Head-detection, Phases, and the Complementarity of XP- v.s. X°-movement[*]

Hiroki Narita

Waseda University/Waseda Institute for Advanced Study (WIAS)

1. The Complementarity of XP- v.s. X°-movement

The nature of movement transformations in natural language has been one of the central topics in generative linguistics. Earlier theories of transformational grammar posit a number of language-specific and construction-specific movement operations, but the contemporary framework of bare phrase structure (see Chomsky 1995 *et seq.*) holds that the inventory of movement operations can be entirely reduced to a single operation of *internal Merge* (IM), an instance of Merge that takes two syntactic objects (SOs) one of which is part of the other. Now, roughly two varieties of movement/IM are attested in natural languages: movement of a phrase to a specifier position (XP-movement), and movement of a lexical item (LI) to the neighborhood of another LI (X°-movement). For illustration, the following example exhibits both XP-movement of a *wh*-phrase and also X°-movement of T.

(1)   [Which picture of John]$_i$ [$_T$ did]-C you t_T see t_i?

In this short article, I would like to establish, and discuss some consequences of, the following empirical generalization on IM:

(2)   The complementarity of XP- v.s. X°-movement:[1]

    a.   If a phrase headed by an LI H, HP, undergoes XP-movement, then H cannot undergo X°-movement stranding HP.

    b.   If a lexical item (LI) H undergoes X°-movement, then no phrase headed by H, HP, can undergo XP-movement.

For instance, XP-movement of a phrase headed by C is exemplified by (3a-d). CP-movement

is abundant in natural languages, but it seems that no language systematically exhibits X^o-movement of C, which conforms to the the generalization in (2a).

(3) $^{ok.}$CP-movement v.s. *C^o-movement:

a. [$_{CP}$ that John criticized Mary]$_i$, I believe t_i.

b. [$_{CP}$ whether John criticized Mary]$_i$, I wonder t_i.

c. [$_{CP}$ for John to take care of his mother]$_i$, I prefer t_i.

d. It is [$_{CP}$ C PRO to go home (every evening)]$_i$ that John prefers e_i.

e. *I [$_C$ if/that/...]-know (for sure) [t_C Mary was at that party yesterday]

f. *I [$_C$ for]-prefer [t_C John to take care of his mother].

In contrast, an ample variety of X^o-movement have been crosslinguistically observed for the category of T (auxiliary, tense, etc.). For example, one of the earliest studies of T^o-movement discusses auxiliary inversion of English interrogatives as exemplified in (4a) (Chomsky 1957). However, this and other languages systematically lack constructions involving TP-movement (hypothetical examples in (4b-g) involve topicalization of TP stranding C). Data concerning T thus provide a piece of evidence for (2b).

(4) $^{ok.}$$T^o$-movement v.s. *TP-movement:

a. [$_T$ will]-C John t_T come to the party tonight?

b. *[$_{TP}$ John will come to the party tonight]$_i$, I believe [that t_i].

c. *[$_{TP}$ John will come to the party tonight]$_i$, I wonder [if/whether t_i].

d. *[$_{TP}$ John to come to the party tonight]$_i$, I prefer for t_i.

e. *It is [$_{TP}$ t_j to come to the party tonight]$_i$ that John$_j$ seems e_i.

Another textbook example of X^o-movement is the incorporation of the verb-root (V) into the hypothesized 'categorizer' head v (we will discuss the status of v in relation to (2) in §5.). The pattern in (2b) can be observed here, too.

(5) $^{ok.}$$V^o$-movement v.s. *VP-movement:

a. I must [$_V$ give]-v [$_{VP}$ Mary t_V a book].

b. I must [$_V$ give]-v [$_{VP}$ a book t_V to Mary].

c. *[$_{VP}$ Mary t_V a book], I must [$_V$ give]-v t_{VP}.

d. *It's [$_{VP}$ Mary t_V a book] that I must [$_V$ give]-v t_{VP}.

e. *[$_{VP}$ t_V a book to Mary], I must [$_V$ give]-v t_{VP}.

  f. *It's [$_{VP}$ t_V a book to Mary] that I must [$_V$ give]-v t_{VP}.

If we further assume that the ECM construction involves raising of the infinitival subject to the VP-Spec position (Chomsky 2007, 2008, an analysis adapted from Postal 1974 and Lasnik and Saito 1991), then the impossibility of XP-movement of an ECM infinitival as in (6) lends further support to the absence of VP- and TP-movement.

