On Phase Extension and head movement*

1. Introduction

Marcel den Dikken’s exploratory study on locality based on Chomsky’s phase-based model of syntax diverges from Chomsky’s (2000, 2001, 2004) phase theory in two crucial regards. First, the particular notion of phasehood he puts forward is defined by the semantic property of predicationality (rather than Chomsky’s loosely interpreted propositionality). Second, the paper (re)introduces dynamicity to the theory of locality domains by proposing that inherent phases are extended through head movement (HM), i.e., phasehood can be inherited (compare Chomsky 1986, Bobaljik and Wurmbrand 2003).

Den Dikken’s programmatic article (henceforth MD) explores how much empirical coverage can be achieved in the realm of locality from these – apparently very simple – premises. The core cases he examines all involve ‘trapping’ of some phrase inside a functional projection that has been turned into a phase by way of HM in the course of the derivation. The gain is impressive, and the general analysis that connects some previously unrelated instances of freezing within some local domain is illuminating. Also significant against the backdrop of the current debate regarding the nature of head movement is the fact that the central proposal of phase extension by HM is built on the assumption that (some)

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head movement is narrow syntactic. The research program that MD initiates, to the extent it is successful, furnishes corroborating evidence for the correctness of that view.

The following paragraphs raise the question, unaddressed within the confines of MD, as to what might explain the very mechanism of phase extension through head movement. I suggest that the key to the answer lies in the nature of cyclic Spell Out (Transfer) and the closely related mechanism of HM itself. In the remaining pages, I point out several shortcomings of the approach as it is formulated in MD, both conceptual (mostly concerning restrictiveness) and empirical in nature. These problems, grave as they are, are far from fatal for the core thesis of phase extension via HM, as they concern issues ancillary to the main thesis, as well as aspects of execution.

2. Phase Extension: cyclic Spell Out and head movement

The hypothesis of Phase Extension through head movement (PEH) involves two related claims about the effect of the movement of a phase head (Ph₀) to the next higher head K₀:

(1) a. HM of Ph₀ to K₀ causes PhP to be a non-phase.

b. HM of Ph₀ to K₀ causes KP to be a phase.

Neither of these two effects of head movement is derived from any independent source. It is unlikely that one could maintain generally that KP becomes host to a new predication relation in the process of HM (that would imply, for instance, that (D16/D19a) and (D17/D19b) express reverse predication relations), and it is hardly conceivable either that a PhP will not be interpreted as involving a subject–predicate structure following the syntactic displacement of its head (cf. e.g., the analysis of the Small Clause in (D29)). The explanation for (1a,b), we can conclude, must be independent of predicationality. I suggest below that, broadly speaking, (1a,b) is simply a consequence of the way narrow syntax interfaces with the external components.

Before I provide the outline of why this is so, let me comment briefly on the notion of phasehood proposed in MD. The particular mechanism of PEH from the perspective of the minimalist working hypothesis dubbed the Strong Minimalist Thesis (SMT; see esp. Chomsky 2004) is
that it weakens the interface-motivated nature of the phase into a concept
that is defined partly syntax-internally in terms of narrow syntactic HM.
In fact, the proper interface-motivated definition of the phase has been
the subject of much controversy, both empirical and conceptual, ever
since Chomsky (2000) put forward his own. The protracted quandary
about the resolution of this dilemma is unsurprising if the central premise
on which the question itself is based should turn out to be false, namely
if the inherent asymmetry postulated to hold between phasal and non-
phasal categories does not exist – arguably the null hypothesis. According
to one instantiation of this latter, non-selective view of Spell Out (Trans-
fer), each phrase undergoes Spell Out (= (2); see e.g., Bošković 2002,
Müller 2004 and Boeckx 2003, compare also Frampton and Guttmann
1999). I assume that (2) is a theorem being derivative of (3–5).

