that in the relevant languages, the moving wh-phrase directly affects the morphology of the most deeply embedded verb. The latter point is largely orthogonal to the issue of successive cyclicity.

<sup>2</sup> The only instance of genuine long-distance wh-agreement (where morphology co-varies with the featural specification of the wh-word, not the clause containing it) I am aware of is found in Kinande. As Schneider-Zioga has illustrated in a series of papers (Schneider-Zioga 2000, 2002, 2004; see also Rizzi 1990: 55), the language expresses the noun class and number of the wh-phrase on the complementizer (/focus-marker) immediately adjacent to the wh-phrase (i), as well as on complementizers along the wh-path (ii).

- (i) a. IyondI y0 Kambale alangIra  
Who.1 that.1 Kambale saw  
'Who did Kambale see'
- b. AbahI Bo Kambale alangIra  
Who.2 that.2 Kambale saw
- c. EkIhI ky0 Kambale alangIra  
What.7 that.7 Kambale saw  
'What did Kambale see'
- d. EBhI By0 Kambale alangIra  
What.8 that.8 Kambale saw
- (ii) EkIhI<sub>i</sub> kyo<sub>j</sub> Yosefu a-kabula [<sub>whp</sub> nga-kyo<sub>j</sub> [<sub>ip</sub> a-kalangira t<sub>j</sub> ]]  
what FOC J. wonders if-FOC agr.sees  
'What does Yosefu wonder if he sees?'

To analyze Kinande in a way consistent with the claim that there is no wh-agreement triggered on intermediate landing sites, Boeckx (2004) follows Davies' (2003) analysis of long-distance wh-questions in Madurese and Javanese. Davies argues that apparent long-distance wh-movement are instances of iterative prolepsis, as schematized in (iii). (See also McCloskey (2002: 199) for an independent argument in favoring of allowing a strategy like (iii) based on Irish.)

- (iii) Wh<sub>i</sub> [Op<sub>i</sub> C .... <Op<sub>i</sub>> [Op<sub>i</sub> C ... <Op<sub>i</sub>>]]

(It is interesting to note that Kinande wh-extractions, like Madurese and Javanese wh-questions, have a cleft-like nature.)

- b. \*A single student came to class because the ~~student~~ thought that it was important
- c. John met someone, but I don't know who ~~John~~ met
- d. \*John believes that Peter met someone, but I don't believe that ~~Peter met someone~~

On the basis of arguments of this sort I conclude that successive cyclic movement steps are not feature-driven. This conclusion is also embraced by Chomsky in his recent writings (Chomsky 2000, 2001, 2004, 2005a-b). There, successive-cyclic movement is forced by the PIC (11). To avoid being trapped in a phase, an element must move from phase-edge to phase-edge. The mechanism that ensures this is given in Chomsky (2000):

- (7) At the end of phase HP, the head H may freely be assigned an EPP-feature, forcing overt movement of a phrase into SpecHP

There are two important concepts in Chomsky's formulation, both of which are actually characteristic of all versions of successive cyclic movement since Chomsky (1973): it is not a forced option (cf., 'freely assigned'), and it happens for "EPP"-reasons. As Lasnik (2001) has emphasized, the EPP in Chomsky's system is not a feature in the technical sense of the term, the way, say, [wh] or [φ] features are (i.e., things that are being valued or 'checked'). For instance, the [EPP] feature can never be checked in situ. It just seems that "the EPP (...) demands that certain functional heads have a specifier" (Lasnik 2001a). As such, it is more adequate to speak on an EPP-property, since the way to satisfy this property is quite distinct from valuing features at a distance ('checking').

Needless to say, the EPP so construed is no more than a descriptive characterization. As Epstein and Seely (2002: 86) aptly note, the EPP is "a representational macro-tree description, demanding explanation in terms of lexical features and their mode of combination."

In addition to appealing to an unexplained property of the grammar (EPP), Chomsky's technical implementation of successive cyclic movement takes it to be an optional movement, which, from a minimalist point of view, just begs the question.<sup>3</sup>

The most principled account of successive cyclicity I know of is Takahashi's 1994 analysis, based on Chomsky and Lasnik's (1993: 90) Minimize Chain Links Principle, which requires that each chain link be as short as possible.<sup>4</sup>

<sup>3</sup> For additional arguments against phase-based derivations in Chomsky's sense, see Boeckx and Grohmann (to appear) and H Ko (2005).