(6) a. I would [$_V$ believe]-v [$_{VP}$ John t_V [$_{TP}$ to have criticized Mary]].

  b. *[$_{TP}$ to have criticized Mary]$_i$, I would John t_i.

  c. *It is [$_{TP}$ to have criticized Mary]$_i$ that I would believe [$_{VP}$ John e_i].

  d. *[$_{VP}$ John [$_{TP}$ to have criticized Mary]]$_i$, I believe t_i.

  e. *It is [$_{VP}$ John [$_{TP}$ to have criticized Mary]]$_i$ that I believe e_i.

A similar observation can be made for nominal phrases as well. Although the details of nominal-internal syntax remains unsettled, for the purpose of testing (2), it suffices to say that nominals typically XP-move, but no head (say noun or determiner) of a nominal phrase systematically undergoes X°-movement stranding other parts of the nominal phrase.[2] (7d-e) are from Japanese, whose nominal phrase is headed by an overt case particle K(ase) that never undergoes X°-movement by themselves.

(7) $^{ok.}$XP-movement v.s. *X°-movement in cases with nominals:

  a. [The/a/every/John's/... book on Wittgenstein]$_i$, I read t_i.

  b. *[Book]$_i$, I read [the/a/every/John's/... t_i on Wittgenstein].

  c. *[the/a/every/(John)'s/...]$_i$, I read [t_i book on Wittgenstein].

  d. [$_{KP}$ Mary o_K] John ga   eki   de t_{KP} tataita.
        Mary ACC John NOM station at   hit
      'Mary, John hit t at the station.'

  e. *[$_K$ o]   John ga   eki   de [Mary t_K] tataita.
        ACC John NOM station at Mary   hit
      'ACC, John hit Mary at the station.'

Finally, adpositions XP-move rather freely, but do not systematically X°-move by themselves, stranding their complements.

---

[2] The movement of clitics is often said to involve characteristics of XP- and X°-movement simultaneously. Note that the generalization in (2) does not exclude the possibility of such 'mixed' categories.

(8) $^{ok.}$PP-movement v.s. *P^o-movement:

   a.   [$_{PP}$ At/in/behind/... the station], John kissed Mary t_{PP}.

   b.   *John [$_P$ at/in/behind/...]-arrived [t_P the station].

   c.   [$_{PP}$ eki   de/nite/...$_P$] John ga t_{PP} Mary o   tataita.
        station at   John NOM   Mary ACC hit
     'At the station, John hit Mary t.'

   d.   *[$_P$ de/nite/...] John ga   [eki t_P] Mary o   tataita.
        at   John NOM station   Mary ACC hit
     'At, John hit Mary t station.'

The patterns exhibited in these examples seem systematic and overwhelming, and thus any theory of movement transformations should provide some account of the generalization in (2).

2.   A Reformulation of the Generalization under Phase Theory

Simply put, the data presented above show that T and V typically undergo X^o-movement, while C, P and *n* (or D/K, depending on the analysis of nominal syntax) typically head XP-movement. It is interesting to note that the former categories (T and V) correspond to the set of LIs that are referred to as *non-phase-heads* in the literature of *phase theory* (Chomsky 2004, 2007, 2008). Non-phase-heads are contrasted with *phase-head* categories like C, *v* and *n*, *i.e.*, elements that are supposed to determine their own computational cycles of derivation (*phases*). We may further follow Abels (2001) a.o. and assume that P, participating in XP-movement, also belongs to the class of phase-heads (see also Svenonius 2003, 2010 for a more articulated analysis of PP-phases). Then, an interesting picture emerges concerning the complementarity of X^o- and XP-movement: non-phase-head LIs can undergo X^o-movement but not XP-movement, while phase-head LIs can participate in XP- but not X^o-movement.[3]

Couched in terms of phase theory, then, we may alternatively characterize the complementarity of X^o- and XP-movement (2) as follows:

---

[3]   The impossibility of VP- and TP-movement is sometimes attributed to the so-called 'Anti-locality' condition, which amounts to a general ban on complement-to-spec movement: for example, Abels' (2001) analysis holds that Anti-locality precludes the interior/complement XP of a phase-head H from moving to the spec of the same head, and thus the XP cannot escape from the PIC effect on the H-phase. Although this analysis explains the impossibility of movement of the VP- or TP-interior of the *v*/C-phase, it does not rule out TP-movement in a *v*-phase of the form in (i), where TP-movement to *v*P-spec does not violate Anti-locality of any form:

(i)   [$_{vP}$ *v* ... [$_{VP}$ V ... TP ...] ...]

