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Flat Structure, Phrasal Variability and VSO

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Abstract

Contra the prevailing Chomskyan view of Modern Irish VSO, where the order is derived via verb movement, this paper proposes that Lexical-Functional Grammar provides a more explanatory account using a flat, VP-less structure. Using evidence from complex copular predicates, this paper shows that the variability in category of the initial predicate is due to a categorial underspecification in the S phrase structure rule. Further, in order to account for the fact that both phrasal and head material can appear in this position, a new kind of variable is proposed that holds over bar level. Finally, the paper accounts for the outward appearance of VP-like constituents by appealing to the fact that the language uses verbal nouns, and it has an NP rule, but no VP rule.

1. A Dichotomy

Verb Subject Object (VSO) order languages offer an interesting dichotomy for most current theories of syntactic structure. On one hand they show a surface string that – due to the intervening subject – points away from a verb-object VP constituent. On the other hand they show other syntactic effects that point towards the existence of a VP constituent. For example, they show extensive Subject/Object asymmetries, normally attributed to hierarchical organization. We see this in evidence from ECM/raising asymmetries (Anderson and Chung 1977), binding (Speas 1990, Ouhalla 1995, Anderson 1984 and Woolford 1991), relative clauses (McCloskey 1991), parasitic gaps (Hendrick 1988) and many other phenomena. More importantly, VSO languages like Irish often show surface constituents that appear to be VP-like. McCloskey (1983) observed that in Irish progressive sentences, the aspect marker, verb and

object together obey standard tests for constituency. This constituent (henceforth a 'pseudo-VP') is marked in bold in (1):

- (1) *Tá na teangeolai ag ól an beorach.*
 Be.pres the linguists prog drink the beer-gen
 'The linguists are drinking the beer.'

Non-constituents, such as the object-indirect object sequence in (2), are not allowed to cleft. However, the progressive verb and object can (3):

- (2) **[Úll][don ghasúr] a thug sé.*
 apple to-the boy wh gave he
 'It was an apple to the boy that he gave.' (McCloskey 1983)

- (3) *Má's ag cuartughadh leanbh do dhearbhrathra*
 if+C prog seek child your brother
a tá tú . . .
 wh-are you
 'If it is seeking your brother's child that you are . . .'
 (McCloskey 1983: 14)

Similar facts are found in Breton (Anderson and Chung 1977) and Welsh (Sproat 1985). This points away from a 'flat' VP-less approach (4) to a more articulated construction with a VP, where the VSO order is the result of some displacement operation (such as head movement) as proposed in Sproat (1985) based on work by Emonds (1980) and developed by Sproat (1983, 1985), and has since been widely adopted by practically every researcher who works on VSO order.¹

- (4)
- ```

 S
 / | \
 V Subj Obj

```

- (5) [TP T [VP Subj [ V Obj]]]
- ```

  TP
 / | \
 T VP Subj [ V Obj ]
  
```

There are a number of variations on the analysis given in (5), including differences in the landing site of the verb and the position of the subject. Lexical-Functional grammar has a variant of the head movement approach: head mobility. Tensed verbs are lexically specified as being of category T (infinitives and gerunds are category V), as such they are directly inserted into the T head in the c-structure. See Kroeger (1993) for discussion.

Head movement and head mobility accounts run into difficulty in the face of the fact that most VSO languages, including Irish, are not only verb initial, but allow all types of initial predicates:²

- (6) *Is³ dlíodóir (é) Liam.*
 Decl lawyer (agr) Liam
 'Will is a lawyer.'

Dooley Collberg (1990) first proposed that non-verbal predicate initial sentences like (7) might be assimilated to a predicate raising analysis. The basic intuition behind this analysis was adopted by Carnie (1995 and subsequent works). Carnie suggests that nominal predicates in Irish are inflected for tense, and thus move to T for feature checking:

- (7) [TP T [NP_{pred} NP_{subj} [N_{pred} . . .]]]
- ```

 TP
 / | \
 T [NPpred NPsubj [Npred . . .]]

```

This surface parallel is marred by the fact that not just nominal heads, but the entire predicate phrase appears in initial position with non-verbal predicates (Carnie 1995).

- (8a) *Is [amhrán a<sup>L</sup> bhuaifidh an píobaire] 'Máiri's Wedding'*  
 Decl song wh play.fut. the piper  
 '“Máiri's Wedding” is a song which the piper is going to play.'

