Notes on phase extension

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1 The ingredients of locality

Since the early 1960s, one of the major goals of work in generative syntax has been to explain the locality properties of syntactic dependencies. Current accounts in the Minimalist framework derive locality from two basic notions. First, the syntactic relations that give rise to agreement and displacement are subjected to the *Minimal Link Condition*, which stipulates that such relations can obtain only in the absence of relevant intevening elements.

(1) *Minimal Link Condition (MLC)*
No relation may be established between X and Z in the configuration
X . . . [. . . Y . . . Z . . .] if

a. such a relation could be established between X and Y; and

b. Y asymmetrically c-commands Z.

The second ingredient of locality in current Minimalism comes from the idea that syntactic derivations are taken to be divided into distinct *phases*, at the projection of certain categories, usually assumed to be v and C. At the conclusion of a phase, the structure that has been derived during that phase is encapsulated so subsequent syntactic operations have only limited access to material from earlier phases. Specifically, according to the Phase Impenetrability Condition (PIC) of Chomsky (2000), any computation that occurs during a higher phase P2 can access only the head of a phase P1 within it or material at P1's edge. The PIC thereby serves to strengthen the MLC, as it serves to rule out the establishment of dependencies between elements in distinct phases even in the absence of relevant interveners.[1]

The phenomenon of Predicate Inversion (PI) raises an obstacle for this approach to locality. In the copular sentence (2a), the small clause subject raises to SpecTP, while in the inverse copular construction (2b), we see an instance of PI: the predicate raises past its subject.

(2) a. [The president]$_i$ is [$_\Phi$ t_i [the cause of the war]]

b. [The cause of the war]$_i$ is [$_\Phi$ [the president] t_i]

[1] There is nonetheless considerable redundancy between the role of the MLC and PIC in constraining syntactic movement (see Frank (2006) for discussion), raising the question of whether one condition might be derived from the other. Morever, since adjoining to the phase is typically free, at least in theories with rigid notions of phase, PIC effects can often be overcome. Things may change when Phase Extension is combined with den Dikken's proposed constraint against adjunction to "meaningless categories."

It is worth noting, however, that den Dikken's notion of "meaningless" category needs to be clarified. What den Dikken wants to rule out is adjunction to a phrase whose head has no semantic content. Such a phrase will not itself be meaningless, of course, if its specifier or complements contains other material. In the strictest sense, this prohibition would simply block adjunction to the meaningless head, but den Dikken makes crucial use of such adjunctions in his derivation of Predicate Inversion (cf. the derivation depicted in (3) below.

The MLC alone should block movement of the predicate, as the subject intervenes between T and the predicate. Moreover, if the small clause domain, labeled Φ above, constitutes a phase, as seems plausible, the PIC dictates that the predicate will be inaccessible to T, as it does not lie on the edge of Φ. In contrast, movement of the subject is permitted by the PIC, as the subject does appear at the edge of Φ.

Den Dikken's stimulating paper is built around an attempt to reconcile the Minimalist approach to locality sketched above with the existence of Predicate Inversion (PI). To do this, he crucally exploits two pieces of machinery. The first of these is a novel conception of phase, rooted in the notion of predication. For den Dikken, the phasal status of a (predication) structure is not however fixed: when the head of a phase is adjoined to a higher head, the phase is extended to the projection of the higher head.[2] Applying this idea to a case like (2b), this theory leads us to conclude that the small clause (which den Dikken takes to be the projection of a RELATOR head) is a phase. If this RELATOR head is moved upwards to adjoin to a higher functional head F, the phase is extended correspondingly upward to include the projection of F.