(2) Each phrase undergoes Spell Out (i.e., each phrase is a phase).¹
(3) Free Spell Out
   Spell Out can apply (to the root syntactic object, \(SO_{\text{Root}}\)) at any der-
   ivational stage.
(4) Spell Out Earliness
   Each category \(K\) is subjected to Spell Out as soon as it can be.
(5) (A corollary of) Full Interpretation (FI)
   The syntactic object that \(C_{\text{chL}}\) is operating on at any given stage
   (= \(SO_{\text{Root}}\)) can undergo Spell Out if there is no \([\text{uF}]\) in its Spell Out
   Domain (= SD).²

Let me briefly comment on the latter three assumptions. (3) states that no
extrinsic restriction limits the application of Spell Out, which is simply the
null hypothesis in a derivational syntax with a sequence of stages. Free
Spell Out is constrained by the economy principle in (4), which endorses
applying Spell Out as often as possible, thereby limiting operational com-

¹ The ‘edge’ of \(SO_{\text{Root}}\) is exempt from being interpreted by the interface systems upon Spell
Out. Assume for now, following Chomsky’s (2000 et seq.) lead, that the edge is under-
stood to include the head H of \(SO_{\text{Root}}\), any feature-checking specifiers of H, as well as
any elements raised to H via IME (I am ignoring adjuncts here and in what follows).
It is only the complement of H that is sent off to the external modules (= the Spell Out
Domain).
² Compare e.g., Kitahara (1997, 2000), Svenonius (2001, 2004), Chomsky (2001) for anal-
ogous views.
plexity. (4) together with (5) define an optimally small ‘delay’ in Spell Out whenever it is necessary. This delay, stated descriptively in (2), is optimal in the sense that it is the shortest delay (i.e., the smallest amount of violation of (4)) that is required to meet FI/(5). Subsequent to Merging in a head H, the earliest stage at which when Spell Out can apply without violating FI/(5) is at the point when all elements bearing some [uF] in the Spell Out Domain (SD) have already either raised out of SD (overtly or covertly) to enter checking with H, or have undergone intermediate movement to phase edge (= IME). In this manner, (2) is derived.

Based on this view of cyclic Spell Out, it is proposed in Suranyi (2003, 2004a, b, to appear) that HM is triggered in the same way as instances of phrasal IME. Importantly, the account of IME that is adopted in these works does not rely on optional EPP/P/OCC-features on phase heads. Employing such features to drive IME of some element E_{[uF]} is redundant, as IME of E_{[uF]} satisfies Last Resort trivially: if it did not apply, then that would cause crash at the immediately next step, when HP containing E_{[uF]} is subjected to Spell Out (see Suranyi 2002, 2004a, b, Stjeanović and Takahashi 2003, and Bošković to appear). Adopting this non-feature-checking approach to IME, I define the edge – in slight deviation from Chomsky (2000 et seq.; see footnote 2) – simply as in (6).

(6) The edge is the set of elements bearing some [uF] that are Merged to the head.

Given (6), a head H bearing some [uF] is not exempted from Spell Out, the reason why it must undergo IME. Subsequently to the Merger of a head H in its higher position and the Spell Out of the original HP (except for its edge), the raised H will continue to be construed as a head-level element, creating a new ‘projection’ with a different subcomponent of H functioning as the Locus (see Collins 2002). The original and resulting structures are given schematically in (7).

(7) \[ [H_1P \text{Spec} [H_1[uF] \ldots]] \rightarrow [H_2P H_2[uF] [H_1P \text{Spec} [H \ldots]]] \]

3 I assume heads to be ‘fully inflected words’ (cf. Chomsky 1995), containing all inflectional elements as subcomponents. The actual mechanism of raising the head H of HP to produce a structure in which H is Merged with HP itself is an idea that goes back at least to Ackema, Neeleman and Weerman (1993). The approach presented here is based on the implementation in my own work.
This theory of HM has a number of advantages: it eliminates outstanding problems with HM in Chomsky (1995), avoids multiplying featural triggers and radically empty inflectional attractor heads, accounts for the strict locality of HM, it does away with the paradoxical disjointness of the set of phases and the set of categories actually Spelled Out (for details and references, see Suranyi 2004b, to appear). Furthermore, crucially for the present purposes, such an approach to HM can derive MD’s two-part PEH in (1a,b). Given the natural assumption that (6) is defined at any derivational stage for the current $SO_{Root}$, subsequently to head-raising of $H$ via IME it is the raised occurrence of $H$ that is identified as the ‘head’ in (6) (the issue is skirted in Suranyi (ibid.)). Accordingly, the phrase headed by the lower occurrence of $H$ is not sent to the interface components on its own, but only as part of the Spell Out of the phrase headed by its raised occurrence. In other words, HM of $H$ results in phase extension in the sense of (1a,b). As the entire process is recursive, successive cyclic HM results in iterative phase extension up to the point where $H$ has checked off all its [uF]'s, which is the point where Spell Out can finally apply. In this manner, HM and phase extension are correlated.

