

# NON-VERBAL PREDICATION AND HEAD MOVEMENT

by Andrew Carnie

reviewed by Peter Svenonius

## Summary by the author

### 1. Introduction

One of the goals of the recent Chomskyan minimalist movement is the simplification (often on conceptual grounds) of the mechanisms found in syntactic theory. In this thesis, I further one such reduction and attempt to justify it with empirical evidence. Primarily using evidence from copular constructions in Modern Irish, I argue for an underdetermined theory of phrase structure where a p-marker's behavior in the syntax determines its X-bar status rather than the X-bar stipulations driving the p-marker's behavior.

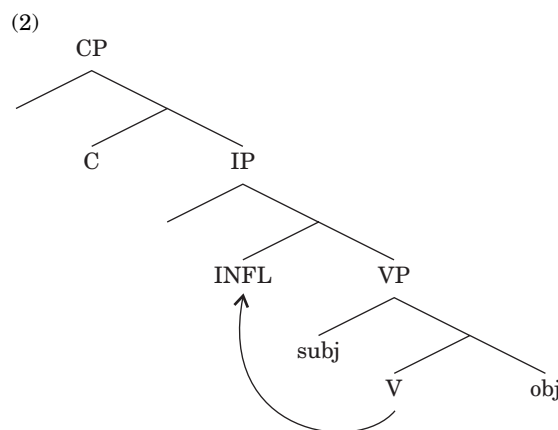
Since the advent of generative grammar, the notions of *phrase* and *head* have been viewed as primitives by many syntacticians (see for example, Chomsky 1957). More recently some authors have claimed that they can be derived from other structural relations (such as terminality (i.e. a head) or being dominated by an element that is not a projection of the head (i.e. a phrase) (see for example Speas 1990, Chametzky 1996, Chomsky 1994, 1995). Under both of these conceptions of phrasality, however, the standard assumption is that whether a phrase marker (henceforth p-marker) is a head or a phrase determines its behavior with respect to the rest of the syntax. By contrast, I claim the "phrasality" or "headness" of a phrase marker is determined solely by the function and behavior of that p-marker. "Phrases" and "heads" in this conception are thus simply artifacts of the behavior of the p-markers involved. What limits the behavior of p-markers are other properties of the human language computational system (such as the interface with morphology/phonology and the interface with the semantic component), instead of a structural definition or stipulation of the p-markers' status as a phrase or head.

### 2. The facts and assumptions underlying the argument

Modern Irish is a VSO language as seen in (1):

- (1)  
Leanann an t-ainmní an briathar i nGaeilge  
follow.PRES the subject the verb in Irish  
'The subject follows the verb in Irish'

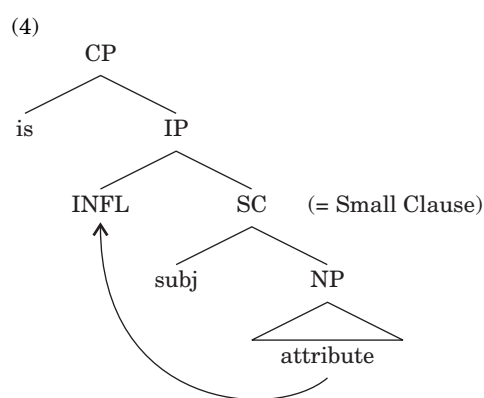
Following McCloskey (1983) among many others, I assume that this order is derived from an underlying SVO order. In chapters 2 and 3 of this thesis, I argue for a particular analysis of VSO order involving the raising of the verb to the highest inflectional head around the subject, following Sproat (1985) among others. This analysis involves a split VP, a flipped TP/AgrS structure and a VP-embedded AgrO/Asp functional structure. It accounts for a wide variety of facts about infinitives, aspectual clauses and EPP effects, and is outlined more thoroughly in Carnie and Harley (1997) and in forthcoming work by Carnie and Harley. What is important to the argument here, however, is simply that the verb moves to a position lower than the highest complementizer particle and higher than agreement morphology and the subject, and for the purposes of this brief summary I abbreviate this derivation as in (2).



One of the most remarkable features of Modern Irish is the fact that this predicate-subject order, an order involving head movement in its derivation, is also found with non-verbal predicates. Consider the following copular construction found with nominal, individual level predicates (see Doherty 1996 for a discussion of the distribution of this and other Irish copular constructions):

- (3)  
Is dochtúir (é) Seán  
C doctor agr John  
'John is a doctor'

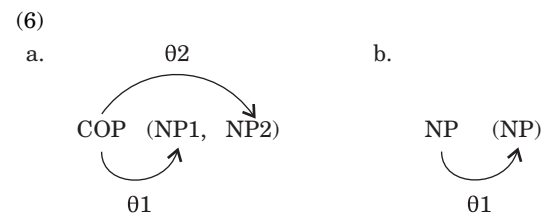
In this construction, which I call the predicative copular construction, the non-verbal predicate *dochtúir* appears between the complementizer *is* and the agreement morpheme *é*. In chapters 4 and 5 of this thesis (and in later work like Carnie forthcoming), following a suggestion in Collberg (1990) and related work on Breton by Hendrick (1994), I analyze this as the head movement of the non-verbal predicate to the same position as verbal predicates in VSO sentences:



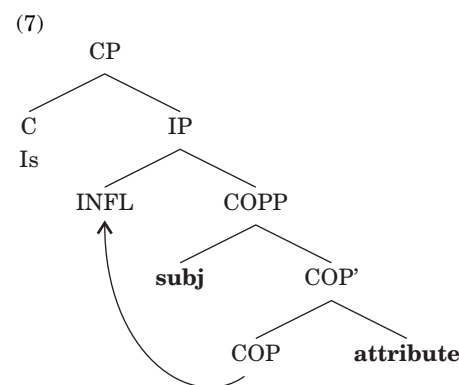
This construction can be contrasted with the one I call an equative copular construction seen in (5):

- (5)  
Is é Seán an dochtúir  
C agr John the doctor  
'John is the doctor'

In the equative construction, where two definite or referring NPs are equated, neither NP appears in the privileged head-moved position between the complementizer and the agreement morpheme. Instead, both NPs appear to the right of the agreement morpheme. I claim that the difference between the equative and predicative constructions reduces to the controversial difference in argument structure. Equative constructions involve an abstract equative predicate (COP) which takes two arguments (6a). Predicative constructions by contrast involve a single argument, with the other non-verbal predicate functioning predicatively (6b).