The data from ECM in (6) show that TP-movement is impossible even in this structure. Therefore, Anti-locality is not an appropriate account of the facts in (2)/(9). Note further that past formulations of Anti-locality were heavily dependent on the notion of labels/projection, which however might not have any place in the theory of bare phrase structure (see Collins 2002, Chomsky 2007, 2008, 2012 and Narita 2011a,b, forthcoming).

(9)   a.   Only phase-head LIs can induce XP-movement.

       b.   Non-phase-head LIs can only undergo X°-movement.

In what follows, I will present two (mutually compatible) analyses of (2) understood as (9). It will be shown that these analyses will lend support to some of the foundational assumptions of phase theory, and also to a particular characterization of endocentricity (headedness) in this framework.

3.   Hypothesis 1: Head-Detection Applying at the Phase Level

Merge is a recursively applicable set-formation operation, and it creates an infinite array of structured SOs that are to be handed to the Conceptual-Intentional (CI) and the Sensorimotor (SM) interfaces, SEM and PHON respectively. Since an SO is just a 'bare' set without any specification of order or labels (see Collins 2002, Chomsky 2007), there must be some procedure that determines what kind of object it is and how CI and SM can assign interpretation to it. For this matter, it is known that phrase structure of human language is 'endocentric'—the compositional interpretation of an SO is primarily determined by a single designated LI, the *head* of that SO (aspectual and θ-related properties of a verb phrase is determined by the head verb, etc.). Thus, an ineliminable part of the relevant procedure is what we may call *head-detection* (HD), a search algorithm that inspects each SO and detects the head of that SO.

Suppose now that we adopt the hypothesis of phase theory that linguistic derivation proceeds phase-by-phase, where each phase of a given derivation D is demarcated by phase-head LIs distributed over D (Chomsky 2000 *et seq.*). Then, the mode of HD-application should be designed in such a way that it does not interfere with the efficiency of cyclic derivation by phase. I will argue that there are at least two ways for HD to achieve this goal, and that the empirical generalization in (2)/(9) can be seen as a consequence of either of these 'computational tricks' adopted by HD.

The first approach, call it Hypothesis 1, speaks to Chomsky's (2007, 2008) idea that virtually all syntactic operations apply at the phase level, *i.e.*, when a phase-head is introduced into the derivation.[4] Some operations readily conform to this picture: for example, Transfer (the mapping of a phase to SEM and PHON) applies at the phase level. The deletion of unvalued features upon valuation (Agree) is presumably another instance of phase-level operations (see Epstein and Seely 2002, Richards 2007, Chomsky 2008). The null hypothesis then is that the same holds for the other operations, too. Chomsky (2010, 2012), Sorida (2011, in progress),

---

[4]   Presumably except instances of External Merge that construct the very phase in question.

and Narita (2011a:Ch.2) further provide various arguments for the view that applications of IM must apply at the phase level, too. Along this line of reasoning, Hypothesis 1 specifically maintains that the application of HD is also suspended until the very end of the phase level (see Ott 2011).

(10) HD applies at the end of phase-level computation.

According to (10), headedness is assigned to SOs only after they go through the phase-level computation. For example, given a C-phase of the form in (11), the SOs α and β are 'headless' internal to the computation of the C-phase. That is, α and β get headed by C and T, respectively, only after the C-phase is completed.

(11) $[_\alpha$ C $[_\beta$ nP [T vP]]]

Suppose that α completes its phase-internal computation and it is embedded into the next phase, say one with v. Thanks to HD applying at the v-phase level, the verb that takes α as its complement can 'know' that α is headed by C, and so it can establish proper selectional dependency with α. α may further undergo IM and other operations as well.

Note that after the C-phase in (11), no syntactic operation (IM, Agree, etc.) should apply to the elements internal to β. This is what is often referred to as the *Phase-Impenetrability Condition* (PIC).

(12) *Phase-Impenetrability Condition (PIC)* (adapted from Chomsky 2000:108):
      In a phase α with head H, the interior of H is not accessible to syntactic operations outside α. Only H and its edge are accessible to such operations.