- (8b) *Is [fear álainn] Liam*  
 Decl man handsome Liam  
 'Liam is a handsome man.'

Kroeger (1993) presents remarkably similar data from Tagalog predicate-initial structures and uses this data to argue that Tagalog is non-configurational, and has a completely flat structure both in verbal and non-verbal constructions. Kroeger's analysis cannot be extended to Irish which differs in some significant ways from Tagalog, including the fact that Irish has strict VSO order.

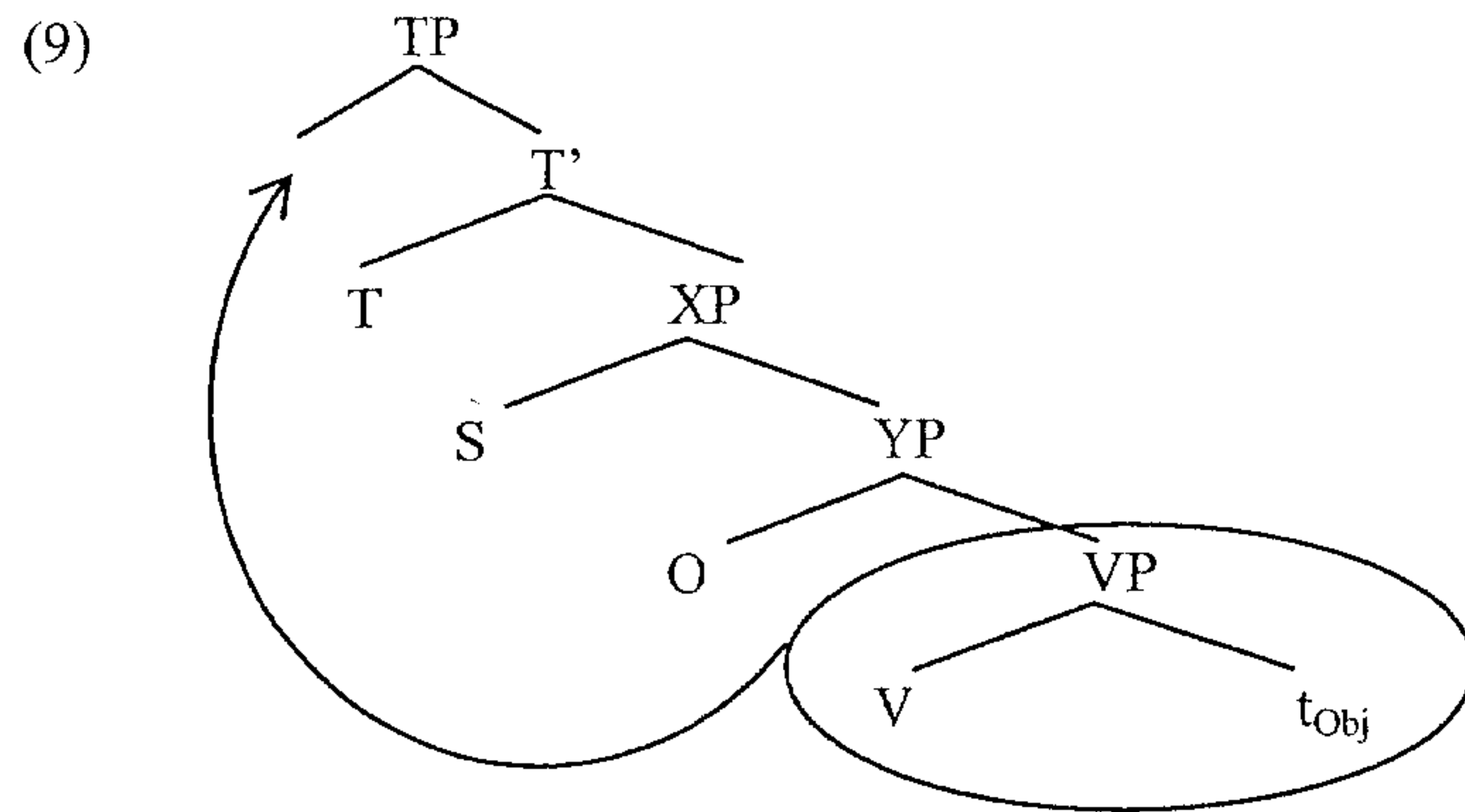
Carnie (1995, 2000) offers an alternative analysis. Carnie exploits the formalism of Chomsky's (1993, 1994) Bare Phrase Structure (BPS). He argues that in BPS, there is no primitive, nor derived, notion of whether a particular phrase marker (p-marker) constitutes a phrase or a head. Instead, it is argued that p-markers are underspecified for phrasality, and that the XP-hood or X<sup>o</sup>ness of a p-marker is read from how it behaves with respect to other components of the grammar. For example, a p-marker can have the internal syntax of an XP, but be phonologically a word. Mismatches can also be found within the syntax: a p-marker can behave both like a phrase with respect to one constraint, and like a word with respect to another. For example, clitics function as arguments and thus are fully saturated DPs, yet at the same time they obey Travis (1984)'s Head Movement Constraint, and are thus functioning like D<sup>o</sup>s. This underdetermined notion of phrasality is extended to the nominal predicate copular constructions. According to Carnie (1995, 2000) both kinds of predicate initial order are derived by head movement. Both verbs and (apparently) phrasal NP predicates raise to the T head for feature checking. Because the phrasality of an NP predicate is underspecified, it is allowed both to undergo head movement, and yet retain the internal syntax of a phrase. One obvious challenge to this account is explaining why only nominal predicates are allowed to be phrasal, and verbal ones are not. Carnie (2000) explains this in terms of a notion of canonical realization of certain feature types. What is unusual about Irish nominal predicates is that they, uncharacteristically for nouns, bear tense.<sup>4</sup> According to his Configuration of Feature Checking (CFC) constraint, tense features are always checked in a head-head configuration. In