In equatives then, it is the abstract predicate COP, not the nominal predicate, that undergoes head movement. The COP morpheme is realized phonologically with the subject agreement features of the INFL head, in the form of a pronominal element (*é/i/iad*). Both nominals appear in argument positions. This is seen in (7):



In (7), the COP predicate bears inflectional features which it checks by head moving through the functional heads to the highest position. The arguments move to their case positions, in a manner parallel to normal VSO order. This, then, derives the two basic word orders of Irish copular clauses. A summary of clause types is given in (8).

(8)

Comp (PARTICLE)	Infl (PREDICATE)	Spec,VP (SUBJECT)	VP,comp (OBJECT/COMP)	
Ní NEG	fhaca saw	Seán John	an dochtúir the doctor	Verb
Ní NEG	dochtúir doctor	Seán John		Indef N
Ní NEG	hé COP+AGR	Seán John	an dochtúir the doctor	Def NP

In chapter 7, I consider alternative analyses to word order alternations in copular constructions, including the unified *be* analysis of Heggie (1988) and others, DeGraff's (1992) theory based on resumptive pronouns, and Doherty's (1996) analysis and show that they are inadequate to the task of dealing with all the facts of the equative/predicative alternation of Irish.

The head-movement of non-verbal predicates forms the basis for my claim that phrase structure is underdetermined with respect to phrasality.

### 3.1. The mysterious phrasal predicates

The analysis sketched above runs into problems when it comes to complex nominal predicates like that in (9). The whole predicate appears in the position associated with the head-moved element. Since head-movement is, by definition, the movement of heads, not of phrasal categories, it seems unusual to claim such movement is possible for what appear to be phrases.

- (9)
- a. Is [dochtúir capall] é  
COMP doctor horses.GEN him  
'He is a doctor of horses'
- b. Is [amhrán a<sup>L</sup> bhuaifidh an píobaire] "Yellow  
COMP song COMP play.FUT the bagpiper  
Submarine"  
'Yellow Submarine' is a song which the bagpiper is going to play'

At first glance these sentences would appear to argue against a head movement approach to non-verbal predicates in Irish. Under standard assumptions, the phrasal predicate must, if it is in a derived position, appear in a specifier (see Doherty 1997 for one such analysis). There is evidence, however, that these elements are not in specifiers, nor are they in actuality XPs. Instead I claim that these are p-markers whose phrasality is underde-

terminated, behaving outwardly phrasal with respect to the morphology, but X<sup>o</sup>-like with respect to several syntactic tests.

### 3.2. Evidence from *wh*-extraction

One piece of evidence in favor of the X<sup>o</sup>-like status of complex indefinite nominal predicates comes from *wh*-extraction. The argument is as follows. If predicates have undergone head movement like X<sup>o</sup>s, then subcomponents of these predicates should not be able to extract via *wh*-movement. Before proceeding to the actual test, it is worth noting that an account of such violations in terms of island effects and subjacency is untenable in Irish, however, as Irish does consistently allow subjacency/ECP type violations (McCloskey 1979). If the speaker leaves a resumptive pronoun at the extraction site and changes the highest complementizer from *a<sup>L</sup>* to *a<sup>N</sup>*, then a sentence with a subjacency violation is rendered grammatical (see McCloskey 1979 for more details). Given that such extraction is licit, we can use *wh*-extraction as a test for the X<sup>o</sup>-like status of a nominal, in contrast to the situation found in English. If *wh*-extraction is licit, then the sequence of morphemes is behaving like a fully phrasal p-marker; if *wh*-extraction is illicit, then the sequence is behaving like an X<sup>o</sup>. This distribution is exactly what we find with nominal predicates. An indefinite, nonreferential NP predicate like that in (10) does not allow extraction, despite the fact that Irish normally allows extraction out of nominal islands. This is consistent with the idea that these are really functioning as X<sup>o</sup>s.

- (10)
- a. Is <sub>[NP amhrán<sub>i</sub> [<sub>CP</sub> a<sup>L</sup> bhuaifidh an píobaire t<sub>i</sub>]](é)</sub>
- COMP song COMP play.FUT the piper
- “Yellow Submarine”
- AGR
- “Yellow Submarine” is a song which the bagpiper is going to play’
- b. \*Cén píobaire<sub>j</sub> arb <sub>[NP amhrán<sub>i</sub> [<sub>CP</sub> a<sup>L</sup> bhuaifeadh sé<sub>j</sub> t<sub>i</sub>]](é)</sub> “Yellow Sub”
- he AGR
- \*‘Which bagpiper is ‘Yellow Submarine’ a song which he/t<sub>i</sub> is going to play’

This can be strikingly contrasted with the definite NP attributes, which are not predicates and do not undergo X<sup>o</sup> movement. In these sentences *wh*-extraction from the definite NP is licit.