I take this to be a suggestive convergence of results, even though the convergence is only partial, since according to the assumptions presented above, HM of any head extends the Spell Out Domain. Many of the – rather appealing – analyses presented in MD potentially carry over without change, nevertheless (contingent on the adoption of further assumptions from MD). The account of (D17), (D28b), and (D37) cannot be transposed, however. Factors other than those discussed in MD should be responsible for these cases if the approach sketched here is on the right track. This may well turn out to be a reasonable conjecture insofar as the treatment of these appears to be questionable, as will be demonstrated in section 3.2.

3. Restrictiveness

3.1. Ontology

In this subsection I point out what I take to be problematic aspects of the overall theory of locality developed in MD. The general criticism that can
be leveled at the model is that some of its crucial empirical results come at a considerable price in terms of theoretical rigor. The most conventional of the methodologically unattractive assumptions is the adoption of a mixed domain (= phase) based and intervention (= Closeness) based approach to locality that has been known to involve a significant degree of redundancy (compare Chomsky (to appear) for a suggestion that Closeness could be eliminated).

A second questionable aspect of the account of locality developed in MD is its reliance on the notion of chains (in addition to the operation of movement, see Brody (2002)), and the concept of equidistance. The former serves as the basis of the definition of the latter, via the concept of minimal domain of head chains (= $\delta_{\text{MIN}}(\text{CH})$, see (D12)). Importantly, $\delta_{\text{MIN}}(\text{CH})$ is a domain of locality employed in addition to the notion of the phase. To complicate matters, equidistance is not a uniform notion, as it has three distinct subcases: the two rather different scenarios in (D11), and the one noted at the very end of section 5 in terms of being dominated by all the same maximal projections.

The traditional distinction between segment and category, i.e., the structural opposition contrasting adjunct and specifier, plays a key role in this third subcase of equidistance (an adjunct of TP is not dominated by TP), as well as in defining the various bans on IME to certain phasal categories. To exemplify the latter, in contrast to Merger of an element into a specifier position, adjacency to a category K is banned if K is an argument (see section 6.4 of MD; cf. Chomsky 1986), or if K is meaningless (= (D18)).

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4 One might also complain about the relative paucity of actual overt head movement phenomena involved in the empirical data in section 2 that is used in MD to back up the thesis of phase extension by HM (almost the whole of section 2 is based on constructions where the operation of HM affects null elements). This, however, does not detract from the general appeal of the explanatory unification of the phenomena covered in the section.

5 On the particular definition of equidistance in (D11) (which is from Chomsky 1995), the movement of the head of the Predicate to Rel in (D9a) is irrelevant to the availability of Predicate inversion, contrary to the prose in section 2.1 of MD, given that equidistance of the Predicate and the subject DP already obtains prior to HM to Rel. The HM at issue is necessary nonetheless, as otherwise the inversion of Predicate to SpecFP could not be licensed by (D10) (Marcel den Dikken, pers. comm.).

6 I briefly comment on a third type of blocked IME, namely that to the verbal root phrase, in section 3.2 below. Considering the various types of restrictions on IME to some cate-
The latter two prohibitions are provided as stipulative filters in MD in order to obliterate the edge of certain categories as an escape hatch targeted by IME. While it is feasible, even if not demonstrated in MD, that the former ban can be technically implemented in some non-ad hoc manner (albeit one that posits a structural distinction between adjunct and specifier), the implications of the second filter (D18) are non-trivial. (D18) implies (i) that there exist meaningless syntactic categories/LIs, (ii) that it is visible to narrow syntax whether a category/LI (and the XP it projects) is meaningless or not, and (iii) that movement to the edge must involve adjunction, not Merger in a specifier position. Each of these assumptions can be questioned, and would need to be defended.