(3) $[_{\Phi}$ F+RELATOR$_i$ $[_{\Phi}$[the president] t_i [the cause of the war]]

Under the assumption that movement to SpecTP can proceed through the SpecFP, the PIC will no longer blocks movement of the predicate: movement of the predicate to SpecFP remains within the FP phase, and subsequent movement to SpecTP proceeds from this phase's edge. Having overcome the PIC nonetheless leaves the effects of the MLC intact: the subject of the small clause continues to intervene between F and the small clause predicate, and we therefore should expect it to block movement. To resolve this conundrum, den Dikken crucially exploits a second bit of machinery: a relaxation to the MLC (following Chomsky (1995)):

(4) *Minimal Link Condition (den Dikken's version)*
No syntactic relation may be established between X and Z in the configuration
X . . . [. . . Y . . . Z . . .] if

a. such a relation could be established between X and Y;

b. Y asymmetrically c-commands Z; and

c. Y is not in the same minimal domain as either X or Z.

[2] One might object to the mechanism of phase extension on the grounds that it permits a phase to grow ever larger, so long as head movement continues in its upward path. As a result, there is no upper bound on the size of a phase. This is an apparently unfortunate consequence if we take seriously Chomsky's suggestion that phase-based derivations are motivated by the need to limit the amount of structure to which the derivational computation must attend (e.g., in looking ahead to determine convergence for the purposes of economy comparisons). (I say "apparently" here, since it remains obscure what the relevant measure of computational load should be.) There is a simple reply to this objection: as a factual matter, head movement is not unbounded, and therefore unbounded phases will never arise through phase extension. Nonetheless, this leaves us without an explanation of why head movement should be constrained as it is, to remain with the confines of a single extended projection. Note incidentally that the situation here is not qualitatively different from the one occurring with Chomsky's proposal to delimit phases rigidly at vP and CP: in that context as well, we can establish no bound on the structural extent of phase. Specifically, in raising structures, no vP or CP boundaries intervene between the base and surface position of the raised DP, and thus that (unbounded) dependency will remain within a single phase.

(i) $[_{\mathrm{TP}}$ There T $[_{\mathrm{VP}}$ appear $[_{\mathrm{TP}} \ldots [_{\mathrm{VP}} \ldots [_{\mathrm{TP}}\ t$ to be several crooks in the Senate]]]]]

In fact, such unbounded phases appear to be necessary under both den Dikken's and Chomsky's conceptions, if matrix T is to be able to probe a DP in the embedded clause to check it's φ-features, thereby raising another apparent conflict with the desire to minimize computational load. This raises the question of whether there might be some way to deal with the positing of truly long-distance agreement relations so that phases could be bounded even in such cases. See Frank (2006) for one proposal to this effect.

This condition tolerates the establishment of relations past an intervening element so long as the intervener is "close enough" to one of the related elements, more specifically so long as it is in the same minimal domain as either the attractee or the landing site. The notion of minimal domain invoked here is drawn from Chomsky (1995):

(5) a. The *domain* $\delta(\alpha)$ contains all categories that are dominated by the smallest maximal projection dominating α and which do not contain α.

b. The minimal domain $\delta_{\text{MIN}}(\alpha)$ is the smallest subset K of $\delta(\alpha)$ such that for all $\gamma \in \delta(\alpha)$, there is some $\beta \in$K which reflexively dominates γ.

According to these definitions, the minimal domain of a head H will includes all of the head's phrasal satellites (i.e., complements, specifiers and adjuncts) that appear within H's maximal projection. As a result, the subject and predicate of the small clause, being the RELATOR's specifier and complement, respectively, are within the same minimal domain, namely $\delta_{\text{MIN}}(\text{RELATOR})$. Consequently, this revised version of the minimality condition does not impede movement of the predicate to the SpecFP.

The discussion of copular constructions is just the tip of the iceberg that is den Dikken's paper: it is a tour de force, arguing in case after case how an instance of (often abstract) head movement renders possible instances of movement that would otherwise be ruled out by the combination of the PIC and MLC, just as phase extension leads us to expect. Additionally, den Dikken discusses cases where phase extension has the effect of restricting movement: a phrase which would have been on the edge of a phase is rendered inaccessible under the PIC once that phase has been extended. This linkage between head movement and locality is quite novel, surprising, and extremely tantalizing.