- (11)
- a. Is é “Yellow Submarine” <sub>[NP an t-amhrán<sub>i</sub> [<sub>CP</sub> a<sup>L</sup> bhuaifidh an píobaire t<sub>i</sub>]]</sub>
- COMP AGR the song
- COMP play.FUT the piper
- “Yellow Submarine” is the song which the bagpiper is going to play’
- b. Cén píobaire<sub>j</sub> arb é “Yellow Submarine” <sub>[NP an t-amhrán<sub>i</sub> [<sub>CP</sub> a<sup>L</sup> bhuaifeadh sé<sub>j</sub> t<sub>i</sub>]]</sub>
- WH-COMP AGR the
- song COMP play.COND he
- ‘Which bagpiper is ‘Yellow Submarine’ the song which he/t<sub>i</sub> is going to play’

To summarize, *wh*-extraction is generally allowed from phrases of all types throughout the grammar of Irish. However, extraction from NPs that appear in initial (predicate) position is disallowed.

### 3.3. Evidence from the responsive system

There is some further evidence that these complex predicates are behaving like X<sup>o</sup>s. This evidence comes from the responsive system. Irish has no words for *yes* or *no*; instead, the verb is repeated in either the positive or negative form, as seen in (12) (where the negative form is indicated by an adjoined negative complementizer):

- (12)
- a. An bhfaca tú an teangeolaí? b. Ní fhaca OR c. Chonaic
- Q saw you the linguist NEG saw saw
- ‘Did you see the linguist?’ ‘No’ ‘Yes’

This can be analyzed as the elision of everything to the right of the V+Infl complex in a manner familiar from VP ellipsis (see McCloskey 1991 for more discussion). For example, the shaded parts of the sentence schematized in (13).

(13)

C +	Infl	Spec,VP	Comp, VP	R-adj
Ní NEG	fhaca saw	Seán John	an teangeolaí the doctor	inné today

Given that I have claimed predicates in copular clauses are in Infl, then when elision occurs, then the predicate should remain. At least for the adjectival and prepositional predicates which appear in this construction, this is true (see (14), (15)).

- (14)
- Q: An le Seán an Subaru? A: Is leis ‘Yes’
- Q with John the Subaru COMP INFL
- ‘Does John own the Subaru?’ COMP with.him
- (15)
- Q: An ceart mo chuimhne A: Is ceart ‘Yes’
- Q right my memory COMP INFL
- ‘Is my memory is right?’ COMP right (from Doherty 1996)

In sentences with referential NP attributes, similar behavior also occurs. Recall that in the analysis sketched above, referential NP attributes are not X<sup>o</sup>s in an functional projection, rather, they are the argument of an abstract COP predicate. Thus in sentences with definite or referential NPs, we expect only the pronominal agreement realization of the abstract COP predicate to remain after ellipsis. This prediction is also true (16).

- (16)
- Q: An é an feirmeoir Liam? A: Is é
- Q.COMP INFL the farmer Liam COMP INFL
- ‘Is Liam the farmer?’ ‘Yes’

The situation is more complex with indefinite nonreferential nominal predicates (17) which I argue appear in Infl. In these cases the predicate does not surface, but is replaced by the dummy pronominal *ea*:

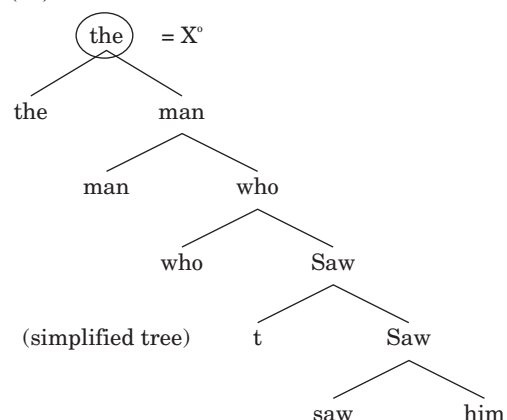
- (17)
- a. An dochtúir Seosamh? b. \*Is dochtúir
- Q doctor Joseph ✓ Is ea
- ‘Is Seosamh a doctor?’

This may well be similar to ‘do support’. This dummy pronominal shows up when there is a nonreferential indefinite predicate. What is crucial here is that the element appearing in the Infl head is retained (via the pro-form *ea*) in responses, supporting the analysis that these complex nominal predicates are part of Infl.

### 4. An underdetermined theory of phrase structure

I propose simply that when an element is behaving like an X<sup>o</sup>, it is treated by at least some parts of the grammar as an X<sup>o</sup>. With respect to other components of the grammar that same p-marker may appear phrasal. Complex nominal predicates in Irish are treated by the grammar like X<sup>o</sup>s and are allowed to undergo head-movement to adjoin to functional categories just like verbs:

(18)



What mechanisms determine whether a p-marker is an X<sup>o</sup> or an XP? I propose that the notions X<sup>o</sup> and XP are simply artifacts of the behavior of the p-marker with respect to other components of the computational system. For example, let us pro-

pose that the ability to bear tense and agreement features is a property only associated with elements that undergo head to head-movement (this notion will be articulated more precisely below), whereas the ability to bear case features is a property associated with element that undergo XP movement (A or A-bar). Notice that the relevant criterion for what is an XP and what is an X<sup>o</sup> here is how they behave, both with respect to bearing features and with respect to movement.

I suggest, partially following Chomsky, that the following are some possible criteria for the XP-ness or X<sup>o</sup>-ness of a p-marker. Recall that a p-marker can be both an XP and an X<sup>o</sup> at the same time, so it is not the case that any one of the following properties are necessarily the definition of an XP or an X<sup>o</sup>. Rather, a p-marker can have any number of properties of both X<sup>o</sup>s and XPs and thus behave accordingly. We now have a straightforward account of why a “phrase-like” element in Irish appears in a position associated with X<sup>o</sup>: its phrasal status is underdetermined. Syntactically this element behaves like an X<sup>o</sup>, but phonologically, morphologically, and p-marker internally it behaves phrasal.

