

The development of head movement
The rise of verb-initial word order in Old Irish

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This paper considers the interaction of morphology and syntax in the development of head movement, specifically in the development of V-to-C movement in Old Irish. Building on the philological insight that the development of the Old Irish double system of verbal inflection is connected to the rise in verb-initial word order, a new account of the development of the Old Irish verbal system is proposed, which combines insights from Celtic philology and ideas from minimalist syntax.

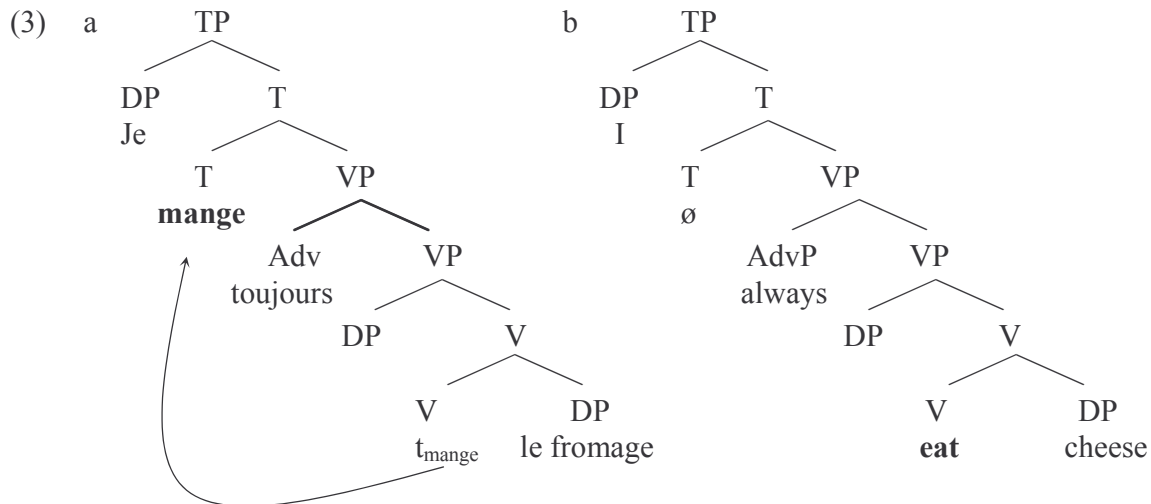
1. Introduction: verb movement and morphology

It is well known that different languages show different word order patterns. Let us take for example English and French. In English, as shown in examples (1a) and (1b), the verb and object must be linearly adjacent, no adverbs can intervene. In French, as in example (2), on the other hand, this is not the case, and adverbs can appear between the verb and the object.

- (1) a. I **always** eat cheese
b. * I eat **always** cheese
- (2) a. Je mange **toujours** le fromage
I eat always the cheese
b. * Je **toujours** mange le fromage
I always eat the cheese

Within generative syntax it is argued that these differences in word order patterns are a result of different movement operations. The difference in verb position in the examples above can be explained in generative terms if we assume that negation and the relevant class of adverbs (so-called VP-adverbs) have a set position in the clause, marking the left edge of the verb phrase (VP). In French, the verb moves out of the VP to the T(ense) position and so appears to the left of VP adverbs and negation. In English, however, the verb does not move to T. It remains in its base

position within the VP and so appears to the right of VP adverbs and negation. The difference in movement operations can be seen in the trees in (3) below.



Such differences in movement operations are often linked to differences in inflectional morphology. In the case of verb movement, for example, it has been widely observed that if a language has rich verbal inflection, marking tense or subject agreement, it will also have V-to-T movement (Roberts 1985; Pollock 1989). If we consider the examples in (4), it seems that this generalisation holds for English and French. The French present tense forms in (4a-b) shows rich subject agreement inflection. The only agreement inflection shown by the English present tense forms in (4c-e) is the third singular marker *-s*.¹

- (4) a. Je mange **toujours** le fromage
 b. Nous mangeons **toujours** le fromage
 c. I **always** eat cheese
 d. He **always** eats cheese
 e. We **always** eat cheese

It should be noted, however, that this correlation between verb movement and verbal morphology only holds one way. There are many languages that have V-to-T movement in the absence of rich morphology. Given in (5) is an example from the Celtic language Manx. The verb appears in first position, preceding the subject and so must have moved from the VP, however, the verb shows no person agreement, having the same form in both the third singular and the third plural.

¹ Biberauer & Roberts (2005) argue that in some cases V-to-T movement may correlate with rich tense inflection rather than agreement inflection. Although in written French subject agreement is clearly marked on the verb, in spoken French few of these distinctions are pronounced. However, French has more tense distinctions than English (and the other Germanic languages), therefore Biberauer and Roberts argue that it is this tense morphology rather than subject agreement which triggers V-to-T movement in this case.

- (5) a. Haink eh gys e vooijer hene
 came he to his people own
 ‘He came to his own people’ (NE ch1v11)
- b. As haink ad gys Ean
 and came they to John
 ‘And they came to John’ (NE ch3v26)

Under current theoretical assumptions, rich inflectional morphology cannot be said to directly cause verb movement in the syntax. According to the minimalist programme (Chomsky 1995, 2000, 2001) movement is motivated by abstract syntactic features, such as EPP features, or in more recent work, edge features (Chomsky 2005). In addition if we assume a theory such as Distributed Morphology (Halle & Marantz 1993), whereby phonological features are inserted only at the point of spell out, the rich inflectional morphology will not be present in the derivation until the syntactic movement processes are complete. If the morphological information is not present in the syntax, it cannot cause movement (see Bobaljik 2002).²