Thus, β and any elements internal to β are invisible for further computation, unless they are dislocated (internally merged) to the edge of (11) at the C-phase level. What kind of SO can undergo such dislocation? Now, let us adopt the (rather conventional) hypothesis that only endocentric SOs can be subjected to IM.

(13) IM can only move SOs whose heads are determined by HD.

For instance, assuming that nP constitutes its own phase, HD applying at that phase has already determined that the subject nP in (11) is properly headed by n, and hence nP (say a *wh*-subject

whose mother) can be internally merged to the edge of C. Moreover, T is an LI and it counts as headed by itself, so T can also X°-move to the edge of C in conformity with (13) (as in T-to-C-movement). In contrast, since β is 'headless' internal to the C-phase-level computation, (13) predicts that β is not a legitimate object for movement within the C-phase. Then, movement of β to the edge of C is ruled out by (13), which accounts for the impossibility of TP-movement (recall (5)-(6)).

More generally, (13) predicts that SOs to be headed by non-phase-heads can never undergo XP-movement. These phrases are 'headless' when they are first introduced into a phase Σ. Even after HD determines their endocentricity at the end of phase Σ, the PIC further excludes later extraction of such SOs from within Σ. Therefore, the combination of (10), (12) and (13) yields a general ban on XP-movement of SOs headed by non-phase-heads. This explains the generalization in (2b)/(9b).

Can we extend this line of reasoning to account for the other half of the generalization in (2)/(9), namely the lack of X°-movement of phase-head LIs? I would like to propose that this can be done by positing a kind of A-over-A principle on IM (see Chomsky 1964).

(14) An element headed by an LI H cannot move out of a phrase headed by H.

Fukui (1999) is right in maintaining that the A-over-A principle as understood in (14) can be seen as a kind of minimality effect (Rizzi 1990 *et seq.*): the top-down probe-goal search of a category H always 'hits' the largest SO with the same head H as the closet goal (see Roberts forthcoming for exploration of a similar idea). To take (11) as a concrete example, upon the completion of the C-phase, HD determines that the head of α is C. Then, even though both α and C are visible for the next phase computation, X°-movement of C violates (14) because α has already get headed by C. The same logic should hold for other phases as well.

This completes the analysis of generalization (2)/(9) under Hypothesis 1 (= (10) + (12) + (13) + (14)): HD applies only at the very end of each phase cycle, and thus non-phase-heads can only X°-move by themselves whereas phase-heads always determine the phrase for later XP-movement.

4. Hypothesis 2: *{XP, YP} and Atomization by Transfer

Now we turn to Hypothesis 2, which also speaks to a particular characterization of HD, but in a somewhat different manner. As discussed above, HD is an ineliminable operation that inspects the internal composition of each SO and determines its head. Preferably, the search space of HD is minimized, if the principle of computational efficiency is of relevance

to linguistic derivation. Chomsky (2012, forthcoming) specifically argues that, in the best case scenario, HD can and should be reduced to top-down search of the structurally most prominent LI for each phrase (see also Narita 2011a,b, forthcoming). Let us refer to this particular version of HD as *Minimal Head Detection* (MHD):

(15) *Minimal Head Detection (MHD)*:
      The head of an SO Σ is the most prominent LI in Σ.

Essentially, the effect of MHD is that an SO Σ of the form {H, XP}, where H is an LI and XP a phrasal SO, H is the head of Σ. Adopt the perspective of the minimalist program (Chomsky 1995 *et seq.*), then, we are interested in evaluating MHD to see if this best case scenario is sustainable.

Note that MHD also makes the following prediction: MHD cannot determine headedness for any SOs that depart from the form of {H, XP}. A prototypical case is {XP, YP}, where both of the Merge-mates are phrasal SOs and hence no LI immediately stands as the most prominent. As long as headedness is a necessary condition for compositional interpretation, as we assume (see Chomsky forthcoming and Narita 2011a:§5.2, 2011b), this amounts to saying that {XP, YP} cannot be assigned compositional interpretation at SEM/PHON. Extending this line of reasoning, Hypothesis 2 maintains that any SOs of the form {XP, YP} are therefore ruled out by the principle of Full Interpretation: Let us call this condition *{XP, YP} (see Kayne 2011 for a similar hypothesis):

(16) *{XP, YP}*:
      SOs of the form {XP, YP} are ruled out.