<sup>4</sup> In this paper I set aside the interesting, but orthogonal, question of whether Takahashi's representational version of the Minimize Chain Links is superior to Boskovic's (2005) recent derivational rendering of the same intuition that successive cyclic movement is a

Takahashi claims that the Minimize Chain Links Principle captures the cyclic (local) nature of movement while avoiding the pitfalls of spurious features posited in intermediate sites to drive successive cyclic steps.

Takahashi's core idea is that successive steps are taken not in order to check some feature in intermediate sites, but simply due to the requirement that chain links must be minimized (a reflex of economy). In Takahashi's (1994) terms, each link of a chain must be as short as possible. The requirement forces any element *X* undergoing movement of type *Y* to stop at every position of type *Y* on the way to its final landing site independently of feature checking. It is worth noting that Takahashi assumes that the relevant operation underlying movement is Form Chain. In so doing, Last Resort is relevant only to the formation of a chain, not links of a chain. In other words, formation of a chain must have feature-checking motivation, but formation of chain links needs not Building upon a suggestion made in Manzini (1994), Boeckx (2003: 8) modified Takahashi (1994), and argued that a moving element adjoins to the maximal domain of each head on its way to its ultimate landing site (see also Boskovic (2002: 186), Boskovic (2005), Fox and Lasnik (2003), Fox (2000), Richards (2002) for similar claims; see also the percolation mechanisms in frameworks like HPSG, or in Neeleman and van de Koot (2002)).<sup>5</sup> The motivation for this idea was twofold. First, ever since the principle of the cycle was proposed, the number of cyclic nodes (originally restricted to *S* and *NP*) increased, and just about every node became a cyclic node (see already Williams (1974)). This strikes me as the simplest assumption. Second, the notion of movement type (*A/A-bar*) has no clear status in current syntactic theorizing, which makes it very difficult to define in a non-arbitrary way what a landing site of the relevant type is.

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property of the movement operation, and is not due to the checking of (pseudo-)features in intermediate positions. As far as this paper is concerned, any version of successive cyclicality that encodes this intuition *and* that requires a lower bound on movement will do. Here I rely on Takahashi's version because it is fairly well-known, and because the need for a lower bound on movement once we adopt Takahashi's version has been fleshed out in the literature (Boskovic 1994).

<sup>5</sup> One may say that under Boeckx's version of successive cyclic movement every maximal projection is a phase (as argued for in Epstein and Seely (2002) and Boskovic (2005)), but it is important to note that were one to do so, one would be using a very different notion of phase from the one used by Chomsky. For Chomsky, every phase induces a PIC effect. If every projection were a phase, no extraction would be possible, as the complement of any phrase would have to move to the edge of that phrase/phase, a movement step that would count as too local under the version of 'anti-locality' that I entertain in this paper. For this reason I refrain from using the term 'phase' in connection with the conception of successive cyclicality argued for here.

#### 4. On Movement That Is ‘Too Short’

I would like to offer a new argument for a Takahashi-style conception of successive cyclicity. My argument is based on Boskovic’s (1994) observation that some condition is needed to prevent the Minimize Chain Links Principle from forcing a phrase in an adjoined position to keep adjoining the same node. Put differently, some condition is needed to prevent chain links from being too short. (Although Boskovic was referring to Takahashi’s version of successive cyclicity, his point applies with equal force to Boeckx’s amendment discussed above.)

Perhaps the first explicit proposal to the effect that chain links cannot be too short comes from Murasugi and Saito (1995), who formulated (8).

- (8) A chain link must be at least of length 1  
 A chain link from A to B is of length  $n$  iff there are  $n$  “nodes” (X, X’, or XP, but not segments of these) that dominate A and exclude B

The empirical reason for positing (8) is given in (9).

- (9) \*I think that [<sub>IP</sub> John, [<sub>IP</sub> <John> likes Mary]]

Lasnik and Saito (1992) observe that if (short) subject topicalization (adjunction to SpecIP) were allowed, (10) would be predicted to be on a par with (11), contrary to fact.