An alternative view of the correlation between morphology and verb movement is that, although it plays no role in synchronic syntactic processes, rich inflectional morphology may act as a cue for the acquisition of verb movement. Dresher & Kaye (1990) argue that during language acquisition, in order to set their parameters, children look for specific pieces of evidence in the linguistic data. For each parameter, Universal Grammar (UG) provides a cue, a specific piece of structure that the children must find in the linguistic data in order to set that parameter positively. Lightfoot (1999) applies this cue-based approach to parameter setting to syntax. He argues that children set the verb-second (V2) parameter positively if they hear sufficient evidence of some constituent other than the subject appearing in front of the verb. The crucial evidence for a child learning Dutch are sentences such as those given in (6b), (6c) and (6d), where an object (*vele studenten*), a prepositional phrase (*in Amsterdam*) or an adverb (*vaak*) precedes the verb (*zagen*) and the subject (*wij*).

- (6) a. Wij zagen vele studenten in Amsterdam
 We saw many students in Amsterdam
- b. Vele studenten zagen wij in Amsterdam
 Many students saw we in Amsterdam
- c. In Amsterdam zagen wij vele studenten
 In Amsterdam saw we many students
- d. Vaak zagen wij vele studenten in Amsterdam
 Often saw we many students in Amsterdam’

(Lightfoot 1999:151)

² If, as argued by Bobaljik & Thráinsson (1998), languages with rich inflectional morphology store these inflections as separate lexical items, and separate lexical items constitute independent syntactic feature bundles, then rich inflection may be detected by the syntax, even within a Distributed Morphology approach.

V-to-T movement can similarly be cued by syntactic evidence. If the child encounters sufficient examples where the verb appears to the left of VP-adverbs or negation this will enable her to set the V-to-T movement parameter positively.

The correlation between morphology and verb movement shown in the examples in (3) above could be explained if inflectional morphology is taken to be a cue for the acquisition of V-to-T movement. If the verb is consistently found with inflections that are associated with a particular functional head, this can be taken as evidence that the verb has moved to this functional position. Children acquiring French will encounter verbs with rich inflectional morphology, and so will set their V-to-T parameter positively. English children, on the other hand, will not encounter such morphology and so will not set the V-to-T parameter positively.

If both morphological and syntactic cues play a role in the acquisition of V-to-T movement, it is necessary to determine how they interact. The morphological cue is by no means necessary for the acquisition of V-to-T movement, as shown by languages such as Manx, which have no verbal inflection. This means that rich inflections cannot be the only evidence taken into account during acquisition. More problematically, all the languages that show rich inflection also satisfy the syntactic cue for V-to-T movement, with the verb appearing to the left of VP-adverbs and, in some cases, negation.³ There are no known examples where V-to-T movement is acquired on the basis of morphological evidence alone. It seems most likely, in the case of V-to-T movement at least, that the morphological evidence simply reinforces the syntactic evidence, making the evidence for the parameter setting more robust.

The correlation between verb movement and agreement morphology is also present in the diachronic data. It has often been observed that the loss of morphology leads to a loss of movement (see Roberts 1985; Pollock 1989; Vikner 1997; Rohrbacher 1997). However, V-to-T movement is not lost as soon as the relevant morphology is lost. V-to-T movement can clearly be retained on the basis of syntactic evidence. In other words, it does not seem that the loss of verbal morphology directly causes the loss of verb movement; it is simply a contributing factor.

Although it seems to be the case that verb movement and morphology are in some way related, it is by no means clear what exactly this relationship is and how it should be formulated. This paper aims to shed some light on this issue by considering it from a different perspective. Instead of V-to-T movement, the focus here is on V-to-C movement and rather than examining the loss of verb movement, this paper looks at how it might develop and how this is related to the development of new morphology. Section 2 provides an introduction to the Old Irish verbal system, an existing generative analysis of these data and an influential philological account that has attempted to explain how the system developed. Section 3 combines the philological accounts with minimalist syntax to provide a new account of this development, whereby the development of V-to-C movement is shown to be linked to the development of new C-oriented verbal morphology. Section 4 concludes the paper.

³ Negation can only be a cue for V-to-T movement if the language in question expresses it as a VP adjunct. Luis Vicente (p.c.) points out that negation in Spanish and Italian appears in a high position above TP, and so cannot be a cue for V-to-T movement. This is also the case for Modern Irish.

2. The Old Irish verbal system

Old Irish (OIr) differs from other Indo-European (IE) languages in two main respects. First, as can be seen in the examples in (7) OIr has unmarked verb-initial word order. Secondly, OIr has a double system of verbal inflection. This means that the verb's morphological ending differs depending on the position of the verb in the clause. When the verb is in absolute initial position it has absolute inflection, as shown in (7a). When the verb is preceded by a conjunct particle (e.g. a negative or interrogative particle) it has conjunct inflection, as in (7b).⁴

- (7) a **Berid** in fer in claideb
 carries.3SG.ABS the man the sword
 'The man carries the sword'
- b Ní **beir** in fer in claideb
 NEG carries.3SG.CONJ the man the sword
 'The man doesn't carry the sword'

Verb-initial order is rare within the IE language family, especially outside of the Celtic branch, and the double system of verbal inflection is virtually unique to OIr.⁵ The rarity of these features within IE, especially within the older IE languages, means that neither feature is reconstructed for Proto-Indo-European. However, OIr is clearly an IE language (see Fortson 2004 for a summary of the evidence) and so both of these features must have developed from the PIE verbal system. It has been proposed within the philological literature that the development of the double system of verbal inflection is related to the development of verb-initial order (Watkins 1963; McCone 1979; Sims-Williams 1984). A link has also been drawn synchronically between these two features. Before we consider how the verbal system developed, let us examine how the OIr data can be accounted for within minimalist syntax.