At face value, this prediction seems to be contrary to the observation that instances of 'XP-YP structures' appear to be abundant in natural languages, and to be falsified by simple sentences like [[the man] [kissed the girl]]. Then, at first glance, the MHD-based conception of headedness seems unsustainable.

However, I argue that the problem of *{XP, YP} can be partially circumvented under a specific version of phase theory adapted from Chomsky (2004, 2008). Recall that phases are units of cyclic derivation, and that upon the completion of each phase cycle, the interior of the phase becomes invisible for later computations, the effect of the PIC (12). Chomsky (2004, 2008) specifically proposes that the PIC effect arises because the phase-interior subjected to Transfer is literally 'forgotten', *i.e.*, deleted from the active workspace. This means that, if a

phase headed by X takes YP as its interior, Transfer at the X-phase strips off all the structural information related to YP from narrow syntax, and subjects it to mappings to SEM and PHON. Exploring this 'deletion-by-interpretation' hypothesis, Narita (2011a, 2011b, forthcoming) further proposes that Transfer subjects to interpretation not only YP (and elements within it) but also all the syntactic relations established with regard to it, crucially including the information that YP was merged with X, forming {X, YP}. Thus, applying to a phase {X, YP}, Transfer leaves only the phase-head LI X for further computation. After Transfer, then, nothing precludes the remaining SO X from merging with some other ZP, forming {X, ZP}.

(17) {X, YP}   →   X   →   {X, ZP}

Note that while this derivation effectively achieves merger of the X-phase and ZP, it does not involve any step at which an SO of the form {XP, YP} is formed. Given these considerations, Hypothesis 2 maintains that a phase headed by X can still be merged with some other phrasal SO, circumventing *{XP, YP}, as long as it can be reduced ('atomized') to a bare LI X by Transfer.

(18) Transfer applying to a phase of the form {X, YP} effectively reduces it to an LI X.

Now, consider the effect of *{XP, YP} on the analysis of IM. In bare phrase structure, IM simply results from Merge taking two SOs one of which is contained within the other. Consider a case of internal merger of β to the edge of α, as schematized in (19).

(19) $[_\alpha \dots \beta \dots]$ → $\{\beta, [_\alpha \dots \beta \dots]\}$

Here, α contains an original occurrence of β, and the application of IM creates another occurrence of β to the edge of α, leaving the copy of β in its original position. How can such an application of IM comply with *{XP, YP}? Crucially, note that α here is by definition a phrasal SO, given the very fact that it contains an occurrence of another SO, namely β. Then, it follows from *{XP, YP} that the moving element, namely β, must always be an LI. Thus, any instance of IM must actually take the form in (20), where β is restricted to an LI (H). This conclusion can be stated as (21).

(20) $[_\alpha \dots H \dots]$ → $\{H, [_\alpha \dots H \dots]\}$
(21) Only LIs can undergo IM.

Prima facie, any instance of 'XP'-movement would seem to falsify (21). However, recall that apparent cases of XP-YP merger are still compliant with *{XP, YP}, as long as either one of the two XPs can constitute its own phase and can be reduced by cyclic Transfer to an LI. Then, if a phase headed by X are cyclically reduced to X, later extraction of X to the edge of ZP yields the derivation in (22), which accounts for cases of apparent XP-movement while conforming to *{XP, YP}:

(22) {X, YP} $\rightarrow$ X $\rightarrow$ [$_{ZP}$ ... X ...] $\rightarrow$ {X, [$_{ZP}$ ... X ...]}

Hypothesis 2 takes advantage of (21) for the analysis of the complementarity of XP- v.s. X^{o}-movement. Non-phase-heads like T and V simply conforms to (21): they just X^{o}-move but don't XP-move, as a consequence of the general ban on XP-movement. All apparent cases of XP-movement should be reanalyzed as involving the derivation of the form in (22). The availability of such a derivation is a privilege only of phase-head LIs, because, by definition, only phase-heads can execute cyclic Transfer. Therefore, when a phase-head LI X^{o}-moves, it always 'pied-pipes' its previously transferred interior for the purpose of SEM- and PHON-interpretation. Thus, the complementarity of XP- and X^{o}-movement is accounted for as a consequence of cyclic reduction of phases by Transfer.