In the remainder of this note, I will do three things: first, I will sketch out another domain that seems to provide evidence in favor of phase extension, namely cross-linguistic variation in Superiority effects. After that however, I will outline a class of puzzles that a number of den Dikken's analyses bring up, and that need to be solved if phase extension is not to be seen as overly permissive. Then, I will argue that, however appealing the use of phase extension is in account for certain scopal asymmetries, the analysis den Dikken gives is incompatible with a broader range of data.

2 Phase extension and superiority

An empirical domain which den Dikken does not explore, but which appears to be amenable to the same line of analysis as his cases, is the presence and absence of Superiority effects cross-linguistically. Consider first how we might analyze the English pattern, where an object wh-phrase cannot move across a subject wh-phrase. As den Dikken discusses, object wh-phrases must move to adjoin to the vP phase boundary on their way to SpecCP. This is possible, assuming that it is driven through the establishment of an AGREE relation between v and the object wh-phrase, since the subject wh-phrase is not c-commanded by v.

(6) [$_{v\text{P}}$ what$_i$ who v [$_{\text{VP}}$ said t_i]]

The derivation proceeds by merging T, which attracts the subject wh-phrase to its specifier, and then merging C.

(7) [$_{\text{CP}}$ C [$_{\text{TP}}$ who$_j$ T [$_{v\text{P}(\Phi)}$ what$_i$ t_j v [$_{\text{VP}}$ said t_i]]]]

At this point, C probes for a wh-element. Since *what* adjoined to vP and *who* in specTP do not reside in the same minimal domain, it appears that condition (4) permits only *who* to enter into a relation with C.

There is however one small hitch with this picture. In matrix questions at least, interrogative C also attracts T, yielding:

(8) [$_{\text{CP}}$ C+T$_k$ [$_{\text{TP}}$ who$_j$ t_k [$_{v\text{P}(\Phi)}$ what$_i$ t_j v [$_{\text{VP}}$ said t_i]]]]

For independent reasons, den Dikken (following Chomsky (1995)) suggests that minimal domains are also altered in the course of head movement. Specifically, he proposes:

(9) The minimal domain $\delta_{\text{MIN}}(\text{CH})$ of a chain resulting from head adjunction of α to β is $\delta_{\text{MIN}}(\alpha) \cup \delta_{\text{MIN}}(\beta)$.

Under this definition, the adjunction of T to C gives rise to a minimal domain equal to $\delta_{\text{MIN}}(\text{C}) \cup \delta_{\text{MIN}}(\text{T})$ = {SpecCP, TP, SpecTP, *v*P}. This means the subject in SpecTP and the landing site of wh-movement in SpecCP are in the same minimal domain (of the T chain). As a result, the condition in (4) no longer prohibits the movement of the object wh-phrase to SpecCP. To prevent this unfortunate consequence, I propose to modify part c of the revised MLC in (4) as follows:

(10) *Minimal Link Condition (proposed revision)*
No relation may be established between X and Z in the configuration
X . . . [. . . Y . . . Z . . .] if

a. such a relation could be established between X and Y;

b. Y asymmetrically c-commands Z; and

c. Y is not the same minimal domain as Z.

This modification renders irrelevant the fact that SpecTP and SpecCP are in the same minimal domain: only potential goals of a probe-goal relation are compared under this condition.

Now consider what happens in the face of a language with movement of V to C. One immediate consequence of such head movement is the extension of the phase to the CP level. If we assume that intermediate adjunction targets only the phase level, as den Dikken appears to, this means that object wh-phrases will never move via adjunction to *v*P (or TP). Now, what becomes of an object wh-phrase in the presence of a subject wh-phrase? This depends upon what elements are in the object's minimal domain. Under (9), adjunction of V to v yields a chain whose minimal domain is {CompVP, VP, Spec*v*P}. The next stage of head movement produces a chain arising from the adjunction of *v*+V to T. It is not completely clear what the minimal domain of this chain should be, because of imprecision in the definition of chain. One possibility is that it is simply $\delta_{\text{MIN}}(v) \cup \delta_{\text{MIN}}(\text{T})$, that is, {SpecTP, *v*P, Spec*v*P, VP}. However, this ignores the effect of the adjunction of V to v prior to raising to T. Suppose instead that we assume the following definition of minimal domains of complex heads, which takes this factor into account:

(11) The minimal domain $\delta_{\text{MIN}}(\alpha + \beta)$ of a complex head $\alpha + \beta$ is $\delta_{\text{MIN}}(\alpha) \cup \delta_{\text{MIN}}(\beta)$.