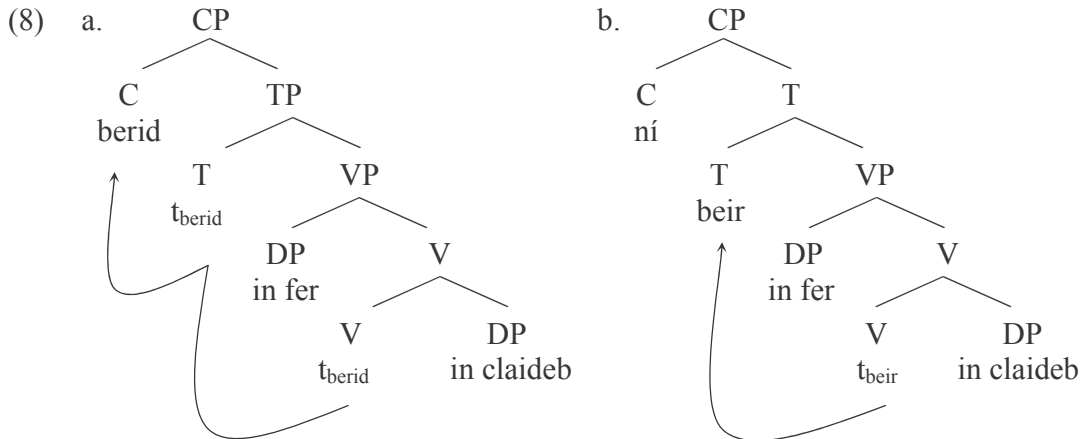
2.1 A synchronic account: Carnie, Harley & Pyatt (2000)

Carnie, Harley & Pyatt (2000 – CHP) argue that the difference between absolute and conjunct inflection reflects a difference in syntactic position. CHP argue that OIr has a filled C requirement. When there is a negative, interrogative, or any other conjunct particle, this fills the C position and so the verb only moves as far as T. When no conjunct particle is merged in C, the verb is forced to move to this position as a result of the filled C requirement. Under this view,

⁴ In addition to these simple verbs, OIr also has a large number of compound verbs, which consist of a simple verb compounded with one or more preverbs (particles etymologically related to prepositions). Compound verbs also show different forms depending on their position in the clause, with the stem rather than the ending showing the alternation. In absolute initial position the verb is deuterotonic, *do-beir* 'gives'. When preceded by a particle the verb is prototonic, *ní tabair* 'does not give'. The development of compound verbs will not be dealt with in this paper due to restrictions of space. For more details see Newton (in progress).

⁵ There are traces of an absolute/conjunct distinction in Old Welsh. However, there is no longer a fully functional system as is found in OIr (see Evans 1964:118–9; Rodway 1998).

absolute inflection can be seen as a realisation of some kind of C feature on the verb, which is only present when the verb has moved to C.⁶ The difference is shown schematically in the trees in (8) below, which represent the examples in (7):



CHP provide two main pieces of evidence to support this analysis, namely object pronouns and relative verbal forms. Object pronouns in OIr are enclitic and appear in second position. When the verb is in absolute initial position, the pronoun is suffixed to it. When the verb is preceded by a conjunct particle, the pronoun is infixed between the conjunct particle and the verb. This is shown in (9) below:

- (9) a. beirth-i
 carries.3SG.ABS-it
 ‘Carries it’ (Ml 42b7)
- b. Ní-m charat-sa
 NEG-me loves.3PL.CONJ-EMPH.1SG
 ‘They do not love me’ (Wb 5c6)

CHP argue that the object pronoun has a fixed position in the clause and marks the left edge of the TP. Therefore, as simple verbs precede the pronoun they must be in C.

CHP’s second argument comes from special relative verbal forms. One way to mark the relative in OIr is for the verb to have a special relative form, as shown in (10) below, where the non-relative form would be *gaibid*.⁷

- (10) is oinfer gaibes búaid
 is one.man seizes.3SG.REL victory
 ‘It is one man who seizes victory’ (Wb 11a4)

⁶ Although CHP’s analysis accounts well for simple verbs, compound verbs are more problematic. See Newton (2005) and Adger (forthcoming) for details.

⁷ See also example (18a) in section 3.1 below.

Relative marking is typically linked to the C position due to the similarity between relatives and interrogatives (Chomsky 1977). Therefore, the fact that only verbs in absolute initial position show these relative endings suggests that only simple verbs in absolute initial position are in the C position.

Although CHP's analysis is not problem-free (see Newton 2005, Adger forthcoming for details), for the remainder of this paper, it will be assumed, following CHP, that verbs in absolute position in OIr are in the C-position, and so OIr has V-to-C movement.

2.2 A philological account: the particle theory

Having established that a connection can be drawn synchronically between the position of the verb in OIr and its inflection, we will now go on to examine how these two features can be linked diachronically. There have been various accounts proposed for the development of the double system of inflection (see Russell 1995:49–55 and references therein). For the purposes of this paper we will focus on one of the most successful – the particle theory.

The main phonological difference between absolute and conjunct forms of the verb is that absolute forms are longer than conjunct. This can be seen in the paradigm of the verb *berid* 'carries' given in (11) below.

| | | |
|------|--------------------|-----------------|
| (11) | Absolute | Conjunct |
| | 1sg <i>biru</i> | -biur |
| | 2sg <i>biri</i> | -bir |
| | 3sg <i>berid</i> | -beir |
| | 1pl <i>bermai</i> | -beram |
| | 2pl <i>beirthe</i> | -berid |
| | 3pl <i>berait</i> | -berat |

In the singular forms the absolute has an extra syllable. In the 1st and 2nd plural the absolute and conjunct have the same number of syllables, but the forms differ as the absolute has retained a final syllable, which the conjunct form has lost. Conversely, the absolute form has lost an internal syllable through syncope, which the conjunct form has retained (e.g. 1pl absolute **beromos>berØmai* vs. 1pl conjunct **beromos>beramØ*).