This completes the analysis under Hypothesis 2 (= (15) +(24b) + (24c)). Note that this approach imposes a stronger condition on XP-movement: it is predicted that ph(r)ases that can be subjected to XP-movement always takes the form of {X, YP}, and thus XP-movement cannot 'pied-pipe' any specifier of X. However, this may not be an unreasonable conclusion, for the current status of the concept of specifier in the framework of bare phrase structure is as unwarranted as that of labels/projection, so there may be no notion of specifier in the first place (Chomsky 2012). See Narita (2011a) for exploration of specifier-free syntax along the line with Hypothesis 2.

To review, I presented two possible analyses of the complementarity of XP- v.s. X^{o}-movement, which can be summarized as follows.

(23) Hypothesis 1:
   a. HD applies at the end of phase-level computation.
   b. IM can only move SOs whose heads are determined by HD.
   c. In a phase α with head H, the interior of H is not accessible to syntactic operations outside α. Only H and its edge are accessible to such operations (the PIC).

      d.   An element headed by an LI H cannot move out of a phrase headed by H (the A-over-A principle).

(24) Hypothesis 2:

      a.   HD reduces to MHD, which always singles out the most prominent LI in an SO Σ as the head of Σ.

      b.   SOs of the form {XP, YP} are ruled out (*{XP, YP}).

      c.   Transfer applying to a phase of the form {X, YP} effectively reduces it to an LI X (yielding the effect of the PIC).

In order to evaluate these two approaches, and we need to critically scrutinize the ground of the assumptions listed in (23)-(24). I will deliberately leave the choice between them open for future research (see Narita 2011a,b for some related discussion), but note that these two sets of assumptions are mutually compatible, so future exploration may either tease apart or rather unify these two sets of assumptions. Further, I would like to also note that both approaches crucially speak to the notion of HD and its efficient application in the system of phase theory. Therefore, we may regard the data discussed in this paper as constituting an interesting piece of evidence for phase theory, and also for the HD-based conception of endocentricity.

5.   Appendix: A Brief Remark on the Phasehood of *v*P

    Before closing the discussion, let us briefly turn to the phase/non-phase status of *v*P. The existence of *v*P-movement is attested in English and many other languages.

(25) [$_{vP}$ criticize Mary]$_i$ John did t_i (yesterday).

Our theory of XP-movement attributes the ample existence of *v*P-fronting to the rather standard assumption that *v* is a phase head (Chomsky 2000 *et seq.*). Then, it is expected that this category can induce only XP-movement but not X°-movement, as long as our generalization in (2)/(9) is on the right track. However, it is known that languages differ in whether (and in which environment) *v* is to undergo X°-movement. For example, the word-order difference between French and English as in (26)-(27) is often attributed to the parametric variation that only v° in French (not English) raises to T skipping Neg/adverbs at the *v*P-edge (Pollock 1989 a.o.).

(26) a.   Jean (n') [$_{T^{\circ}}$ aime] pas $t_{v^{\circ}}$ Marie.

      b. *John [$_{T^{\circ}}$ likes] not $t_{v^{\circ}}$ Mary.

(27) a.   Jean (*souvent) [$_{T^{\circ}}$ embrasse] (souvent) $t_{v^{\circ}}$ Mari.

b.   John T^o (often) [$_{v^o}$ kisses] (*often) Mary.

If we are right in assuming that XP-movement and X^o-movement of a category H is complementary and that the existence of H^o-movement signals the non-phasehood of HP, then it follows that v cannot be a phase-head in French and other languages exhibiting v^o-movement.

     This hypothesis yields the following prediction:

(28)   If X^o-movement applies (or is applicable) to v^o in a derivation D, then vP does not constitute a phase and it is immune to the PIC in D.[5]

I argue that two pieces of data provide evidence for (28). The first set of data have to do with Takano's (2000) observation on illicit vP-fronting. Takano observes that even in languages where vP-fronting is available, movement of vP becomes impossible if v^o has moved out of vP (see note 1). For illustration, the following data from German show that vP-topicalization is possible in German only when verb-second is achieved by auxiliary-fronting and the verb can remain within the moving vP:

(29) a.   [$_{vP}$ dem Peter t_i gegeben-v^o] hat die Claudia *das Buch$_i$* t_{vP}
         the   Peter   given   has the Claudia the book
    'Claudia gave Peter the book.'

    b.   *[$_{vP}$ Ihr ein Buch t_v] gab$_{v^o}$-C Hans t_{vP}.
         her a   book   gave   Hans
    'Hans gave her a book.'