In addition to the notions of phase, Closeness, equidistance (and the concomitant minimal domain of head chains), and the various bans to obliterate some of the escape hatches, there is a further kind of grammatical mechanism that comes into play in determining domains of locality, namely the one stated in (D10). (D10) says that HM of a head H₀ to a phase head Ph₀ makes H₀ and the phrase HP projected by H₀ ‘visible’ to probes outside of the phase headed by Ph₀. This ad hoc mechanism is technically designed to allow for cross-phasal movement, *pace* Chomsky’s (2000 et seq.) concept of phases. The derivation of (D17) in (D19b/20) is a case in point. (D10) is an ancillary supplement to the mechanism of phase extension itself, in order to guarantee an effect similar to that of phase extension even in cases where the head undergoing HM is not a phasal head. In other words, phase extension related phenomena go beyond movement of just phase heads.

3.2. Analysis

In the remaining part I comment on three of the analyses proposed in MD, the treatment of (D17), (D28b), and (D37), showing that they are less than fully convincing.

Consider the (D17) first, the case of dative shift in English. The explanation in MD of the fact that the direct object is not ‘trapped’ in a dative
shift construction is based on the type of derivation in (D9a): the null P
head of the indirect object (= PP) undergoes HM to Rel, thereby making
the PP available for dative shift owing to (D10). The first drawback of this
account is (D10) itself, discussed immediately above. Another shortcom-
ing involves the explanation of the contrast between (D14–15) and (D17).
The question is left unanswered why a (D9a)-type derivation – involving
HM of the head of the Predicate to Rel⁰ – is unavailable in (D14–15).
This would be essential to explain, because if a (D9a)-type derivation
were admitted, then extraction of the underlying DP subject would be
predicted incorrectly to be available in (D14–15) in the very same way as
it is in (D17).

Another aspect of the analysis of (D17) that can be called into question
concerns the blocking of the HM of Rel-to-F (cf. the derivation of (D17)
in (D19b–20)). It is reasoned in MD that “such movement is literally re-
dundant” and therefore blocked due to the fact that predicate inversion
into SpecFP has already been made grammatical by the movement of
the predicate head to Rel. What this argument directly implies, however,
is that HM of a (phase) head to a next higher head K can be triggered in
order to extend phasehood to KP, which in turn subserves a subsequent
movement of some element into SpecKP. This seems like a clear case of
derivational lookahead, in particular a movement operation that does not
itself result in the elimination of a [uF] (or a distinct interpretation, cf.
Chomsky 2004). For these reasons, the account of (D17) (and the con-
trast it exhibits with (D14–16)) is not fully convincing.⁸

Let us move on now to (D28b), involving a quantificational subject
within a Small Clause complement that is unable to take scope over an-

⁷ The fact that IMEs do not apply if and only if the head of the current phase is to undergo
HM may possibly also involve lookahead, although this is contingent on assumptions not
spelled out in MD.
⁸ Nonetheless, the assimilation of the structural setups in (D14–16) advocated in MD
makes correct predictions with regard to the degradedness of subextraction from the
subject-of-predication DP across these three construction types. This is all expected on
the approach in MD, which predicts not only the subject DP itself, but also any of its
subconstituents to be ‘trapped’ in SpecRelP.

(i) *Which wall do you think the cause of the riot was a picture of?
   (Moro 1997: 124)
(ii) *Which paper do you think that on the editor’s desk lay a copy of?
(iii) *Which paper do you think that I sent my students out a review of?
other quantifier in the clause of the embedding verb. The first type of
question facing the ‘trapping’ analysis of this example concerns the ap-
parent acyclicity of the covert HM of Rel-to-V. The problem is related
to the hypothesis in MD that the amalgamation of V (= Root) and v
takes place in the v position overtly (resulting in [v+V], see (D29)). It is
assumed that because this operation is overt, it must be followed, and
cannot be preceded, by covert Rel-to-V incorporation, despite the fact
that the latter operation takes place in a structurally lower syntactic cycle.
If this were not granted, then the RelP phase would be extended up to the
vP level. In this case (given that owing to Rel-to-V, V-to-v would in fact
be [Rel+V]-to-v) we have no account of the scopal restriction on the
Small Clause subject.