Cowgill (1975) proposes that the OIr conjunct forms developed from the PIE forms after the process of **i*-apocope, which deleted /i/ when it was word final, i.e. adjacent to a word boundary, as in (12):

| | |
|------|--|
| (12) | <i>*bhereti>*bheret>-beir</i> 'carries.CONJ' |
|------|--|

The phonological form of the absolute endings can be explained if this process did not occur and the *-i was preserved, as in (12).⁸

(13) *bhereti>berid ‘carries. ABS’

Cowgill argues that the final *-i was preserved due to the presence of an enclitic particle of the form *es. The enclitic formed a phonological word with the verb, meaning that the final /i/ was no longer adjacent to a word boundary, and so the process of *i-apocope could not apply. As this particle was enclitic it appeared in second position in accordance with Wackernagel’s Law (Wackernagel 1892). When the verb was in absolute initial position, the particle appeared in second position and so was suffixed to it, preventing apocope. When some other element was in initial position, for example a negative or interrogative particle, or some other conjunct particle, the particle cliticized to this and not to the verb. Therefore, when the verb was non-initial the final *-i of the verb was subject to apocope, giving the paradigm in (10).

The particle theory accounts well for the phonological shape of the absolute and conjunct endings (although see McCone 1979, 1985 for arguments against it) and for the distribution of the forms. However, the particle theory has two major problems. First, Cowgill provides no plausible etymology for his particle *es. Secondly, although the particle theory relies on the fact that the verb was in initial position, it offers no explanation as to how it got there. These problems are not insurmountable. By combining Cowgill’s particle theory with generative syntax we can solve these problems and provide a complete theory of the development of absolute and conjunct inflection.

3 The development of V-to-C movement

In section 2.1 it was argued, following Carnie, Harley & Pyatt (2000) that when the verb is in absolute initial position in OIr it is in the C position. Therefore, OIr has V-to-C movement. PIE, on the other hand, is generally reconstructed as a verb-final language (Fortson 2004:142). This suggests that the verb did not leave the VP, and so there was no V-to-C or V-to-T movement. However, the early IE languages do show some examples of verb-initial orders. In example (14a) from Vedic Sanskrit, the verb *átārisur* ‘cross’ is in initial position, preceding the subject. In (14b) from Homeric Greek, the verb *erētuseie* ‘curb’ of the second clause appears in initial position.

- (14) a. * *átārisur bharatṃ gavyáva sām*
 cross Bharata cow-seeking together
 ‘The cow-seeking Bharatas have crossed over’ (RV 3.33.12a/Hale 1995:193)
- b. * *êe cholon pauseien erētuseie te thumon*
 or wrath check curb and spirit.ACC
 ‘Or he should check his wrath and curb his spirit’ (Il 1,192)

⁸ Cowgill’s *i-apocope was an early change. A further process of apocope, which affected all final syllables, occurred in the fifth century. It is this process of apocope which is shown in (11) and (12), where *bheret>-beir and *bhereti>berid. The retention of the final *i in the absolute form meant that the /t/ was intervocalic. This provided the phonological conditions for lenition of /t/>/θ/ (spelled ‘d’). The presence of the final *i also affected the vowel of the preceding syllable causing it to raise from /e/>/i/. See McCone 1996 for more details of these changes.

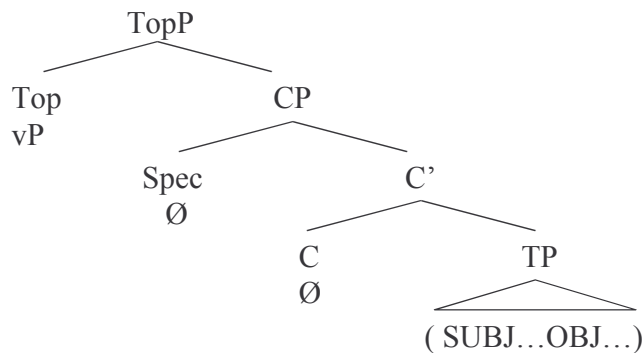
Examples such as these provide evidence that verb-initial orders should be reconstructed for PIE (Watkins 1977). However, there is an important difference between verb-initial orders in OIr and in other IE languages: verb-initial order in OIr is unmarked whereas fronting the verb in the other early IE languages seems to have a pragmatic or discourse effect. In the other IE languages, verb-initial orders are stylistically marked. Watkins (1963) observes that fronting the verb in these early IE languages had the same pragmatic effect as fronting a nominal.

‘For in such other Indo-European languages, where the normal position of the verb is sentence final [i.e. not OIr – GEN], any element, subject, object, prepositional phrase, etc. may be placed in the initial position for stylistic emphasis; the placing of the finite verb itself in this initial position is simply another case of the same emphasis.’
(Watkins 1963: 5)

If fronting the verb has the same stylistic effect as fronting any other constituent we would expect verb fronting to target the same position and be a result of the same process as any other type of pragmatic fronting.