For one step of head movement, this definition and the one given in (9) yield the same results. However for iterated head movement, they give distinct answers. Specifically:

(12) a. $\delta_{\text{MIN}}(v\text{+V}) = \delta_{\text{MIN}}(v) \cup \delta_{\text{MIN}}(\text{V})$ = {Spec*v*P, VP, CompVP}

b. $\delta_{\text{MIN}}(\text{T+}v\text{+V}) = \delta_{\text{MIN}}(\text{T}) \cup \delta_{\text{MIN}}(v\text{+V})$ = {SpecTP, *v*P, CompVP, Spec*v*P, VP}

c. $\delta_{\text{MIN}}(\text{C+T+}v\text{+V}) = \delta_{\text{MIN}}(\text{C}) \cup \delta_{\text{MIN}}(\text{T+}v\text{+V})$ = {SpecCP, TP, SpecTP, *v*P, CompVP, Spec*v*P, VP}

As can be seen, iterated head movement has the effect of producing a minimal domain that is as large as the domain of which head movement takes place. Because head movement also drives the extension of phases, this means that every phrase within a phase is within the same minimal domain, and therefore is equally accessible to movement within the phase. (Outside of the phase, the PIC will continue to constrain movement.) Notice though that head movement within a phase will continue to be required

to be strictly local: it is only through the movement of one head to a higher head that the minimal domain can be expanded, but by this point, the local head movement will have already taken place.

Under this set of assumptions, then, we should expect to see a correlation between languages showing verb movement to C and lack of superiority effects. And indeed we find that in Spanish and German, languages showing such verb movement do fail to evidence superiority effects (Jaeggli 1982, Haider 1983, Büring and Hartmann 1994, Bošković 1997, Heck and Müller 2000):

(13) a. Quién dijo gué?
who said what
'Who said what?'

b. Qué dijo quién?
what said who

(14) a. Wer hat wen getroffen?
who has whom met
'Who met whom?'

b. Wen hat wer getroffen?
whom has who met

As the references just cited point out, the empirical landscape in both these languages differs drammatically when the higher wh-phrase is in a different clause from the lower one. In such cases, Superiority violations once again rear their heads:

(15) a. Quién dijo que Juan compra qué?
Who said that Juan bought what
'Who said that Juan bought what?'

b. ?*Qué dijo quién que Juan compra?
what said who that Juan bought?

(16) a. Wer hat gesagt, dass Maria wen liebt?
who has said that Maria whom loves
'Who said that Maria loves whom?'

b. *Wen hat wer gesagt, dass Maria liebt?
whom has who said that Maria loves

The line of analysis I am proposing here predicts just this pattern. Assuming that the verb in the Spanish and German embedded clause raises as high as T, this means that the lower phase extends as far as TP. It is therefore to TP that the object wh-phrase will adjoin. In the Spanish matrix clause, we see raising of the lexical verb to C, thereby implicating the extension of the phase to that level. As den Dikken points out, this means that there will be no intermediate adjunction of the wh-phrase to *v*P. Note, however, that even the expanded minimal domain brought about by verb movement in the matrix clause will not include the lower wh-phrase within CP. As a result, the lower wh-phrase, in spite of being accessible at the edge of the lower phase is blocked by the MLC. The German case works slightly differently, since it is the auxiliary verb that raises to C. If the auxiliary is generated in a V head between the lexical verb and *v* or in the head of *v*, its raising to C will induce the same result of having a single CP phase in the matrix clause.