nominal predicates, the complete NP bears the tense marking, resulting in the mismatch and the apparent case of an NP appearing in a head position. Carnie's arguments in favor of this approach include evidence from extraction phenomena and the responsive ellipsis system.

There are many reasons to believe that this underspecified system is not necessarily a desirable addition to the grammar. It is a very powerful device. Many authors, including Doherty (1997), Legate (1997), Massam (2000) and Rackowski and Travis (2000), argue that such a powerful device would be predicted to have a greater exponence in languages. Doherty (1997) (see also Svenonius 1998) claims that Dooley Collberg (1990) and Carnie (1995) are essentially right in claiming that all predicate initial orders are due to some kind of tense-driven feature checking, but that they are incorrect in assuming that the predicate initial order is uniformly due to head-movement. Instead, Doherty claims that verb initial orders involve head-movement, but that nominal predicate-initial orders involve XP movement to the specifier of TP. Tense checking can occur in either configuration. One problem with this account is the fact that NPs in the specifier of TP are otherwise unattested in the grammar of Irish. Further, while this analysis maintains the traditional phrase/head distinction, note that it is still stipulative, in exactly the same way as Carnie (1995, 2000) is. There still must be a stipulation to ensure that nominal predicates can appear in the specifier of TP, but VP predicates do not.

A series of recent articles have taken a step towards explaining the stipulation. Massam (2000), Rackowski and Travis (2000) and Lee (2000) all claim that the structure in (10b) construction is actually more basic. That is, *all* predicate initial orders involve XP movement to the specifier of TP/IP. NP predicates move to the specifier of TP, taking their complements and all modifiers with them. VSO order, in these analyses, is an artifact of VP fronting to the specifier of TP combined with an object movement process, which occurs for case reasons. Before the VP shifts, NP arguments move out of the VP to get case. The VP remnant then shifts to the specifier of TP, just like NP predicates (9):





VSO order is a result of moving a VP remnant where all material except for the  $V^o$  head has moved out of the shifted VP. Evidence for this proposal comes from a wide variety of constructions in Quiavini Zapotec (Lee 2000), Niuean (Massam 2000; Rackowski and Travis 2000) and Malagasy (Rackowski and Travis 2000), although no one has applied it directly to the syntax of Irish.

There is a serious empirical problem with these VP remnant approaches. Since only NPs are presumed to move out of the VP for case, there is no account as to why complement clauses and VP adjoined adverbs do not move along with the VP. In fact, complement clauses and VP-adjoined material appears after the subject:

(10a) *Cheap Seán go bhfaca sé an pictiúir.*  
Thought John that saw he the picture  
'John thought that he saw the picture.'

(10b) *\*[<sub>VP</sub>Cheap go bhfaca sé an pictiúir] Seán.*

(10c) *?\*[Phóg go mall] Seán é.*  
Kissed adv slow John him  
'John slowly kissed him.'