Hale (1987) argues that pragmatic fronting in Vedic Sanskrit involves movement of a phrasal category (an XP) to the specifier position of a topicalisation phrase (TopP) in left periphery of the clause (cf. Rizzi 1997). If, following Hale, we extend this analysis to PIE, then verb-initial orders in PIE should be analysed as movement of the whole verb phrase to Spec-TopP. This is shown in (15) below.^{9,10}

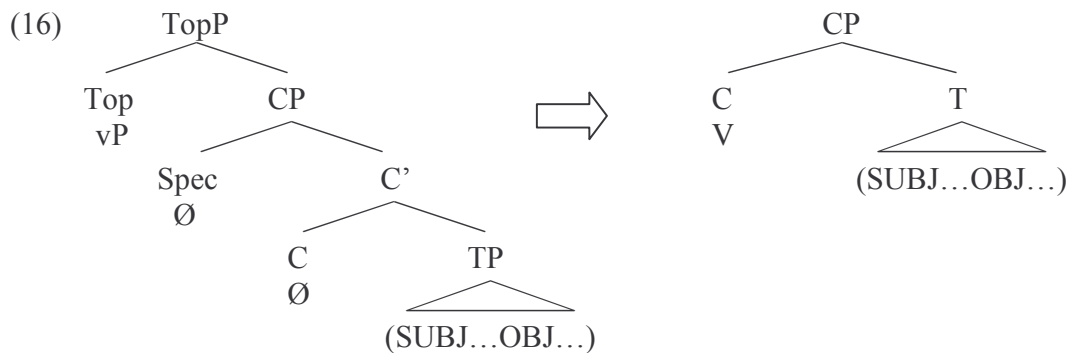
(15)



⁹ A question that arises here is whether it is just the lexical VP that is fronted, or the whole vP. This issue is not relevant to the analysis presented in this paper, and so will not be discussed further (see Newton in progress for further details). For the remainder of the paper it will be assumed that it is the vP rather than the VP that fronts.

¹⁰ Although the CP is empty in the tree in (15) there is good evidence for postulating two separate projections in the left periphery for the early IE languages. Hale (1987, 1995) observes that in Vedic topicalised elements appear to the left of interrogative and relative pronouns. From this he proposes that there must be two projections in the left periphery, a CP for hosting interrogative and relative pronouns, and a higher topicalisation phrase for topicalised constituents. See Newton (forthcoming) for further details.

So, the development of verb-initial order in OIr, viewed in the philological literature as the generalisation of a stylistically marked PIE order, can be described in generative terms as a reanalysis, whereby pragmatically motivated vP movement is reanalysed as grammatically motivated V-to-C movement. This is shown schematically in (16).



Having provided an account of how verb-initial order could have developed in OIr, we still need as explanation as to why this change should have taken place. Under the generative view, syntactic change is the result of children acquiring a different grammar from their parents. Roberts & Roussou (2003) argue that during language acquisition children postulate the simplest grammar consistent with the evidence they encounter. Roberts & Roussou define simplicity in the following way:

- (17) 'A structural representation R for a substring of input text S is simpler than an alternative representation R' iff R contains fewer formal feature syncretisms than R'.'
(Roberts & Roussou 2003:219)

An XP will contain more internal structure, and therefore more formal features than a single head. On the assumption that when an element is moved it is copied and remerged higher in the structure, the movement of an XP will involve the duplication of more features, and so make the structure more complex than the movement of a head. As a result, moving an XP is more costly than moving a head. When children are acquiring their grammar, then, if the evidence is ambiguous, they will analyse a moved element as a moved head rather than a moved XP.¹¹

The crucial point to note is that although the reanalysis is motivated by the simplicity metric, it will only take place if the evidence is ambiguous between vP and verb movement. In order for this to be the case there are certain conditions that must be met. These conditions are listed below:

- (18) a. The C position must contain no phonologically overt element that will prevent the learner reanalysing the fronted verb in the Topic position as a C element.
b. The specifier of CP must be empty. It must contain no phonologically overt material.
c. Pragmatic vP-fronting must be sufficiently frequent.
d. Pragmatic vP-fronting must be of a remnant rather than a full vP.

¹¹ See also van Gelderen's (2005) Spec to Head Principle: 'be a head rather than a phrase'.

Both of these types of relative marking can be shown to have developed from an uninflected, enclitic relative particle of the form **io* (see Watkins 1963; McCone 1980 for details). However, the etymology of this particle is not entirely clear. McCone (1980) argues that this relative pronoun developed from a connective particle, cognate with Hittite *ya*. However, this seems to ignore the similarity in form between the proposed Celtic form **io* and the inflected PIE form **io-*. A possible alternative is that the inflected PIE relative became grammaticalised in Celtic, changing from an inflected relative pronoun in Spec-CP to an uninflected relative marker appearing in the C head (see van Gelderen 2005 for a similar proposal on the development of *that* in English). We will leave this issue for further research. Whatever the origins of the Celtic uninflected relative marker, as discussed in section 2.1 above, relative marking is a property of C. Therefore, it seems likely that wherever this particle came from, by the pre-OIr period it would have appeared in the C position.

To summarise this section, it has been argued that PIE had no complementizers and so condition (18a) was met. On the other hand, condition (18b) was not met in PIE as, based on evidence from the non-Celtic early IE languages, it had an inflected relative pronoun that would have appeared in Spec-CP. It seems that this inflected relative pronoun was lost in Celtic and so in pre-OIr Spec-CP would have been empty and condition (18b) would have been satisfied. However, in place of the relative pronoun it seems that pre-OIr had an uninflected relative particle **io* and that this was most likely associated with the C position. By the pre-OIr period, then, condition (18b) was met, as Spec-CP was empty, but condition (18a) was not, as C had become filled. At this stage the reanalysis cannot have taken place. Some other change must have occurred to allow the reanalysis to take place. We will return to this issue below. For now, let us go onto conditions (18c)–(e) as listed above.