It is important to note that this line of analysis does not go through under a rigid conception of phases where *v*P and CP are fixed as phases. In that context, the embedded wh-phrase can move successive cyclically from embedded Spec*v*P to SpecCP to matrix Spec*v*P to SpecCP. Each instance of movement from Spec*v*P to SpecCP is licensed by the minimal domain produced by raising of *v* to

T, inside of which fall both the subject and adjoined object wh-phrases. Movement from SpecCP to Spec$v$P is possible as before, since the subject in SpecTP does not intervene between v and SpecCP. Therefore, if the correlation between verb raising and lack of local Superiority effects holds up, it therefore provides novel evidence in favor of phase extension.

3 Forcing PI

As we have seen, the combination of phase extension and the establishment of extended minimal domains allows for PI derivations. In both of the cases I have reviewed here, namely copular constructions and multiple wh-questions, the PI derivation is possible alongside of the one in which the predicate is left in place and the subject is moved instead, and in both of these cases, this accords with the facts. However, this is not the empirical situation for all of the cases den Dikken discusses.

Consider for instance den Dikken's proposed analysis of dative shift. In this case, the base structure is assumed to be as follows:

(17) $[_{\text{RP}}\ \text{DP}_{\text{DO}}\ \textsc{relator}{=}\emptyset\ [_{\text{PP}}\ \text{P}{=}\emptyset\ \text{DP}_{\text{IO}}\ ]]$

Here, den Dikken envisions two possible derivations of the surface IO-DO word order. The first of these runs much like the copular construction discussed earlier: the head of the RP phase adjoins to a higher F head, simultaneously extending the phase to FP and creating a minimal domain including the DO and PP (which itself includes the IO). As before, the predicate (here the PP) is free to move to SpecFP. In the second derivation, den Dikken assumes that the null P undergoes adjunction to the null RELATOR in order to satisfy a morphological licensing requirement.[3] This adjunction is assumed to have the consequence of making the features of P visible outside of the RP phase in accordance with PIC, as they are now present on the head of RP, and den Dikken makes the further non-trivial assumption that visibility of P's features outside of the phase extends to the PP projection as well. The adjunction of P to the RELATOR head also has the effect of creating a single minimal domain including both the DO and IO, that of the P chain (or RELATOR-P complex, following the definition in (11)). Putting all of this together yields the result that a head F outside of RP can now attract the PP remnant to its specifier without running afowl of either the PIC or MLC.

(18) a. adjunction of P to RELATOR:
$[_{\text{RP}}\ \text{DP}_{\text{DO}}\ \textsc{relator}{=}\emptyset{+}\text{P}{=}\emptyset_i\ [_{\text{PP}}\ t_i\ \text{DP}_{\text{IO}}\ ]]$

b. movement of PP remnant to SpecFP:
$[_{\text{FP}}\ [_{\text{PP}}\ t_i\ \text{DP}_{\text{IO}}\ ]_j\ \text{F}\ [_{\text{RP}}\ \text{DP}_{\text{DO}}\ \textsc{relator}{=}\emptyset{+}\text{P}{=}\emptyset_i\ t_j\ ]]$

In both of these derivations, we see head movement, whether of the RELATOR or of the null P, enabling PI movement. However, there is nothing about the head movement, so far as I can tell, which requires the PI movement to take place. Instead, either of these derivations would run perfectly well if, following head movement, it was the DO that raised to SpecFP. Yet such movement must be blocked if we are to rule out the illicit DO-IO order from surfacing.