- (10) \*John<sub>i</sub> thinks that himself<sub>i</sub> t<sub>i</sub> likes Peter

- (11) John<sub>i</sub> thinks that himself<sub>i</sub> Peter likes t<sub>i</sub>

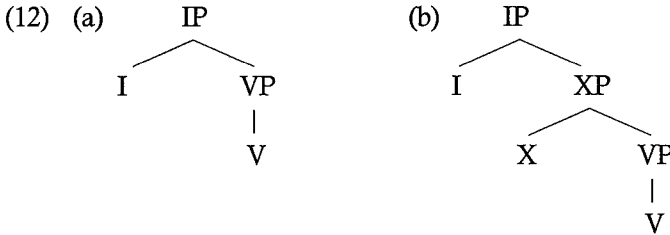
Based on such facts, Lasnik and Saito (1992) conclude that movement from within one projection, more precisely for them, movement from SpecIP to the IP-adjoined position, must be disallowed. To explain this, Murasugi and Saito (1995) propose (8), which they argue is reducible to an economy guideline, viz. the ban on superfluous steps (possibly related to Chomsky’s (1986b) ban on vacuous projections).

Boskovic (1994) (see also Boskovic (1997: 184, n28)) argues that (8) has considerable motivation. In particular, he notes that (8) rules out adjunction of X to its own XP and substitution of X to SpecXP (situations that Chomsky (1995: 321) referred to as ‘self-attachment’).

More recently, Kayne (2005) has independently proposed to rule out movement of the complement of X to the specifier position of XP, and suggests that this condition could be derived in feature-checking terms if upon

Merge the maximal set of matching features must be checked.

Another instance of the same idea is provided by Bobaljik (2000), who argues, after examining a wide range of facts, that V-to-I movement never takes place in situation (12a), but becomes possible in (12b).



The desired result can be deduced from (8) if we take the label of X to be a copy of X (Chomsky 2001, Harley 2004, Boeckx 2004). Accordingly, (8) would forbid movement of V to I in (12a), since a copy of V (VP) is already in a local relation with I (it is the complement of I). By contrast, no such local relation exists prior to V-movement in (12b), due to the presence of XP, which renders movement possible.

In a similar vein, Abels (2003) notes that, though mobile in general, IPs may not move and strand their selecting CPs.

(13) \*Frank saw a play that <<a play> was long and boring> yesterday  
<a play> was long and boring

(14) \*John is a fool is believed that <John is a fool>

(15) \*John is a fool, Mary told herself that <John is a fool>

Likewise, Abels shows that, though mobile in principle (in some languages), VPs never strand  $v^0$ . Based on this, Abels proposes the following principle:

(16) Given  $\alpha$ , the head of a phase,  
always  $*[\alpha t]$

Given the requirement that domains called phases only allow movement of their specifiers (not their complements) (see Chomsky (2000); the PIC in (7) above), (16) in effect amounts to a version of (8); i.e., no phrase can be both specifier and complement of the same head (Always:  $*[\alpha_{\text{CP}} \beta_i [\alpha t_i]]$ ).

In sum, there seems to be good reasons to adopt some version of (8). Importantly, those reasons are independent of the fact that something like (8) is needed to guarantee the adequacy of any version of a Takahashi-style ap-



proach to successive cyclicity.

In the remainder of this paper I would like to argue that (8) is in fact superior to an alternative conception (Grohmann 2000, 2003) of what the lower bound on movement is. Interestingly, as we will see shortly, Grohmann's conception is stricter than (8), and it is more than what a Takahashi-style analysis requires. My goal is to show that Grohmann's conception is also less empirically adequate than (8). So, what we will end up with is an empirical argument for (8), which in turn becomes a conceptual argument for a Takahashi-style analysis, since (8) is precisely what the latter requires, nothing more, nothing less.

## 5. 'Too Short' and Too 'Too Short'

Based on a wide range of considerations, Grohmann (2000, 2003) formulates (17).<sup>6</sup>

- (17) Anti-locality hypothesis  
 Movement must not be too local

Grohmann conjectures that movement is too local if an element *K* has two occurrences within a given domain  $\alpha$ .<sup>7</sup> For Grohmann,  $\alpha$  ranges over thematic ("VP"), inflectional ("IP"), and discourse-related ("CP") domains. Accordingly, no movement cannot take place within, say, the verbal domain (unless resumption takes place, see note 4). I will now show that such a ban is too strong. Specifically, I will show that movement within the thematic domain is required. That movement can be either feature-driven, or not (intermediate movement step).