3.2 Pragmatic verb fronting

In section 2.2 above it was argued that there were two major problems with the particle theory: first no etymology was given for the particle **es*; secondly there was no explanation for the increase in verb fronting. Schrijver (1994, 1997) provides a possible solution for the first problem. Schrijver argues that the particle **es* can be shown to have developed from particle of the form **eti*, a main clause connective cognate with Latin *et*.¹⁷ For this particle to have had such a significant effect on the morphology of the verb it must have been very common. Schrijver observes that in the early IE languages there is a tendency to use a particle to express the link between clauses overtly. Watkins (1963) observes that in Hittite the connective *nu* is found at the beginning of almost every clause. Watkins also gives an example from Archaic Latin that shows extensive use of the connective *-que*. Schrijver (1997) also proposed that in Middle Welsh the connective *ac* joins almost every clause. If this was also the case in OIr or its predecessor, then we have a possible explanation for why this particle came to be used so frequently that it could have affected the verbal inflections.

¹⁷ Of course, unlike the Celtic particle **es*, Latin *et* is not enclitic and appears in clause initial position. Therefore, an explanation as to how the IE predecessor to these particles changed from an initial position particle to a second position enclitic is necessary. Such an account is provided by Schrijver (1994, 1997).

It seems, however, that using a connective was not the only way that the connection between clauses could be marked. Dressler (1969) argues that fronting the verb in the early IE languages could have a cataphoric or anaphoric effect linking two clauses together. Such an occurrence of verb fronting is seen in the example from Homeric Greek in (14b) above, repeated as (20) below. The main verb of the second clause *erētuseie* ‘curb’ is fronted to the beginning of the clause in order to mark the connection between the two clauses.

- (20) êe cholon pauseien erētuseie te thumon.
 Or wrath.ACC check curb and spirit.ACC
 ‘Or he should check his wrath and curb his spirit’ (Il 1, 192)

The example in (20) is particularly interesting because it shows that it was possible to use both strategies for clause linking together. Not only is the verb fronted in the second clause, but there is also a connective particle *te* in second position. In order for the connective particle **eti* to have become verbal morphology this must have also been the case in pre-OIr. One way to explain this development in pre-OIr is that, like the Hittite connective *nu*, the particle **eti* became used so frequently that it was bleached of its connective meaning. As a result of this bleaching there was an increase in vP fronting to TopP in order to reassert the link between clauses. As vP initial clauses increased in frequency, this led to further bleaching of vP fronting, causing the connective force to be lost and the fronted verb to become susceptible to reanalysis

To sum up this section, it seems that both problems with the particle theory can be overcome if we adopt Schrijver’s etymology for the particle **es*. Building on the idea that the link between clauses had to be overtly marked in pre-OIr, we have an explanation as to why the clitic particle **es* was so prolific, and also why there was an increase in frequency of verb fronting. In this section we have provided a possible explanation for how conditions (18c) and (18e) were met, namely why there was an increase in vP fronting, and how this vP fronting became bleached of its stylistic function. In the next section we will discuss condition (18d).

3.3 Remnant vP fronting

Condition (18d) for the reanalysis of vP fronting as V-to-C movement is that the fronted vP must be a remnant rather than a full vP. If the subject and the object do not move out of the vP before it is raised, then they will all appear in the left periphery, thus providing clear evidence to the learner that it is the whole vP that has raised and not just the verb. In Vedic Sanskrit we find examples of this kind, such as those in (21) where the verb and the object seem to have been fronted together. This supports the hypothesis that verb fronting in the other early IE languages involves fronting of more than just the verb.

- (21) a. * gāvā, gotrām udásĒijo yád aṅgira,
 cows.GEN.PL herd.ACC.SG up-released when Angiras.VOC.SG
 ‘When you released the herd of cows, O Angiras’ (RV 2.23.18b/(84) Hale 1995:194)

- b. * hári indrasya ní cikāya ká svit
 steed ACC.PL of indra perceived who.NOM.SG EMPH
 ‘Who has perceived the two steeds of Indra’ (RV 10.114.9d/(12) Hale 1987:42)

However, in most cases of verb-initial word order in the early IE languages, only the verb appears at the beginning of the clause. This suggests that vP fronting in the early IE languages, and therefore in PIE, involves fronting of a remnant vP. From what we know of the syntax of PIE this seems a reasonable suggestion. PIE and OIr are both null subject languages and pronoun objects appear as second-position clitics. Whenever the subject and object are pronouns then, the vP will contain only the verb. Another point to bear in mind is that word order in the early IE languages was very variable. This variability can be accounted for if we assume that there are many pragmatically or stylistically motivated movement processes. If the early IE languages, and by hypothesis PIE involved many movement processes, it does not seem unreasonable to suggest that the object and subject would have moved out of the vP, for either stylistic or grammatical reasons.

3.4 The status of the sentential clitics

To sum up the situation so far, we have argued that the Spec-CP position of the clause in pre-OIr was empty due to the lack of inflected relative pronouns. However, the C position could be filled by the enclitic relative marker **io*. We have also proposed that the combination vP+*eti appears at beginning of almost every (main) clause, as a way of expressing the link between clauses. Following Hale (1987, 1995) it has been argued that the fronted vP appears in the Spec-TopP position, however, we have not yet determined the exact position of the clitic connective particle **eti*.

Hale (1995) argues that in Vedic and PIE connective clitics are placed by prosodic inversion (Halpern 1995). The connective clitics are adjoined to the left of the second conjunct during the syntax. Then, if no appropriate phonological host is provided by the syntax, the clitics move to the right of the initial prosodic word during the phonology so that they have a phonological host to their left. The evidence Hale provides for this is that in Vedic Sanskrit and Greek, as shown in example (22), connective clitics appear between topicalised phrases in TopP and relative or wh-phrases in Spec-CP. This means that in the early IE languages and PIE the connective clitics cannot be in the C position.