A more important question remains, however. Why such behavior is typologically rare and a restricted phenomenon? Why is it the case that, in the vast majority of cases, such as French, or even Irish verbal predicates, this mismatch between phrasality and X<sup>o</sup>ness is not found? We must now account for the fact that most of the time, there is a strict alignment of phrasality, where a p-marker functions consistently as either X<sup>o</sup> or an XP, but usually not both. One possible answer is that such mismatches only apply when the syntax is forced by morphological reasons to head-move elements that aren’t single morphological units. The reason that complex predicates are not allowed to adjoin to heads in languages like English follows from the fact that they are not allowed to bear tense and agreement features. Adjoining a complex predicate p-marker to an inflectional head would cause the derivation to crash, since none of the appropriate features could be checked. The phrase/head status of the element is thus determined by its behavior with respect to the rest of the computational system. Irish, on the other hand, is special, since it allows complex predicates to bear tense and agreement features, which are then forced to check their features in a head-head relation. The narrowness of the phenomenon is thus derived from the fact that such mismatches will only show up with morphological irregularities, such as atypical feature association. In the thesis, other similar cases from Tagalog, Persian and other languages are seen to exhibit similar behavior under similar circumstances.

### 5. Summary

The theory I suggested in this thesis is that phrasal status not be stipulated or structurally derived, but rather is merely epiphenomenal, with other output constraints (such as constraints on the configuration of feature checking) resulting in the surface appearance of such artifacts.

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## Review by Peter Svenonius

In a typology of works in linguistics, one important division would be between the sort that take a theoretical device (often motivated by a broad range of empirical evidence) as the starting point and then develop it against a range of linguistic data, and the sort that take a construction type or set of construction types as the starting point (assuming some basic theoretical framework, of course) and then derive theoretical claims based on that evidence. This dissertation belongs firmly in the latter category. In fact, the abstraction of the title belies the earthly nature of the content: the dissertation is really primarily about Irish clausal syntax. Forays into other languages are but brief, and although claims are made about syntactic theory, the focus is consistently on how it relates to the Irish data.

That is not to say that the dissertation fails to significantly treat non-verbal predication or head movement: it provides a head-movement analysis for the non-verbal predicate in copular constructions in Irish. Nor do I intend to intimate that there are no interesting theoretical proposals with relevance for other languages, in fact I will discuss one at length below. But the crux of the dissertation is its careful and detailed treatment of Irish syntax, especially for copular constructions. Carnie lays out a wealth of (often original)

Irish example sentences and attentively discusses previous work on Irish. He notes problems for Doherty's (1996) analysis of Irish copular constructions, which locates the subject in an under-motivated rightward specifier. Carnie provides an alternative which does not make use of a right specifier, involving movement of the predicate to the left.

For several aspects of Irish syntax, Carnie argues persuasively for a specific analysis within the framework assumed, approximately that of Chomsky (1993). For example, his arguments that the copular element *is* is located in C rather than in Infl seem cogent. But when he deviates from that framework, proposing theoretical modifications, he is less careful to motivate the innovations or explore their consequences. My focus in this review will be on the broader implications of Carnie's main theoretical proposal, a revision of the distinction between head and phrase. It is an interesting and potentially important proposal, and although ultimately I suggest that it cannot be maintained on the basis of the evidence provided, it raises serious and useful questions.

### 1. Properties of heads and of phrases

The most radical theoretical contribution of the work at hand is the claim that a phrasal element can move to a head position. Carnie suggests (pp. 184–191) that this fits naturally with the theory of phrase structure outlined in Chomsky (1994). Carnie points out that the phrase-head distinction has to be stipulated in that framework: Chomsky suggests that a head is a terminal element, but as Carnie notes, complexes formed by head-to-head adjunction would then not count as heads. Carnie argues instead that the head-phrase distinction is not primitive, but is determined by the “behavior” of a p-marker (e.g. p. 185). It is not always entirely clear what Carnie means by this. On p. 202 he lists five features which are supposed to be characteristic of XPs and X<sup>0</sup>s, in Table 1, attributing them to Chomsky.

Carnie suggests that “a p-marker can have any number of properties of both X<sup>0</sup>s and XPs and thus behave accordingly” (ibid.), apparently meaning that a p-marker can have some properties from the left of Table 1, and some from the right, in any combination. The case of the Irish copular construction would be a case in which the non-verbal predicate bears Tense and/or agreement features, according to Carnie, thereby undergoing head movement, while being the output of syntactic processes like Merge, rather than of the morphological component.

However, many of the assumptions apparent in Table 1 are subject to challenge. For example, the link between Tense and Agreement features and heads is unclear. DPs are widely assumed to bear Agreement features, and assuming some sort of head feature percolation, TPs at least must bear Tense features. As for Case features, it is far from clear that only phrases bear them. First of all, the D or N inflected for Case would ordinarily be assumed to bear Case features. Secondly, on the assumption (common since Chomsky 1993) that feature checking occurs when features match within a checking domain, Agr<sup>0</sup> must bear Case features in order to check Case features on a DP in SpecAgrP. At the heart of Carnie's formulation of this second pair of properties is an opposition between V-features and N-features, apparently adapted from Chomsky (1993). It is to that opposi-

tion that he has relegated the head-phrase distinction, as I will discuss below.

What, then, is the head-phrase distinction, if it is not what is shown in Table 1? In theories without head movement, like those of Pollard & Sag (1994) or Brody (1997), it is possible to argue that it is a function of the lexicon and the morphological component: what is listed in the lexicon or produced by the morphological component is an X<sup>0</sup>, and what is constructed in the syntax is an XP (cf. Chomsky 1994 for a weaker version of this). This is essentially expressed in the fifth and last distinction in Carnie's table. However, this position is not a widely held one in the theoretical space in which Carnie moves. There, it is generally assumed that head movement constructs X<sup>0</sup> complexes that correspond to a single morphological item (e.g. Halle & Marantz 1993, which Carnie adopts, p. 205).