Our theory can provide a natural account of this fact: both Hypotheses 1 and 2 hold that vP-fronting is contingent on the phasehood of vP. However, v cannot undergo X^o-movement if vP is a phase, either because the A-over-A principle (14) precludes v from moving out of vP (Hypothesis 1), or because Transfer renders v hooked up with its VP-interior (Hypothesis 2). Thus, derivations with v^o-movement are only compatible with a non-phase-head v, accounting for the ill-formedness of (29b).

     Moreover, facts about long-distance agreement provide another piece of evidence in favor of (28). (28) predicts that long-distance agreement into vP is possible in languages with v^o-movement (see Gallego 2010):

---

[5]   We may alternatively characterize the state of affairs by saying that vP can only be a 'weak' phase in the sense of Chomsky (2001).

(30)   . . . T . . . [$_{vP}$ $t_{v°}$ [. . . NOM . . .]]

　　　　　　　　　　　　　　　　　　　　Agree into the vP-phase possible

[V-v°]
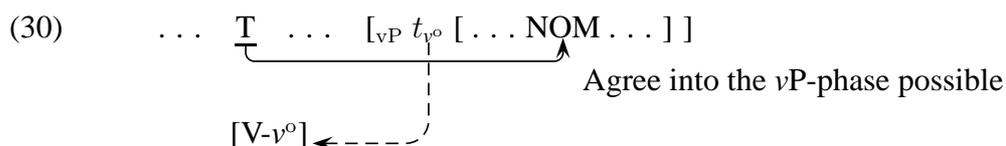
I argue that this prediction is corroborated by the so-called *quirky agreement* phenomenon, where the in-situ nominative object within vP can apparently induce φ-feature agreement with T. The following is one of textbook examples of quirky agreement from Icelandic dative subject constructions.

(31) Henni　leiddust　strákarnir/þeir.
　　　her-DAT bored-3PL the-boys-NOM/they-NOM
　　　'The boys/They bore the girl.'

Icelandic exhibits verb-second, and v systematically X°-moves to C in this language. Thus, the availability of long-distance quirky agreement into vP conforms to the schema in (30). Gallego (2010) also claims that quirky agreement can be observed in Romance languages exhibiting v°-movement to T, too, providing examples like the following (see, *e.g.*, Suñer (1994) for obligatory V-to-T raising in Spanish).

(32) a Scorsese le　　　　gustan　las tramas mafiosas.
　　　to Scorsese CL-to-him like-3PL the plots　mafia
　　　'Scorsese likes plots about the mafia.'

Interestingly, it seems that quirky agreement remains unattested in languages like English that exhibit no systematic v°-movement. These facts readily lend support to the prediction in (28).

References

Abels, Klaus. 2001. Successive cyclicity, anti-locality, and adposition-stranding. Doctoral Dissertation, University of Connecticut, Storrs.

Chomsky, Noam. 1957. *Syntactic structures*. The Hague: Mouton. 2nd edition, (2002).

Chomsky, Noam. 1964. *Current issues in linguistic theory*. The Hague: Mouton.

Chomsky, Noam. 1995. *The minimalist program*. Cambridge, MA: MIT Press.

Chomsky, Noam. 2000. Minimalist inquiries: the framework. In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, ed. Roger Martin, David Michaels, and Juan Uriagereka, 89–155. Cambridge, MA: MIT Press.

Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.

Chomsky, Noam. 2004. Beyond explanatory adequacy. In *Structures and beyond: The cartography of syntactic structures*, ed. Adriana Belletti, volume 3, 104–131. New York: Oxford University Press.

Chomsky, Noam. 2007. Approaching UG from below. In *Interfaces + recursion = language? Chomsky's minimalism and the view from semantics*, ed. U. Sauerland and H.-M. Gärtner, 1 –29. Berlin and New York: Mouton de Gruyter.

Chomsky, Noam. 2008. On phases. In *Foundational issues in linguistic theory*, ed. Robert Freidin, Carlos Otero, and Maria Luisa Zubizarreta, 133–166. Cambridge, MA: MIT Press.

Chomsky, Noam. 2010. Restricting stipulations: Consequences and challenges. Talk given at the University of Stuttgart, March 24.

Chomsky, Noam. 2012. Introduction. In Noam Chomsky, trans. and ed. by Naoki Fukui, *Gengokisoronshu* [*Foundations of biolinguistics: Selected writings*], pp.17-26, Iwanami Shoten.