As made explicit in MD, it is crucial for the analysis of ‘trapping’ in
SpecRelP that the Small Clause subject cannot raise to the matrix clause
by first moving to EdgeVP. This instance of IME is blocked on the as-
sumption that nothing could severe v from the immediate projection of
the verbal root. Chomsky’s (1995: 316) is cited for a suggestion that no
AgrP should intervene between v and VP because they together determine
the external theta role in the [v [VP]] configuration. Note, however, that
it does not follow from this notion of a contextual determination of
theta roles (see Hale and Keyser 1993) that adjunction to VP should
be blocked, since adjunction is commonly conceptualized as not signifi-
cantly altering the basic structure (the syntactic context of the external
argument is [v [VP]] irrespectively of whether or not VP has an adjunct
of its own).

The account begs some empirical questions as well. For, given the as-
sumption that the subject of the Small Clause complement (call it DPSC)
is frozen for any covert movement, it is not easy to see how one can cap-
ture Antecedent Contained Deletion data like (8a) (assuming ACD reso-
lution to involve QR), or the ‘matrix clause’ properties of DPSC in (8b–c)
(cf. Runner 2006 for a recent overview).9

9 The examples below are apparently also problematic, as the SC subject does not appear
to be trapped for scope ((ii) is taken from Johnson and Tomioka 1997).

(i) You’re allowed to consider no person guilty prior to the verdict \( \neg > \Diamond \# \Diamond > \neg \)
(ii) I don’t consider someone in England well-paid \( \exists > \neg (\# \neg > \exists) \)
(8) a. I consider {every politician / more politicians} corrupt {that you do / than you do}
   b. The DA proved them guilty during {each other’s / *the boys’} trials
   c. The DA proved none of them guilty during any of the trials

Finally, consider the treatment of (D37), viz. A'-extraction out of English highest-subject wh-constructions. Even though this is not made particulary prominent in MD, it is essential for the analysis that v-to-T movement (with v containing V) is taken to be overt in English – a markedly unorthodox view (though see Fox and Pesetsky (2005)). Unless v-to-T takes place overtly, T-to-C cannot extend phasehood up to CP in non-subject wh-constructions, which is critical for the account of why they constitute wh-islands. The assumption of v-to-T in English is also vital for the analysis of highest-subject wh-constructions, where T-to-C is supposed not to take place. Without v-to-T, the vP phase of the embedded clause would not be extended upward to TP, which then would determine vP (and not TP) to be a phase. Then a long-moving wh-phrase is required to stop over at EdgevP (rather than at EdgeTP) en route to the superordinate CP. This in turn makes the long-moving wh-phrase and the wh-subject in embedded SpecCP non-equidistant (cf. MD, p. 15).

More significantly, the account of highest-subject questions presented in MD does not straightforwardly extend to A'-extraction from singular highest-subject questions. As the account of highest-subject questions in MD is not geared specifically to multiple highest-subject questions illustrated in (D37b), ceteris paribus, it is expected that singular highest-subject questions will display the same degree of transparency to extraction as multiple highest-subject questions. This is known to be contrary to fact (see Chomsky 1977, 1986: 48ff); see (9) below. Indeed this very contrast is highlighted elsewhere by den Dikken (2006) (example (9b) = den Dikken’s (2006) (7c)).

(9) a. ??What does Kim wonder who bought?
   b. ??*These are the dialects that we want to find out who speaks to their neighbors

In fact, den Dikken’s (ibid.) treatment of (non)extractability from highest-subject wh-questions as a result of their focus structure is more appealing, and also more comprehensive than the one presented in MD.
To conclude, the three particular analyses reviewed here, innovative and insightful though they are, fail to be sufficiently convincing in their present form to serve as supporting evidence for the PEH. Taken together with the richness of the theoretical base and other conceptual issues commented on earlier in this section, it is fair to say that although MD is successful in establishing the PEH as a plausible hypothesis through the (re)-analysis of an impressive array of data (not commented on here), the thesis itself awaits more solid substantiation.

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