- (22) stúta~ ca yus tvā vārdhanti mahé ṛdhase nĕmīya
 praise-songs and which you increase great giving heroism
 ‘And which praise-songs fortify you for great giving and heroism’
 (RV 8.2.29ab/Hale 1995: 266)

3.5 From clitic to affix

In order for condition (1) to be met and the fronted vP to be reanalysed as V-to-C movement, the particle in C must change in status from a clitic to an affix. This type of change, from clitic to affix, is a common case of grammaticalisation (see Hopper & Traugott 1993). In spite of the fact that this type of change is so common, little work has been done to show exactly how it proceeds. Before we can determine whether a clitic has become an affix we need a clear idea about what the distinction between a clitic and an affix is. Zwicky & Pullum (1983:504–5) provide criteria for making this distinction:

- (24) a. Clitics can exhibit a low degree of selection with respect to their hosts, while affixes can exhibit a high degree of selection with respect to their stems
 b. Arbitrary gaps in the set of combinations are more characteristic of affixed words than of clitic groups
 c. Morphophonological idiosyncrasies are more characteristic of affixed words than of clitic groups
 d. Semantic idiosyncrasies are more characteristic of affixed words than of clitic groups
 e. Syntactic rules can affect affixed words, but cannot affect clitic groups
 f. Clitics can attach to material already containing clitics, but affixes cannot.

These criteria, as set out by Zwicky & Pullum, are designed to help the linguist determine whether a grammatical entity is a clitic or an affix. Fuss (2004) proposes that children might use something similar during language acquisition to determine whether a certain element should be analysed as a clitic or an affix. Let us relate this idea to OIr.

In section 2.3 it was argued that the main motivation behind the existence of this particle **es* was to explain the lack of **i*-apocope in verbs in initial position. The fact that this particle prevented apocope does not provide any evidence as to whether it is a clitic or an affix. Apocope is a phonological process and so takes place in the phonological component where a fronted vP and a clitic make up a single phonological word in the same way as a verb and an affix. However, after this apocope has taken place, verbs that appear with **eti* have a different stem to verbs without **eti*. The verbal form that appears with **eti* will have a final **-i*, whereas the forms that do not occur with **eti* will not have this **-i*, as it will have been apocopated. This means that after apocope the particle **eti* appears to condition a stem alternation. According to Zwicky & Pullum's condition (24c) above, this is a property of affixes and not clitics. In addition, due to the frequency of remnant vP fronting, the **eti* particle virtually always appears with a verb. Appearing consistently with the same type of host, according to Zwicky & Pullum's condition (24a) is again a property of affixes rather than clitics. On the basis of this evidence, then, children reanalyse **eti* particle as an affix.

Affixes attach to heads, and not to phrases, therefore the change from vP fronting to V-to-C movement cannot have occurred after the change in the status of the particle. Similarly, the reanalysis of the fronted vP as V-to-C movement cannot have taken place before the reanalysis of the clitics as affixes, because at that point the C position would have been filled and blocked the reanalysis. Therefore, it seems that the two changes must have been simultaneous. V-to-C movement in OIr developed at the same time as the first stage of the development of absolute morphology, namely the reanalysis of a clause marking clitic as a verbal affix.

4. Conclusion

This paper has proposed a new account of the development of absolute and conjunct inflection in OIr. By combining Cowgill's particle theory with ideas from generative syntax the major objections to the particle theory have been overcome and a full account of how the double system of verbal inflection and verb-initial word order developed has been provided. The development of head movement in OIr as described here seems to be intrinsically linked to a morphological development. V-to-C movement in OIr develops in conjunction with C-related morphology. Viewed in terms of a cue-based theory of acquisition, V-to-C movement developed in conjunction with a morphological cue.

What is important here is that, although the development of V-to-C movement in OIr can be linked to the development of a morphological cue, this link does not seem to be causal. The morphological change is one of a number of changes that were necessary for vP fronting to be reanalysed as V-to-C movement. Furthermore, although the morphological development was necessary for the development of V-to-C movement in OIr, this is not always the case. Verb-second (V2) in Germanic involves verb movement to the C position (den Besten 1977) however, there is no V2 specific morphological marking.

Although the morphological change did not cause the syntactic change, this does not rule out the possibility that the new morphology, linking the initial verb to the C position, may act as a cue for the acquisition of V-to-C movement for subsequent generations. It was argued in section 1 that in the case of V-to-T movement the status of inflectional morphology during language acquisition is not clear as it cannot be shown that V-to-T movement is ever acquired on the basis of morphology alone without the presence of a syntactic cue. If it can be shown that the C-based morphology is the only relevant evidence used in the acquisition of V-to-C movement in OIr, then we have clear evidence that morphology does play a role in the acquisition of verb movement. For this to be the case there must be no relevant syntactic trigger that marks verb movement in OIr as V-to-C movement rather than V-to-T movement.

As discussed in section 1, Lightfoot (1999) proposes that V-to-C movement in V2 languages is acquired on the basis of syntactic evidence. However OIr is clearly not V2, so this syntactic cue cannot be at play here. Let us consider some further possibilities. The first possible cue for V-to-C movement could be clauses where the verb precedes the subject. However, this cannot be a sufficient cue for the acquisition of V-to-C movement as the verb precedes the subject in Modern Irish and Welsh, but the verb only moves as high as T in these languages (McCloskey 1996; Roberts 2005)

The second option is that children could use the evidence from the position of object clitic pronouns to determine where the verb moves to. As discussed in section 2.1, this is an important diagnostic used by Carnie, Harley & Pyatt (2000). It is unclear, however, how much use is made of clitic pronouns during language acquisition. Clitic pronouns appear in a variety of positions and it seems that they can be positioned in a number of ways, syntactically or phonologically. This suggests that they would not be reliable as a cue for the position of the verb. Of course, this needs to be verified by acquisition studies.