The evidence against Grohmann's conception of (anti-)locality comes from

<sup>6</sup> Grohmann embeds his ban on movement that is too short (lower bounds on movement) into a theory of locality. This is clearly the most desirable move: bounding and locality should go hand in hand.

<sup>7</sup> Grohmann notes that just like movement that is "too long" can be "salvaged" (impressionistically speaking) by resumption (i), movement that is too short can, too. For justification of the derivations in (ii), see Grohmann's own work.

- (i) ? Which woman did you claim that Peter met the man who saw ~~<which woman>~~ her  
 (ii) a. John [<sub>VP</sub> <John> likes <John> → himself]  
 b. [<sub>XP</sub> Diesen Mann, [<sub>XP</sub> <diesen Mann> → den kenne ich nicht] German  
 This.acc man that-one.acc know I not]  
 'This man, I don't know him'

For alternative views on resumption (including reflexivity) that don't require Grohmann's specific version of Anti-locality, but instead rely in agreement and case, see Boeckx (2003) and Hornstein (2001), respectively.

two constructions: applicatives and psych predicates. I discuss each in turn.

### 5.1. Applicatives

Empirical considerations have led several researchers to claim that we need to distinguish at least two kinds of double object structures, a low-applicative/dative structure like (18), and a high-applicative/dative structure like (19) (see Pylkkänen (2002), Anagnostopoulou (2003), McGinnis (2001), J-E Lee (2004), Y Jeong (2004), Miyagawa and Tsujioka (2004)). (I have modified the structures in (18) and (19) slightly, eliminating structural details that are irrelevant to the issue at hand.)

(18) [<sub>VP</sub> Subj V [<sub>VP</sub> IO V DO]]

(19) [<sub>VP</sub> Subj V [<sub>VP</sub> IO V [<sub>VP</sub> V DO]]]

The latter line of research has reached a conclusion that is puzzling at first. McGinnis (2001) in particular has provided compelling empirical evidence suggesting that languages employing the structure in (19) correspond to what previous research had called symmetric languages, that is, languages that treat both objects alike for a variety of syntactic purposes such as passivization, cliticization, etc. British English is often described as one such language, on the basis of (20).

- (20) a. Mary was given a candy  
b. A candy was given Mary

By contrast, languages that use a structure like (18) correspond to asymmetric languages, such as American English. Witness the contrast in (21).

- (21) a. Mary was given a candy  
b. \*A candy was given Mary

McGinnis's conclusion amounts to this surprising statement: the closer the objects are structurally upon base merge, the more asymmetrically they behave. Conversely, the more distant they are upon base merge, the more symmetrically they behave. From a phrase structural perspective this is surprising. One would expect that greater distance between the two objects would increase the asymmetry between them. But natural languages just do not seem to work that way. From the point of view of locality (specifically, Relativized Minimality/intervention effects), it is easy to understand why IO is always passivizable (*pace* independent factors that might block such movement, see Y Jeong

(2004)); IO always start off higher than DO, i.e., closer to  $T^\circ$ . What remains to be explained is how DO can circumvent the intervening IO.

Ura (1996), McGinnis (1998, 2001) and Anagnostopoulou (2003) converge on the idea that passivization of DO is rendered possible as a result of DO moving to the edge of the projection hosting IO. Once that movement step has taken place, DO is higher than IO and can be passivized.

Note that this movement step must be blocked in so-called asymmetric languages, since these languages lack DO-passivization. J-E Lee (2004) (see also Y Jeong (2004)) suggests an interesting way of doing precisely that. She assumes that Ura, McGinnis, and Anagnostopoulou are correct in saying that passivization of DO in a language that adopts (19) allows movement of DO to the edge of the VP hosting IO. At that point, DO is higher than IO and can be passivized, as schematized in (22).

$$(22) \text{ DO } T^\circ \left[ {}_{\text{VP}} t' \text{ IO } \left[ {}_{\text{VP}} \text{ V } t \right] \right]$$

To prevent this derivation in languages making use of (18), J-E Lee appeals to anti-locality to block movement of DO to the edge of the VP hosting IO. The key factor here is that the VP hosting IO also hosts DO. Since 'anti-locality' considerations rule out movement of the complement of X to the specifier of XP, DO cannot become higher than IO. Therefore, only IO can be passivized, as illustrated in (23)-(24).