I suspect that the most common understanding of the head-phrase dichotomy is as a primitive distinction of X-bar theory: a head projects up to a phrase (cf. Muysken 1982; Bloomfield's use of the word *head* was broader in that each X<sup>n</sup> would be the head of the X<sup>m</sup> containing it). The node that does not project any further is the XP (X<sup>MAX</sup>). The node that is not projected is the X<sup>0</sup>. Intermediate nodes (X') are generally taken to have some kind of defective status (cf. Chomsky 1994). Whether a more general theory of Structure Preservation (Emonds 1976) or of Uniformity of Chains (Chomsky 1994) is invoked or not, it is furthermore generally assumed that only phrases adjoin to phrases and only heads adjoin to heads (this is most explicitly derived from more basic assumptions in Kayne's 1994 theory); this is enough in some frameworks to ensure that only phrases appear in Specifier positions (for example in Hoekstra 1991 or Kayne 1994). These various commonly held beliefs are rarely made explicit and even more rarely justified (cf. Kornai & Pullum 1990), and Carnie is therefore right to question them.

### 2. The Irish copular construction

Carnie follows Chung & McCloskey (1987) and McCloskey (1996), inter alia, in taking VSO order in Irish to be derived by movement of the finite verb to Infl (more specifically, Carnie assumes that V moves to T1, the highest node in the Infl system, above Agr<sub>S</sub>; pp. 110–112). He extends that analysis to copular constructions like that in (1a), where the non-verbal small clause complement to Infl is labeled SC, and the trace of the nominal predicate is labeled t<sub>NP</sub>; the copular particle *is* is glossed ‘COP’.

- (1)
- a. Is [<sub>IP</sub> [<sub>I</sub> dochtúir [<sub>SC</sub> Seán t<sub>NP</sub> ]]]  
COP doctor John  
'John is a doctor'
- b. [<sub>IP</sub> [<sub>I</sub> Is [<sub>NP</sub> dochtúir]] Seán]  
COP doctor John

Carnie proposes that *is* is a complementizer element, outside IP, and that the nominal predicate *dochtúir* ‘doctor’ moves to the left, across the subject of the small clause. He provides arguments (pp. 258–260) against the earlier analysis of Doherty (1996), sketched in (1b), in which *is* occupies Infl, the nominal predicate remains in situ, and the subject is base-generated in a right specifier of Infl.

Carnie suggests specifically that the predicate moves to Infl by head movement; while acknowledging that complex XPs appear in the same position, he suggests that XP movement to X<sup>0</sup> positions must be allowed in principle. He gives three reasons internal to the Irish copular construction, and then provides some supporting evidence from other languages. I examine the arguments based on Irish first, and briefly discuss the material from other languages in §5 below.

The three reasons are: [i] (p. 143) taking the order in (1) to be derived by head movement unifies that construction with the VSO order standard in other clauses; [ii] (pp. 192–194) *wh*-movement is impossible from the predicate Carnie

Table 1.

Properties of X <sup>0</sup> s	Properties of XPs
theta markers	theta marked
bear Tense and Agreement features (undergo head movement)	bear Case features (undergo XP movement)
select for complements	are selected for
don't have reference	may have a real world reference
input to/output from the morphology	not input/output of the morphology

takes to be in Infl; and [iii] (pp. 195–197) responses to Yes–No questions in Irish generally require that the element in Infl be repeated; when copular sentences like that in (1) are made into questions, they are answered (affirmatively) with the copula plus a dummy element *ea*, which Carnie takes to be located in Infl.

The second and third arguments can be rapidly dispatched. Doherty (1997):86 falsifies [ii] with examples like the relative clause constructions in (2). (2a) contains a resumptive pronoun A'-bound by the relative operator, and (2b) is the same example with a gap, only possible in literary varieties.

- (2)
- a. an fhoireann; ar captaen dó; Parnell  
the team CCOP captain to.it Parnell  
'The team the captain of which is Parnell'
- b. an fhoireann; ar captaen \_j Parnell  
the team CCOP captain Parnell

As for argument [iii], the idea is that if Infl were empty in the copular construction, then the affirmative reply would presumably consist only of the copula (the empty Infl node being unpronounced). However, as Doherty (1997: 88 fn. 9) points out, on Carnie's account it is mysterious that it should be necessary to replace the predicate with a pro-form, just when it is a non-verbal predicate, and that the pro-form cannot replace such predicates elsewhere. Thus, while the exact status of *ea* remains unexplained, Carnie's contention that it is a pro-form of the predicate raises more questions than it answers.

Argument [i] is more substantial, promoting as it does uniformity in the derivation of clauses. However, there are at least two ways to maintain parallelism in Irish copular and non-copular clauses without allowing an XP to move to a head position. I discuss them in §4, but first, in §3, I probe the deeper implications of Carnie's proposal.

### 3. Distinguishing heads from phrases in the morphology

Carnie claims (p. 185) that "[w]hat limits the behavior of p-markers are other properties of the human language computational system (such as the interface with morphology/phonology and the interface with the semantic component), not the p-marker's status as a phrase or head." It requires a little bit of effort to determine just what is being proposed here. As it turns out, Carnie's vision mainly involves shifting burdens from X-bar theory to the morphological component.

Carnie assumes (p. 27) a basic distinction between N-features and V-features, apparently derived from Chomsky (1993). The position Carnie takes is that N-features must be checked in a specifier position, while V-features must be checked in a head position. Thus the labels are misleading: if head-movement of  $N^0$  to  $D^0$  occurs, for example, it must be triggered by a V-feature.

For Irish, Carnie assumes that there are strong V-features in T that must be checked (pp. 102–103, 113–114); this is what forces V movement. Carnie furthermore suggests (pp. 202–204) that Irish exceptionally allows tense and agreement features to be attached to a nominal predicate, which we can assume for argument's sake to be an NP; these are the features that can check the strong features in Agr. Because they are V-features, they can only be checked in  $T^0$ . Thus, Carnie claims, NP movement to  $T^0$  is forced. But this is only assuming that the features attached to the predicate NP cannot appear on its head; if they did, then we would get  $N^0$  movement to  $T^0$ , without the rest of the NP being moved. Carnie suggests (pp. 205–207) that the reason that these features cannot be realized on  $N^0$  is morphological; there is no lexical item in Irish corresponding to a tensed  $N^0$ . Thus, the features remain at the phrasal level.