None of the theories proposed for unifying initial non-verbal and verbal predicate orders is entirely satisfactory. In this short paper, I argue that, contrary to most research in the past twenty years, a flat structure approach where the initial predicate position is unspecified for phrasality actually better accounts for the data. The fact that NPs (but not VPs) can appear in this position, follows from the fact that Irish has an NP phrase structure rule and but no VP rule.

## 2. Phrasal Variability: Unifying verbal and non-verbal predicates

In order to account for the parallels and differences among verbal and non-verbal predicates, it will be necessary to allow phrase structure categories to vary not only over category (as is standard in X-bar theory) but also over phrase-level. Variable notation in phrase structure is nothing new to Lexical-Functional Grammar (LFG). For example, Nordlinger (1998)<sup>5</sup> has phrase structure rules that allow certain categories to vary across NP and V, which is precisely the range of structures allowed in tensed Irish predicates. These elements vary both in terms of category (N, V, A, P etc) and in terms of phrasal level (word/head, phrase etc). I notate this variable as  $X^P$ .<sup>6</sup> This variable will interact with the set of phrase structure rules to produce situations where verbal predicates can only be heads, but nominal predicates can be heads or phrases. In particular this will occur because Irish has an NP rule, but not a VP rule. Consider the following Irish c-structure rules:

(11a)  $S \rightarrow X^P \quad NP \quad \left[ \begin{array}{c} NP \\ (\uparrow \text{SUBJ})=\downarrow \end{array} \right] \quad \left[ \begin{array}{c} S' \\ (\uparrow \text{OBJ})=\downarrow \end{array} \right] \quad (\uparrow \text{XADJUNCT})=\downarrow$

(11b)  $NP \rightarrow \text{Det} \quad N \quad \left[ \begin{array}{c} NP \\ (\uparrow \text{OBJ})=\downarrow \end{array} \right] \quad \left[ \begin{array}{c} S' \\ (\uparrow \text{XADJUNCT})=\downarrow \end{array} \right]$

The head ( $\uparrow=\downarrow$ ) of the sentence rule is variable in terms of both phrasality and category:  $X^P$ , meaning that either a phrase or word can be inserted