$$(23) \text{ IO } T^\circ \left[ {}_{\text{VP}} t \text{ V DO} \right]$$

$$(24) * \text{ DO } T^\circ \left[ {}_{\text{VP}} t' \text{ IO V } t \right]$$

Notice that J-E Lee's reasoning only goes through if anti-locality only applies within one projection, not within a given domain, such as VP/ $\nu$ P, as in Grohmann (2000, 2003). If movement within  $\nu$ P (the thematic domain) were banned, one would not be able to distinguish between symmetric and asymmetric languages. In fact, Grohmann predicts all languages to be of the asymmetric type, since the movement step that obviates minimality, 'Leap-frogging' in McGinnis' terms, would violate Grohmann's notion of anti-locality.

## 5.2. Psych Verbs

An argument similar to J-E Lee's can be made on the basis of psych verb data, although this time, we'll see that the intervention-obviating step is feature-driven.

As is well-known, Belletti and Rizzi (1988) distinguish among three types of

psych-verbs on the basis of Italian data:

- (25) Gianni teme questo  
Gianni fears this
- (26) Questo preoccupa Gianni  
This worries Gianni
- (27) a. A Gianni piace questo  
To Gianni pleases this  
b. Questo piace a Gianni  
This pleases to Gianni

The three verb classes are Subject Experiencer NP verbs like *temere* ('fear'); Object Experiencer verbs like *preoccupare* ('worry'), and verbs like *piacere* ('please'), which allow PP-Experiencer subjects.

Much attention has been devoted to Object-Experiencer verbs, in particular to the backward binding facts like (28).

- (28) a. rumors about herself<sub>i</sub> worried Mary<sub>i</sub>  
b. rumors about his<sub>j</sub> mother upset everybody<sub>i</sub>/nobody<sub>j</sub>  
c. the assertion that she<sub>j</sub> was unfit to serve worried no female candidate<sub>i</sub>

To account for such facts, Belletti and Rizzi argued that the subjects of object-experiencer psych verbs start off as complements of V. This assumption allowed for a straightforward account of "backward binding" facts. If (surface) subjects of object-experiencer psych verbs start off as complements of V, the (surface) object experiencer is able to bind the subject prior to movement (alternatively, backward binding can be treated as a result of reconstruction/interpretation of the copy of the subject left by movement). The basic derivation is given in (29).

- (29) [<sub>TP</sub> [rumors about herself]<sub>i</sub>; T° [<sub>XP</sub> worried<sub>j</sub>; [<sub>VP</sub> Mary [<sub>t<sub>j</sub></sub> t<sub>i</sub>]]]]

To this day, Belletti and Rizzi's analysis of backward binding remains the conceptually most appealing.<sup>8</sup>

<sup>8</sup> It has sometimes been suggested that the importance of the backward binding facts has been overestimated. For example, Landau (2003) suggests that the binding examples are instances of logophoric binding, which do not require the strict licensing conditions that regular binding does. Landau's point may be correct for examples like (28a) (*picture*-NP cases more generally), but it is hard to see how logophoricity could be involved in instances of binding by universal or negative quantifiers (28b-c).

Despite its conceptual appeal, Belletti and Rizzi's analysis was heavily criticized, especially by Pesetsky (1995). The major criticism raised by Pesetsky is that there are good reasons to believe that object experiencer psych-verbs are not to be represented as unaccusative structures. The gist of Pesetsky's analysis is that the surface subjects of object experiencer psych verbs behave thematically like external arguments (causers).

Pesetsky offers several arguments in favor of this conclusion. Perhaps the most compelling one is the fact that in contrast to unaccusatives (30), Object Experiencer verbs passivize (31).

- (30) a. The lamp sat on the desk  
 b. \*The desk was sat on by the lamp
- (31) a. The article in the *Times* angered Bill  
 b. Bill was angered by the article in the *Times*

If, as is now standardly assumed, passivization boils down to absorption of an external theta role, one must conclude on the basis of (31) that there is an external theta-role in object experiencer verbs.

Here I will follow Hornstein and Motomura (2002) and amend Belletti and Rizzi's (1988) proposal in a way that preserves its conceptual appeal while accommodating Pesetsky's claim. Hornstein and Motomura revise (29) along the lines of (32).