He also suggests (p. 202) that when phrases are prevented from moving to head positions, it is because they fail to bear the right featural specifications. The usual assumption is that morphosyn-

tactic feature specifications are shared between a head and its projections (cf. Gazdar, Pullum, & Sag 1982). Thus non-percolating head features are an important part of Carnie's theory; for example, whatever feature triggers head movement of the verb in a V2 construction must not percolate to VP. A better move, given Carnie's other assumptions, would be to assume that Economy favors head movement where possible, so that if a head can move (rather than a phrase) it must (cf. Chomsky 1995 in which movement of more material than the feature needing checking is likened to pied piping).

Nevertheless, Carnie will still be forced to postulate non-percolating *phrasal* features, as the trigger for XP movement, stipulating that they are attached at the maximal node, rather than to some lower node. The assumption seems problematic. *Wh*-movement, for example, involves XPs, so the *wh*-feature must be a phrasal feature (despite being morphologically realized on certain heads). Or perhaps *wh*-movement is movement of an operator, and there are semantic reasons that only XPs can be operators. But it seems unlikely that all phrasal movement could be due to semantic factors. Take, for example, DP movement to a Case position: Carnie must claim that the features checked in SpecAgrP do not appear on the head D, even if they are morphologically realized there; otherwise the head  $N^0$  or  $D^0$  might raise to the specifier position. Or take the idea that the EPP involves a categorial feature, N or D (Chomsky 1995). For Carnie, this would have to be a feature that is attached only to the phrasal level. It would be very interesting to see such implications explored, and I feel it is a shortcoming of the dissertation that they are not.

To summarize, Carnie's proposal requires a basic distinction between heads and phrases in two places: both in the feature checking system, and in the association of features with p-markers. Although V-features can only be checked in a head position, and N-features can only be checked in a specifier position, there is no constraint on what sort of syntactic object moves to those positions to check them, beyond what is imposed by the phrasal or non-phrasal nature of the morphological features being checked (semantic constraints are also an option, given the passage quoted at the beginning of this section). Nor, since the head-phrase distinction has no syntactic status, can there be anything like Rizzi's (1990) Relativized Minimality, or Chomsky's (1994) Uniformity Condition on chains; their effects must be derived in some other way, though Carnie does not suggest how.

### 4. Alternatives

Consider a possibility available if we reject Carnie's opposition of V-features to N-features, but retain the assumption that only heads can move to head positions in the syntax. Then Carnie's suggestion that tense and agreement features in Irish can be associated with a nominal predicate takes on a different cast. If a predicate NP bears features that can check the strong features on T, then on the feature checking theory of Chomsky (1993), NP will have to move to the checking domain of T. The specifier of T, SpecTP, is the nearest XP position in the checking domain of T, and NP will therefore be forced to move there (equivalently, assuming something like Hoekstra 1991 or Kayne 1994, NP adjoins to TP). This is essentially the proposal in Doherty (1997), modulo the node labels (it is also that of Massam & Smallwood 1997 for Niuean). It represents a minimal adjustment of Carnie's claims, and yet eliminates the need to move an XP to a head position. It is also similar to other proposals in which the same strong feature can be checked either by XP movement or by  $X^0$  movement, for example Alexiadou & Anagnostopoulou (1995) and Svenonius (1996).

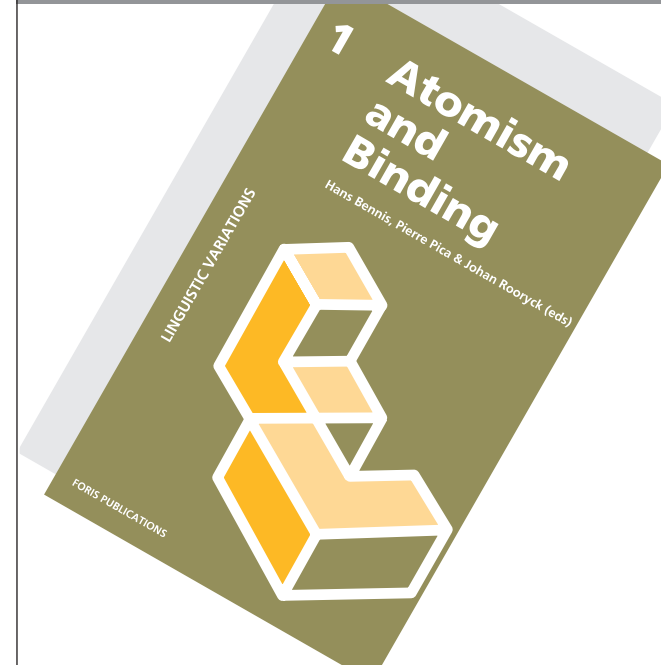
Another alternative, which maintains the parallelism between copular and non-copular clauses but which requires abandoning neither Carnie's N-feature/V-feature distinction nor the syntactic head-phrase distinction, would be to

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assume that VSO order in non-copular clauses is derived not by head movement, but by VP movement. This is made possible by the analysis of Irish clause structure in Bobaljik & Carnie (1996), by which both the subject and the object evacuate from the VP to higher specifier positions in tensed clauses. The VP, then, contains only V, just as in Hinterhölzl's (1997) analysis of West Germanic Verb Raising as involving VP-remnant movement, or in Kayne's (1998) analysis of certain English constructions. Such a proposal is not compatible with Carnie's assumptions about minimality (pp. 104 ff.): he assumes, following the theory of minimality motivated in Bobaljik & Jonas (1996) and formalized in Chomsky (1993), that the subject and object cannot both leave VP without V having moved to some higher position. However, this need not stop us: the foundations for that theory of minimality are called into serious question by Holmberg (1997).