(19) a. I gave $[_{\text{FP}}\ \text{DP}_{\text{DO}j}\ \text{F}{+}\textsc{relator}_i\ [_{\text{RP}}\ t_j\ t_i\ [_{\text{PP}}\ \text{P}\ \text{DP}_{\text{IO}}]]]$

b. I gave $[_{\text{FP}}\ \text{DP}_{\text{DO}j}\ \text{F}\ [_{\text{RP}}\ t_j\ \textsc{relator}{+}\text{P}_i\ [_{\text{PP}}\ t_i\ \text{DP}_{\text{IO}}]]]$

One might try to tie the ill-formedness of such derivations to the impossibility of checking features on the unraised IO. Suppose for instance that the IO needed to have features checked by some head outside of FP in (19a). In that case, it would be unable to do so since it is buried within the FP phase

[3] I must admit a certain degree of skepticism that a null head's need to be morphologically licensed may be met by adjunction to a null head, but may not be met by adjunction to an overt counterpart of the same head, as den Dikken assumes.

and inaccessible by the PIC. Note however that in (19b), the adjunction of P to the RELATOR renders the PP containing the IO (as well as the DO of course) visible outside of the RP phase. Thus, for at least the latter case, it is hard to argue that the derivation fails because of the impossibility of feature checking.

A similar puzzle arises in the context of den Dikken's analysis of object shift. He argues that the raising of the object is licensed by the raising of the v-V complex to some higher head X for by now familiar reasons of phase extension/expansion of the minimal domain.

(20) $[_{\text{XP}}$ OBJ$_k$ X+$[v$+V$_i]_j$ $[_{v\text{P}}$ SUBJ t_j $[_{\text{VP}}$ t_i t_k $]]]$

Next, T merges with this structure, and attracts X-v-V, extending the phase still further to the TP level. Den Dikken observes that such movement is necessary to avoid the subject falling prey to PIC, being trapped within the XP phase unable to move to SpecTP. However, once T raises, it is not clear what forces the subject as opposed to the object to raise to TP, yielding an O-V-S ordering. Now while this word order is grammatical in Swedish main clauses, it seems likely that it involves verb movement to C and movement of the object to SpecCP, given its incompatibility with embedded contexts. Again, feature checking cannot be at issue in ruling out this illicit movement, as SUBJ and OBJ are accessible to all of the heads within the TP phase, under the PIC and MLC.[4]

A third, and entirely parallel, puzzle arises in den Dikken's PI-based treatment of possessive DPs. He takes the possessive to constitute a predicate that takes its associated NP as its subject. As elsewhere, a RELATOR head mediates this subject-predicate relation, and this head is taken to raise out of the RP phase, adjoining to D, thereby extending the phase as before. This head movement thereby licenses the movement of the possessor to SpecDP:

(21) $[_{\text{DP}}$ [Woodward]$_j$ D+RELATOR$_i$=*'s* $[_{\text{RP}}$ $[_{\text{NP}}$ book about the war] t_i t_j $]]$

By now the puzzle will be clear: what is it that forces the DP predicate as opposed to the NP subject to move to SpecDP?

4 Phase extension and scope

One of the interesting lines of argument that den Dikken makes concerns the following scopal difference between small clause and infinitival complements:

(22) a. Someone considers every congressman to be a fool. ($\exists > \forall, \forall > \exists$)

b. Someone considers every congressman a fool. ($\exists > \forall, *\forall > \exists$)

Den Dikken's analysis of this contrast derives from the following assumptions:

(23) a. V adjoins to v overtly.

b. Small clause RELATOR adjoins to matrix V covertly.

c. QR applies covertly, and is subject to PIC.

Because of the covert adjunction of the RELATOR in (22b), the embedded phase is extended to the matrix VP. Since V has already raised to v overtly, this phase cannot be further extended. As the small clause subject is not at the edge of the embedded phase, it cannot undergo QR to a position in which it could scope over the matrix subject (e.g., adjoined to vP), leading to the lack of a wide scope

[4] A further difficulty for den Dikken's analysis of Holmberg's generalization stems from cases discussed by Holmberg (1999), which demonstrate that verb raising is not sufficient to license object shift. Specifically, object shift appears to be blocked if anything remains within VP. It is not clear how the presence of such elements could have a relevant effect under den Dikken's account.

universal reading.[5] Since there is no covert incorporation in the case of infinitival complements, the embedded quantifier in SpecTP is outside of the most embedded phase and is therefore free to adjoin to Spec$v$P of the matrix clause above the base position of the subject, yielding the wide scope universal interpretation. Interestingly, this is an instance of quite a different line of analysis from the cases thus far considered: rather than expanding the possibilities for movement, phase extension leads to the impossibility of some instance of movement.