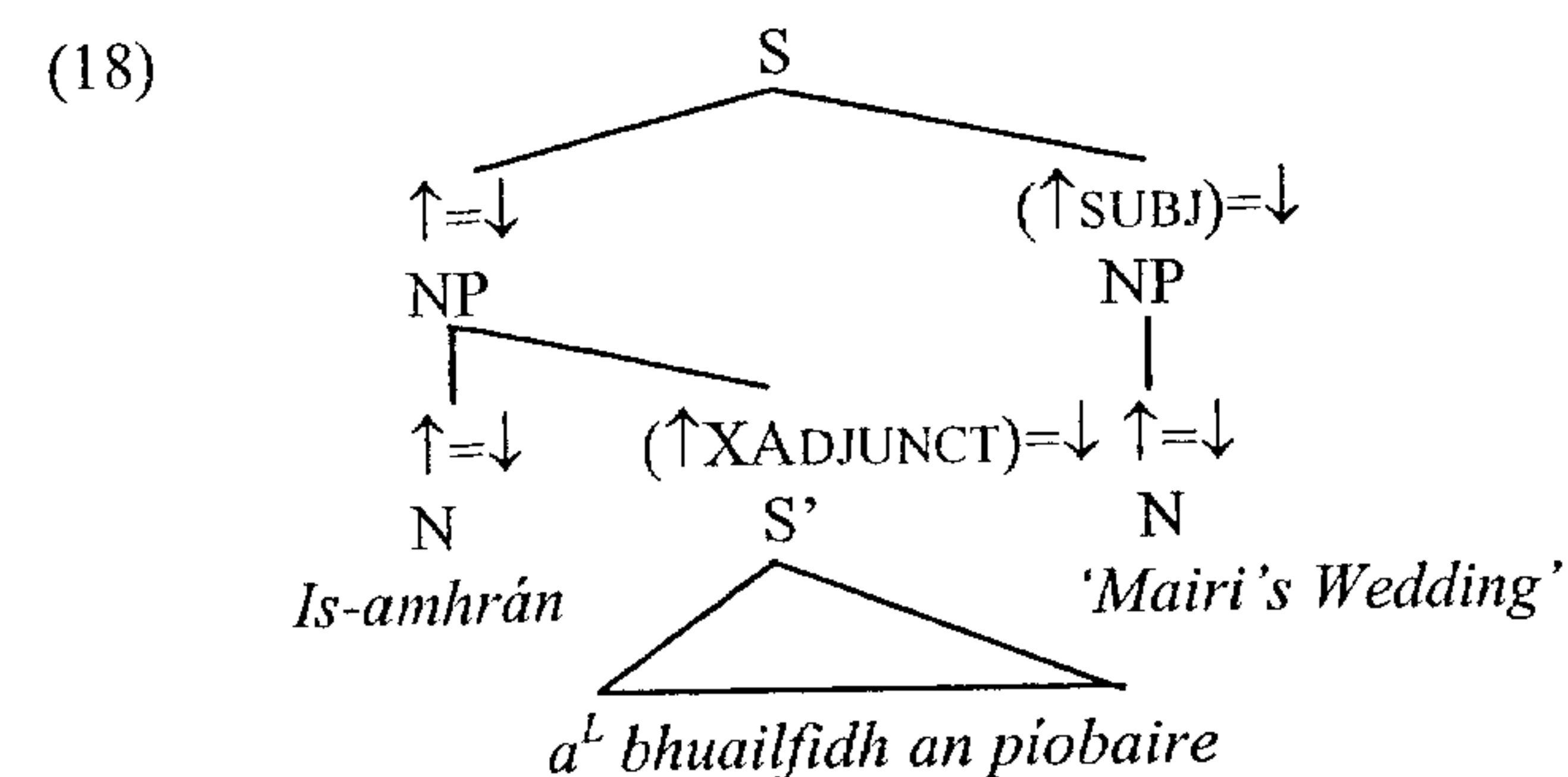


- (16)  $\left[ \begin{array}{ll} \text{PRED} & \text{'doctor'} <(\uparrow\text{SUBJ})> \\ \text{SUBJ} & \text{['John']} \end{array} \right]$

Now finally, we turn to complex predicates, such as:

- (17) *Is amhrán a<sup>L</sup> bhuaifidh an píobaire* 'Mairi's Wedding'.  
 C song wh play.fut the bagpiper  
 '“Mairi's Wedding” is a song which the bagpiper will play.'

For sentence (17) only one possible c-structure exists: the complex NP is inserted into X<sup>P</sup>.



A prediction of the approach given here is that the predicate head should be allowed alone in the X<sup>P</sup> variable, even when the predicate is complex. This prediction seems to be borne out; the predicate can be realized by a simple head, leaving its complement elsewhere in the clause:

- (19) *Is amhrán 'Mairi's Wedding' a<sup>L</sup> bhuaifidh an píobaire.*  
 C song wh play.fut the bagpiper  
 '“Mairi's Wedding” is a song which the bagpiper will play.'

To summarize, because of the phrasal variable X<sup>P</sup>, either words or phrases may appear in the predicate position. Nominal predicates are allowed to

surface either as simple nouns or as complex NPs. By contrast, with verbal predicates, only the verb with no modifiers or complements is allowed in this position. This is because Irish has an NP rule (as attested in other positions, such as the subject position), but no VP rule.

### 3. Explaining the dichotomy

Let us now return to the dichotomy that started this squib. On one hand we have the fact that in tensed clauses, surface order points away from a structure with a VP. On the other, we have evidence from subject/object asymmetries and pseudo-VPs that there is a VP structure. In the account here, the first fact is taken to be primary: there is no VP in Irish. Subject/Object asymmetries fall out from the functional structure associated with a given sentence. The problem of pseudo-VPs is trickier. However, there is extensive evidence that these are perhaps NPs, which are allowed in the grammar of Irish.