If VSO is derived by VP movement in general, then VOS languages like Tzotzil are more similar to SVO languages like Irish than previously thought; and languages like Chamorro, in which VOS and VSO are alternatives, could be analyzed as raising the object out of VP only optionally. Of course, in order to derive VSO order, substantial leftward movements would have to be postulated and motivated, in order to evacuate the VP before VP movement, much as in recent Kaynean analyses of OV order. It must also be explained why such fronting does not occur in non-verbal predicates; Case-marking is not the whole story, as PPs never front along with the Irish verb. But this seems to be an interesting area for investigation (cf. the similar yet intriguingly different proposal for Irish in Duffield 1995).

The cross-linguistic evidence warrants an approach based on universal distinctions between verbal and non-verbal predicates. Carnie treats the parallelism of verb-initial clauses and non-verbal predicate-initial clauses as parochial when he suggests that Irish non-verbal predicates exceptionally bear verbal features (p. 202). However, it seems that the pattern is widespread; for example Carnie himself notes that it holds for Tagalog (p. 212), and Chung (1990):570 notes it for Chamorro, giving examples like the one in (3a), while Massam & Smallwood (1997) note it for Niuean, as shown in (3b) (from their p. 268).

- (3)
- a. Ginin i chi'lu-hu esti na katta.  
from the sibling-AGR(1s) this L letter  
'This letter is from my sister.'
- b. Ko e kamuta a au.  
P ART carpenter ART I  
'I am a carpenter.'

Cursory glances at other VSO languages suggest that it holds there as well, as suggested by the examples in (4a-c).

- (4)
- a. 'O le fili o le 'iole le pusi.  
PRES ART enemy POSS ART rat ART cat  
'The cat is the enemy of the rat.'
- b. Caw bakich no' ha-txitam tu'.  
very fat CL your-pig that  
'That pig of yours is very fat.'
- c. 'alā lmmā<sup>2</sup>idati kitābun.  
on table book  
'A book is on the table.'

(4a) is Samoan, from Mosel & Hovdhaugen (1992): 500, (4b) is Jakalteq, from Craig (1977): 138, (4c) is Classical Arabic, from Kaye (1987): 684, though in Classical Arabic, definite subjects generally precede a non-verbal predicate, so (4c) might be a red herring.

Quite possibly, then, all VSO languages have in common that non-verbal predicates, when they front, front by phrase movement, rather than by head movement. If that is the case, then it cannot be due to some accidental morphosyntactic property. (Care must be taken in formulating this putative generalization. Chung (1990): 570 shows that adjectival predicates can strand complements to the right of the subject, suggesting that they undergo head movement; so they are sufficiently

'verbal', at least in Chamorro, as in Ancient Hebrew, judging from Steiner 1997: 165-166.)

At any rate, it seems that the evidence so far for allowing phrases to move to head positions is rather feeble. In the next section I briefly discuss Carnie's cross-linguistic evidence (Carnie provides another Irish-internal argument (pp. 215-218), based on a case of putative movement to D<sup>0</sup> by an NP. However, the comments I made above regarding alternatives to NP to Infl movement generally apply in that case as well).

##### 5. Examples from other languages of P-markers with mixed phrase-head characteristics

Carnie provides (pp. 211-228) some cross-linguistic evidence for "an ambiguity between phrasal and X<sup>0</sup> behavior" (p. 210) which is intended to support the proposal discussed above. He briefly discusses about a half-dozen examples of cases which are supposed to show a mix of head and phrase properties. However, he provides no indication as to how his theory is to account for these cases, nor even whether they are consistent with his proposal. In most cases there are perfectly plausible accounts which do not rely on abandoning the head-phrase distinction. The section suffers from the fact that he has not precisely identified the head-phrase properties at issue, nor explained why they should be associated with heads or phrases. I will not discuss all six examples here for reasons of space, but will briefly note two, to illustrate my point.

For example, he discusses some Yoruba constructions with phrasal complexity (citing Pulleyblank & Akinlabi 1988, which I have not seen), suggesting that they are headlike in being islands for extraction and anaphora (properties, it will be noted, which do not appear in Table 1).

But the connection between islandhood and head status is far from clear; certainly, phrases can be islands, as demonstrated by Ross (1967). Worse, if excorporation is possible, as argued in Roberts (1991) or Koopman (1994), then heads are not islands for movement. Nor are they anaphoric islands, if N-incorporation structures are heads, as Carnie assumes (p. 207, citing Baker 1988; but Baker explicitly uses the referential transparency of incorporated nouns to motivate a syntactic account; cf. Baker's pp. 78-81).

More interestingly, the Yoruba phrases show derivational morphology. But this might be subsumable under a theory of phrasal affixation, such as that of Miller (1991), Anderson (1992), or Halpern (1995).

In any case, Carnie says nothing about how his theory would handle the Yoruba examples, being content to note them as a case of mixed head and phrase properties. Thus it remains unclear whether his theory "predicts" the existence of cases like Yoruba, as he claims (p. 226).

Carnie also mentions (p. 223) a case which is in a sense the opposite of the Yoruba case, that of separable prefix verbs (he mentions only Yiddish in this context, but German and Dutch are identical in the relevant respects). Separable-prefix verbs have some headlike properties, for example the prefixes are typically not phrasally complex, but on the other hand they can be separated by V movement.

Once again, Carnie does not propose an analysis, but is content to present this as a case of mixed head-phrase properties. There are two different ways out of this problem other than the abandonment of the head-phrase distinction. One is to accept excorporation as a possibility (cf. above). After all, Carnie does not suggest why excorporation should be impossible. The other approach that does not involve weakening the head-phrase distinction is to assume that separable prefix verbs are not heads at all. Zwart (1993) and Taraldsen (1998) both provide analyses in the which the 'prefix' occupies a phrasal position to the left of the verb.