While this line of argument is intriguing, all the more so because it provides an account of the heretofore mysterious contrast in (22), an expansion of the data set suggests that this account is not the right one. First of all, this analysis crucially rests on the assumption that the small clause subject remains within the embedded clause throughout the derivation. Yet, the tests devised by Postal (1974) and Lasnik and Saito (1991) to show that subjects of infinitival clauses are in the matrix clause (thereby motivating a raising to object analysis) apply equally well to small clause complements. Thus, unlike finite complements, infinitival or small clause pronominal subjects induce condition C effects on an r-expression contained within an adjunct with matrix scope, as seen in (24). The examples in (25) and (26) show that small clause and infinitival subjects can bind reciprocals or license NPIs in adjuncts with matrix scope, unlike the subjects of finite clauses. Finally, as seen in (27) while embedded subjects are degraded in their ability to license binomial *each* in the matrix clause, neither infinitival and small clause subjects give rise to unacceptability.

(24) Condition C

a. Joan believes he$_i$ is a genius even more fervently than Bob's$_i$ mother does.

b. ?*Joan considers him to be a genius even more fervently than Bob's mother does.

c. ?*Joan considers him a genius even more fervently than Bob's mother does.

(25) Reciprocals

a. ?*The DA proved that that the defendants were guilty during each other's trials.

b. ?The DA proved the defendants guilty during each other's trials.

c. ?The DA proved the defendants to be guilty during each other's trials.

(26) NPIs

a. ?*The DA proved that none of the defendants was guilty during any of the trials.

b. The DA proved none of the defendants to be guilty during any of the trials.

c. The DA proved none of the defendants guilty during any of the trials.

(27) Binomial *each*

a. ??Jones proved that the prisoners were guilty with one accusation each.

b. Jones proved the prisoners to be guilty with one accusation each.

c. Jones proved the prisoners guilty with one accusation each.

While these tests do not show that embedded infinitival and small clause subjects raise overtly to a position in the matrix clause, they do provide compelling evidence for the conclusion that they raise there prior to LF. And that conclusion seems incompatible with den Dikken's analysis of the pattern in (22).

Finally, just as small clause subjects are unable to take scope outside of matrix subjects, so too are subjects of embedded finite clauses.

[5] Such movement would be possible if the embedded subject could adjoin first to VP. Den Dikken rules out such intermediate adjunction via the stipulation that the v-V linkage cannot be interrupted, even after spell-out.

(28) Someone thinks that every congressman is a fool. ($\exists > \forall, *\forall > \exists$)

If this pattern is to be analyzed in a manner parallel to that of (22b), we should expect to find a similar phase-based account. So, where are the phase boundaries in this example? The maximal extent of overt head movement in the embedded clause, say moving the RELATOR to some verbal head to T, would extend the phase to TP. Under the assumption that there is no covert movement of T to C, the quantifier *every congressman* will remain at the edge of its phase. As a result, it should be free to undergo QR to the matrix clause, and take scope over the matrix subject, contrary to fact.

5 Finishing up

Den Dikken's phase extension proposal lays out the intriguing idea that head movement, far from being peripheral to syntax, plays a fundamental and pervasive role in determining the locality properties of phrasal displacement. The plausibility of this claim depends, of course, upon its empirical support and the machinations that one needs to go through to make it work. At present, I would say that the jury is still out on both fronts: the current theory has a number of outstanding empirical issues and the technology that it crucially exploits strikes me as incompletely motivated and in some places redundant. Nonetheless, I applaud den Dikken for contributing his bold and far-reaching proposal to the debate on the nature of syntactic locality, and look forward to it informing the field's and my own future work.

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