In traditional grammar the participial heads of these pseudo-VPs are called 'verbal nouns', primarily because they have extensive properties normally associated with nouns. A full survey of these features can be found in Borsley (1997)<sup>9</sup> and Guilfoyle (1990). However, we might note the most salient: complements of verbal nouns take genitive case (at least in formal varieties); pronominal objects of verbal nouns are normally expressed with possessive pronouns, rather than object pronouns, and finally all the aspectual markers associated with these verbal nouns are very similar to prepositions.<sup>10</sup> It thus seems not unreasonable to conclude that the heads of these pseudo-VPs are not verbs, but some kind of nominal (contra Borsley 1997). Given that we do have an NP rule, the fact that we find constituency tests targeting verbal nouns and their complements is unsurprising, since these may well be nominal constituents, not verbs at all:

- (20a) *feiceáil:* N (↑PRED)= 'see <(↑SUBJ)(↑OBJ)>'  
 (20b) *chonaic:* V (↑PRED)= 'see <(↑SUBJ)(↑OBJ)>'  
 (↑TENSE)= PAST



Since the participial form is an N, it can participate in the NP rule, giving the appearance of a 'VP'. This requires a slight modification of the S rule where the head is restricted to inflected predicates – thus excluding verb-noun phrases:

$$(21) \quad S \rightarrow X_{\text{Infl}}^{\text{P}} \quad \text{NP} \quad \left( \text{PP/NP} \right) \left( \text{NP} \right) \\ \uparrow=\downarrow \quad (\uparrow\text{SUBJ})=\downarrow \quad \uparrow=\downarrow \quad (\uparrow\text{OBJ})=\downarrow$$

One prediction that this rule makes is that it allows nominal predicates (as opposed to verbal noun predicates) in Irish to appear optionally between the subject and optional object, provided that some other element (e.g. an auxiliary) contributing the inflection to the f-structure of the S node appears in initial position. Interestingly, such a sentence is not entirely ill-formed. With stage-level nominal predicates this is precisely what emerges:

$$(22) \quad \text{Tá Séan ina bhuachaill.} \\ \text{Is John in-his boy} \\ \text{'John is a boy.'}$$

#### 4. Conclusion

The analysis presented in this paper is essentially a cross between an endocentric analysis of f-structure mapping (as is typical of a configurational language) and a lexicocentric analysis of f-structure mapping (as is typical of non-configurational languages). Notice that the standard analysis of verb/auxiliary alternations (using the functional projection  $I^{\circ}$ , and head mobility) cannot account for the full range of the Irish facts, precisely because the inflected element in Irish can be more than a mere head: it can be phrasal. An analysis using head mobility or movement will by definition fail, since more than a head is mobile, and an analysis with VP remnant movement is not consistent with the empirical facts of the language. Only the approach that allows variability in the phrasal status of the head explains the full range of facts,

#### Notes

1. Such as Sadler (1988), Mohammed (1988), Ouhalla (1994), Duffield (1995), Guilfoyle (1990), Noonan (1994), McCloskey (1991, 1996a, 1996b, 1997), Chung and McCloskey (1987), Kaplan (1991), Fassi Fehri (1993), Carnie (1995), Carnie, Harley and Pyatt (2000) and Hendrick (2000) to name only a few.
2. This claim requires the assumption that equative structures don't involve a nominal predicate. See Carnie (1997) for discussion.
3. I assume here, following Doherty (1996), Carnie (1995, 1997) and Ó Sé (1987, 1990) that *Is* here is not a true verb, but a complementizer indicating declarative mood. See the above mentioned work for evidence in that regard.
4. Nordlinger and Sadler (to appear) have proposed that in a variety of languages nominals can contribute tense to the sentence. The difference between the cases they examine and the one here is that all of their cases involve argument NPs that morphologically express the tense (e.g. English *you'll* contributes the tense information to the sentence). In the Irish case, the tense is not morphologically expressed on the noun (however, there is a preverbal particle which may express mood information (Ó Sé 1987, 1990), and the nominals are predicates, not arguments).
5. Nordlinger (1998) presents an analysis of facts from Wambaya, which bear a certain similarity to the phenomena discussed here (i.e., predicates in Wambaya can be either NPs or Vs). Unfortunately, her analysis does not translate to the Irish facts. Wambaya shows the typical non-configurational ordering of many Australian languages. There is a second position clitic, and other elements are freely ordered. There is a restriction on the first element, such that it must be a constituent. Nordlinger analyzes this phenomenon as involving an  $I^{\circ}$  category, which stands for the second position clitic. The specifier of IP is the topic position, and the rest of the clause constitutes an S node (roughly equivalent to a small clause). Elements within S are freely ordered, they may consist of either NPs or Vs. Mapping between the c-structure and f-structure is determined primarily by lexicocentric principles; that is: case morphology – rather than annotated phrase structure – constructs the grammatical functions to be associated with each word in the sentence.