- (32) [<sub>TP</sub> [rumors about herself]<sub>i</sub> T° [<sub>VP</sub> t<sub>i</sub>' v<sup>o</sup>-worried<sub>j</sub> [<sub>VP</sub> Mary [<sub>t<sub>j</sub> t<sub>i</sub>]]]]]</sub>

According to (32), the surface subject starts off as the complement of V (where it receives the target theta-role; see Pesetsky (1995: 58)), a position that will allow a Belletti-Rizzi style account of backward binding. On its way to SpecTP, the subject stops by SpecvP and collects an external theta-role, which allows Hornstein and Motomura to capture Pesetsky's results. (Hornstein and Motomura assume that the specifier and complement of the same projection are equidistant, which allows *rumors about herself* to cross *Mary* on its way to SpecvP without violating Minimality.)

A derivation like (32) is possible as soon as one allows for movement into theta-position, an assumption that I will simply adopt here (for extensive discussion, see Hornstein (1999), Boeckx and Hornstein (2004) and references therein).

As Hornstein and Motomura note, the intermediate step of movement targeting SpecvP obviates the intervention effect of the experiencer for movement to SpecTP. But the question now arises as to why the experiencer doesn't block movement of the innermost object to SpecvP. (This question did not

arise in the context of applicatives, as movement of the lower object targeted a position that was within the same projection as the position already occupied by the higher object.)

Hornstein and Motomura simply assume that the specifier and complement of the same projection are equidistant, which allows *rumors about herself* to cross *Mary* on its way to SpecvP without violating Minimality, but once Equidistance is adopted we lose the account we had for asymmetric applicative structures. If the members of a projection were equidistant, DO-passivization would be possible in (24).

Instead of appealing to Equidistance (an odd minimalist notion anyway), I would like to capitalize on the fact that cross-linguistically experiencers are never agents. For example, in Icelandic no quirky subjects (typically experiencers) bear an agent theta-role. I therefore claim that by bearing an experiencer theta-role, the relevant NP cannot check the agent theta-role. (The ban in question is easy to encode in featural terms, but I confess that I would like to derive this ban from something deeper. I haven't succeeded so far. So, pending deeper understanding of the content of theta-roles, I leave this ban as a stipulation.) If experiencer and agent theta-roles are incompatible, and if, as is standard (see Boeckx and Jeong (2004), Rizzi (2004), Starke (2001)) Minimality is defined in terms of feature matching), the experiencer will not block movement of the innermost object to SpecvP as it doesn't have the right kind of matching feature to interfere.<sup>9</sup>

If the modified version of Hornstein and Motomura's analysis proposed here is tenable, derivations like (32) provide another argument against Grohmann's ban on movement inside the thematic domain (with no co-occurring resumption), this time based on theta-driven movement.

<sup>9</sup> Similarly, if we assume that PPs don't (match in features, hence don't) intervene (witness *John seems to Mary [t to be smart]*), movement of the innermost object in *piacere* class could proceed in one fell swoop, as in (i).

(i) [<sub>TP</sub> DO<sub>i</sub> T° [<sub>vP</sub> v°-V<sub>j</sub> [<sub>VP</sub> PP-IO [<sub>t</sub> t<sub>i</sub>]]]]

This would explain why in the *piacere* verb class no agentivity is detected.

(I assume that when the PP-experiencer is in subject position, we are actually dealing not with a genuine PP, but with an NP associated with an overt case-marker. Put differently, the optionality witnessed in the context of *piacere*-type verbs is the result of the ambiguous full preposition/case-marker status of the *a* associated with the experiencer.)

## 6. Conclusion

The double object and psych verbs data demand a notion of anti-locality that confines the effect of the condition to a single projection (as opposed to involving the notion of ‘domain’), something like (33).

(33) The complement of X cannot move anywhere within XP.

Equivalently:

(34) Movement internal to a projection counts as too local, and is banned.

(33)-(34) is exactly what a Takahashi-style analysis of successive-cyclic movement requires. The picture that emerges is the following: Long-distance movement can't be too long, chain links must be kept short. In particular, if Boeckx (2003) is correct, a moved element must adjoin to each and every maximal projection on its way to its final landing site, *except* the projection it originates from (in that case movement would be too short). This convergence of conceptual and empirical results establishes a certain complementarity between the notions of locality (upper bound on movement steps/chain links) and anti-locality (lower bounds on movement steps/chain links), which is highly desirable from the theoretical perspective of the minimalist program.

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