The other examples Carnie presents are generally similar in that he provides no specifics as to how his theory would handle such cases, nor

does he show reasons for rejecting the reasonable alternatives available in the literature.

##### 5. Conclusion

Carnie (1995) is a careful and detailed study of Irish clausal syntax. It is to be commended for its clear discussion, ample supply of example sentences, sensible organization, attentiveness to previous work, and considerate citation etiquette. No expert on Irish syntax, I found the guided tour through the literature helpful and illuminating.

In addition, it makes some provocative theoretical claims, but these seem to me to be less well motivated and developed. I have examined the main one in detail, the bold proposal that the X-bar theoretical distinction between heads and phrases be jettisoned. I believe I have demonstrated that Carnie's system preserves the head-phrase distinction, but relocates it to the morphological component. Having systematically examined his empirical arguments for his revision of X-bar theory, I have concluded that they are wanting, and I have pointed out two alternatives to his specific proposal for non-verbal predicate constructions.

However, there are at least three ways in which even this proposal represents headway. First, it improves on the most thorough analysis of Irish copular constructions to have preceded it (Doherty 1996) in that it derives the predicate-subject order by leftward movement of the predicate, a move which is adopted in Doherty (1997). Second, it makes a first stab at capturing the parallelism between sentence-initial verbal *heads* and sentence-initial non-verbal predicate *phrases*, a distinction which looks likely to remain with us for some time. Third, it calls attention to the stipulative nature of our fundamental assumptions about phrase structure, widely assumed but rarely discussed. Even if I have rejected the specifics of Carnie's proposal, the fact remains that the X-bar distinction between head and phrase is generally underexamined.

##### Note

Thanks to Jim McCloskey, Cathal Doherty, and David Adger for discussion of this material. All opinions expressed and metaphors mixed are my own.

Abbreviations appearing in glosses are: AGR(1s) first person singular agreement, ART article, CL classifier, CCOP complementizer copula, COP copula, L linker, P preposition, POSS possessive, PRES present. See the works cited for explanations.

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# THE COPY THEORY OF MOVEMENT AND LINEARIZATION OF CHAINS IN THE MINIMALIST PROGRAM

by Jairo Nunes

reviewed by Hans-Martin Gärtner

## Summary by the author

A considerable amount of research within the Principles and Parameters Theory has been devoted to properly characterize the properties of movement, traces, and chains. In the recent developments of the Principles and Parameters Theory which have culminated with the proposal of a Minimalist Program for linguistic theory (see Chomsky 1995), these issues arise anew in face of the elimination of much of the rich theoretical apparatus previously available.

Chomsky (1993) incorporates into the Minimalist Program the "copy theory of movement", according to which a trace is a copy of the moved element which is deleted in the phonological component, but remains available for interpretation at LF. Under this view, the operation Move is a complex operation comprised of (at least) three suboperations (see Chomsky 1993: 22; 1994: fn. 13; 1995: 250): (i) a suboperation of copying; (ii) a suboperation of merger; and (iii) a suboperation of trace deletion. In addition, Move should be followed by an operation of chain formation relating the relevant copies.

There are several conceptual inadequacies in this picture. First, if no explanation for why

"lower" copies must be deleted in the phonological component is provided, the notion of a trace as a primitive is reintroduced. To put it more generally, the simplest and, therefore, most desirable version of the copy theory of movement should take traces and heads of chains to be subject to the same principles and be accessible to the same operations. Any difference between heads of chains and traces, such as phonetic realization, for instance, should follow from independently motivated properties of the computational system, rather than being idiosyncratic properties of the chain links themselves.

Deletion of traces (lower chain links) becomes even more enigmatic, if we adopt the core Minimalist assumption that economy considerations play a role in determining the set of admissible derivations in a given language or universally. Consider for instance the structure in (1) below, where *John* has moved to the subject position and left a copy behind. The derivation of (2a) from (1) requires one application of deletion targeting the lower copy of *John*, apparently being less economical than the derivation of (2b), which involves no application of deletion. Thus, if the derivations of (2a) and (2b) were to be compared in terms of economy, we would wrongly predict that the derivation of (2b) should rule out the derivation of (2a).

(1)  
[ John [ was [ arrested John ] ] ]

(2)  
a. John was arrested.  
b. \*John was arrested John.

Another conceptual problem with the computational system as proposed in Chomsky (1994, 1995: chap. 4) is that Merge is taken to be an operation in its own right in certain cases, and a suboperation (of Move) in other cases. In an optimal system, we should in principle expect Merge to have the same theoretical status in every computation. Finally, as is emphasized by Brody (1995), if chain formation and Move express the same type of relation, a theory which contains both notions is redundant.

This dissertation develops a strictly Minimalist version of the copy theory of movement which overcomes the conceptual problems raised above and has a broader empirical coverage than the versions developed in Chomsky (1993, 1994, 1995: chap. 4). It proposes that the fact that a chain cannot have more than only link overtly realized (see (2b)) follows from Kayne's (1994) Linear Correspondence Axiom (LCA), according to which the linear order of a PF sequence is determined by asymmetric c-command. Under the assumption that the two copies of *John* in (1) are "nondistinct" (they relate to the same element in the initial numeration), no linear order can be established in accordance with the LCA. Given that the verb *was* in (1), for instance, asymmetrically c-commands and is asymmetrically c-commanded by the "same" element, namely *John*, the LCA should require that *was* precede and be preceded by *John*, violating the asymmetry condition on linear order. Put simply, deletion of all but one link is forced upon a given chain CH in order for the structure containing CH to be linearized in accordance with the LCA. The derivations of (2a) and (2b) therefore cannot be compared for economy purposes, because only the former yields a PF object.

The next question to be addressed then is why it is the case that only traces are deleted for purposes of linearization, but not heads of chains.