The variable C, annotated with  $(\uparrow(GF))=\downarrow$ , allows both verbs (in verbal clauses) and NPs to serve as the head of the clause, as is empirically attested in the language. There are two problems in applying this kind of analysis to Irish. First, Irish shows rigid word order and very little morphological marking for expressing grammatical functions. Like English, it does not distinguish case forms except in pronominals, and even here there is a fair amount of flexibility in terms of the usage of these case forms. Typologically, Irish is at the other end of the scale from Wambaya and other typical 'non-configurational' languages. The grammatical functions of Irish seem to be fixed by c-structure position rather than through lexicocentric principles. Nordlinger's account is designed to account for the typological properties of non-configurational languages. Irish, although lacking a VP, is a typical configurational language, with rigid word order and poor case marking. As such a lexicocentric account, such as Nordlinger's, does not work well for Irish. More importantly, however, there is a purely technical flaw with Nordlinger's account when it comes to the linear positioning of elements in Irish. In particular, note that Nordlinger's variable category occurs under S (precisely what is predicted of the unheaded S category). The fixed inflection is expressed by the second position clitic. In Irish, you will recall, it is the *inflected* predicate which alternates with auxiliaries. As such we predict that it is occupying the endocentric I°, not merely a constituent of S. This cannot be right for the same reasons that a Welsh-style head mobility cannot be correct: the elements in question in Irish can be phrases, not heads like I°. Simply moving the S to initial position (i.e., rewriting the IP rule as  $IP \rightarrow S I^\circ$ ) would not solve any problems either, since it would fail to explain why typical I° elements (such as auxiliaries) appear initially, when they should be part of I° and thus should be final on such an analysis. The account here adopts the phrasal variable from Nordlinger's ideas but uses it for a rigid word order (albeit flat-structure) language.  $X_{\text{inf}}^P$  is an I°-like element variable in bar-level and category.

6. Nordlinger (1998) uses C, Bresnan (2001) uses *X* (italicized).
7. At first glance, simply claiming that there is no VP rule may appear to be fairly stipulative. However, see Borsley (1989, 1995) for empirical evidence that the subject argument with finite predicates in the VSO

- language Welsh is a second complement, rather than a subject, which provide some support for the lack of a VP proposed here.
8. I treat morpheme *is* here as a proclitic on the nominal predicate, see note 3 above. There is extensive evidence that this element is indeed a clitic (see Carnie 1995 and Doherty 1996 for discussion). It is possible, however, that the proper treatment of this element is actually as a tense bearing complementizer (as is suggested in McCloskey 1996b). Since I have not provided an S' rule here, I have abstracted away from this possibility.
  9. Borsley (1993) argues that verbal nouns in Welsh behave differently from other nouns, which casts doubt on their nominal status. For example, *wh*-extraction out of NPs is disallowed in Welsh, but is allowed out of verbal noun phrases. Similarly it is possible for a clause-mate NP to bind a pronoun inside another NP, but not inside a pseudo-VP. A problem for our approach is that similar differences in behavior between regular NPs and pseudo-VPs also occur in Irish. Note, however, that both the phenomena that Borsley considers (binding, extractability) are sensitive to boundary conditions, where boundaries are defined as the syntactic edges of some constituent that serves as either a referential element or a proposition (roughly DP and CP). This points to a different analysis of Borsley's facts, where what is relevant for the phenomena of extraction and binding is not syntactic category (N or V), but rather some notion of boundary (which may be variously defined). The availability of extraction from verb noun phrases, and the unavailability of binding of pronouns in them, stems from the fact that these are semantically unsaturated functions. Completion of the function, either by closing with a reference marker (such as a determiner), or by satisfying the argument structure of the predicate with arguments (as in a clause), put limits on the domains of *wh*-extraction and binding. With pseudo-VPs we have a semantically open predicate, so we do not expect such phenomena to be sensitive to pseudo-VP constituency. Syntactic category is irrelevant to the question. Some evidence for this proposal may well come from true nominal predicate constructions in Irish, which Doherty (1996) shows typical VP-like (not NP-like) binding behavior.
  10. McCloskey (1983) argues that, despite surface similarities, the preposition *ag* and the aspect marker *ag* are not isomorphic. For



example, in front of consonant initial stems, the *ag* aspect marker is pronounced /ə/, whereas the prepositional *ag* is pronounced /əg/. Nonetheless, the similarities are striking – at least diachronically – even if the surface form is not exactly isomorphic, and one appears to be a real preposition and the other an aspect particle.

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