Chomsky, Noam. forthcoming. Problems of projection. To appear in *Lingua*.

Collins, Chris. 2002. Eliminating labels. In *Derivation and explanation in the minimalist program*, ed. Samuel David Epstein and T. Daniel Seely, 42–64. Oxford: Blackwell.

Epstein, Samuel David, and T. Daniel Seely. 2002. Rule applications as cycles in a level-free syntax. In *Derivation and explanation in the minimalist program*, ed. Samuel D. Epstein and T. Daniel Seely, 65–89. Oxford: Blackwell.

Fukui, Naoki. 1999. An A-over-A perspective on locality. In *Linguistics: In search of the human mind - A festschrift for Kazuko Inoue*, ed. M. Muraki and E. Iwamoto, 109–127. Tokyo: Kaitakusha.

Gallego, Ángel J. 2010. *Phase theory*. Amsterdam: John Benjamins.

Kayne, Richard S. 2011. Why are there no directionality parameters? In *Proceedings of WCCFL 28*, ed. Mary Byram Washburn, Katherine McKinney-Bock, Erika Varis, Ann Sawyer, and Barbara Tomaszewicz, 1–23. Somerville, MA.: Cascadilla Proceedings Project.

Lasnik, Howard, and Mamoru Saito. 1991. On the subject of infinitives. In *Papers from the 27th regional meeting of Chicago Linguistic Society 1991. Part 1: The General Session*, ed. L. K. Dobrin, L. Nichols, and R. M. Rodriguez, 324–343. Chicago, IL: Chicago Linguistics Society. Reprinted in H. Lasnik (1999), Minimalist Analysis, Blackwell.

Narita, Hiroki. 2011a. Phasing in Full Interpretation. Doctoral Dissertation, Harvard University (Downloadable at *http://ling.auf.net/lingBuzz/001304*).

Narita, Hiroki. 2011b. Remarks on the nature of headedness and compositionality in bare phrase structure. To appear in *Proceedings of Sophia University Linguistic Society 26*.

Narita, Hiroki. forthcoming. Phase cycles in service of projection-free syntax. In *Phases: developing the framework*, ed. Ángel J. Gallego. Mouton de Gruyter.

Narita, Hiroki. to appear. *{XP, YP}, the independence of the LCA and antisymmetry, and the LCA-free phase-based account of the CED effect. To appear in Balazs Suranyi, ed., *Minimalist Approaches to Syntactic Locality*.

Ott, Dennis. 2011. Local instability. Doctoral Dissertation, Harvard University. Published online at *http://irs.ub.rug.nl/dbi/4e8027471fa04*, *GAGL (Groninger Arbeiten zur germanistischen Linguistik)*.

Pollock, Jean-Yves. 1989. Verb movement, universal grammar and the structure of IP. *Linguistic Inquiry* 20:365–424.

Postal, Paul M. 1974. *On raising: one rule of English grammar and its theoretical implications*. Cambridge, MA: MIT Press.

Richards, Marc D. 2007. On feature inheritance: An argument from the phase impenetrability condition. *Linguistic Inquiry* 38:563–572.

Rizzi, Luigi. 1990. *Relativized minimality*. Cambridge, MA: MIT Press.

Roberts, Ian. forthcoming. *Agreement and head movement: Clitics, incorporation, and defective goals*. Cambridge, MA: MIT Press.

Sorida, Masanobu. 2011. Phases and the A/A' problem of Japanese scrambling. To appear in *Proceedings of Sophia University Linguistic Society 26*.

Sorida, Masanobu. in progress. Inclusiveness: Its implications for chain formation. Doctoral Dissertation, Sophia University, Tokyo.

Suñer, Margarita. 1994. V-movement and the licensing of argumental Wh-phrases in Spanish. *Natural Language and Linguistic Theory* 12:335–372.

Svenonius, Peter. 2003. Limits on P: Filling in holes vs. falling in holes. *Nordlyd. Proceedings of the 19th Scandinavian Conference of Linguistics* 31:431–445.

Svenonius, Peter. 2010. Spatial P in English. In *Mapping spatial PPs: The cartography of syntactic structures, Vol.6*, ed. Guglielmo Cinque and Luigi Rizzi, 127–161. New York: Oxford University Press.

Takano, Yuji. 2000. Illicit remnant movement. *Linguistic Inquiry* 31:141–156.