The third possibility is that children use evidence that the verb is in complementary distribution with the complementizer or other elements that fill C. It was argued above that pre-

OIr had no complementizers, other than the clause marking particles **eti* and **io* that were reanalysed as verbal affixes. However, by the time OIr is attested it clearly does have complementizers. Newton (forthcoming) argues that complementizers seem to have developed fairly recently in the history of OIr, shortly before the first attested texts. Newton (in progress) argues that the OIr complementizers developed at the same time as V-to-C movement, as part of the reanalysis of elements in Spec-TopP as C heads. If this is the case, then it seems that, like V-to-T movement, V-to-C movement is not cued by morphology alone and we still have no conclusive evidence for the role of morphology as an independent cue in the acquisition of verb movement.

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Abbreviations

- I *Iliad* (translated by A. T. Murray (1999). Harvard University Press, London)
 MI Milan Glosses (W Stokes & J Strachan (ed.) (1987). *Thesaurus Palaeohibernicus*. Dublin)
 NE *Yn Sushtal Scruiit liorish yn Noo Ean (St John's Gospel)* (1936). The British and Foreign Bible Society, London.
 RV *Rig Veda* (T. Aufrecht (ed.) (1877). *Die Hymnen des Rigveda*. Marcus, Bonn)
 Wb Würzburg Glosses (W Stokes & J Strachan (ed.) (1987). *Thesaurus Palaeohibernicus*. Dublin)

References

- Adger, D. (forth.). Postsyntactic movement and the Old Irish verb. To appear in *Natural Language and Linguistic Theory*.
 Den Besten, H. (1977/1983). On the interaction of root transformations and lexical deletive rules. Abraham, W. (ed.), *On the Formal Syntax of the Westgermania*. John Benjamins, Amsterdam, pp. 47–131.
 Biberauer, T. & I. Roberts (2005). Subjects, tense and verb-movement in Germanic and Romance. Paper presented at GLOW in Asia V (Delhi), October 2005.
 Bobaljik, J. (2002). Realizing Germanic inflection: why morphology does not drive syntax. *Journal of Comparative Germanic Syntax* 6, pp. 129–167.
 Bobaljik, J. & H. Thráinsson (1998). Two heads aren't always better than one. *Syntax* 1, pp. 195–236.
 Carnie, A., H. Harley & E. Pyatt (2000). VSO order as raising out of IP? Some evidence from Old Irish. Carnie, A. & E. Guilfoyle (eds.), *The syntax of verb-initial languages*. Oxford University Press, New York, pp. 39–59.

- Chomsky, N. (1977). On wh-movement. Culicover, P., T. Wasow & A. Akmajian (eds.), *Formal Syntax*, Academic Press, New York, pp 71–132.
- Chomsky, N. (1995). *The minimalist program*. MIT Press, Cambridge MA.
- Chomsky, N. (2000). Minimalist inquiries: the framework. Martin, R., D. Michaels & J. Uriagereka (eds.), *Step by step: essays in minimalist syntax in honor of Howard Lasnik*. MIT Press, Cambridge MA, pp 89–156.
- Chomsky, N. (2001). Derivation by phase. Kenstowicz, M. (ed.), *Ken Hale: a life in language*. MIT Press, Cambridge MA, pp. 1–52.
- Chomsky, N. (2005). On phases. Ms MIT.
- Cowgill, W. (1975). The origins of the Insular Celtic conjunct and absolute verbal endings. Rix, H. (ed.), *Flexion und Wortbildung: Akten der V. Fachtagung der Indogermanischen Gesellschaft, Regensburg, 9.–14. September 1973*, Reichert, Wiesbaden, pp. 40–70.
- Cowgill, W. (1985). On the origin of the absolute and conjunct verbal inflections of Old Irish. Schlerath, B. (ed.), *Grammatische Kategorien: Funktion und Geschichte*. Reichert, Wiesbaden, pp. 109–18.
- Evans, D. S. (1964). *A grammar of Middle Welsh*. Dublin Institute for Advanced Studies, Dublin.
- Dresher, E. & J. Kaye (1990). A computational learning model for metrical phonology. *Cognition* 34, pp. 137–195.
- Dressler, W. (1969). Eine textsyntaktische Regel der idg. Wortstellung. *Zeitschrift für vergleichende Sprachforschung auf dem Gebiet der Indogermanischen Sprachen* 83, pp. 1–25.
- Fortson, B. (2004). *Indo-European language and culture*. Blackwell, Oxford.
- Fuss, E. (2004). *The Rise of Agreement. A Formal Approach to the Syntax and Grammaticalization of Verbal Inflection*. PhD thesis, University of Frankfurt.
- Gelderen, E. van (2005). *Grammaticalization as Economy*. John Benjamins, Amsterdam.
- Hale, M. (1987). Notes on Wackernagel's Law in the language of the Rigveda. Watkins, C. (ed.), *Studies in memory of Warren Cowgill (1929–1985)*. De Gruyter, Berlin/New York, pp. 38–50.
- Hale, M. (1995). *Wackernagel's Law in the language of the Rigveda*. Ms, University of Concordia.
- Halle, M. & A. Marantz (1993) Distributed morphology and the pieces of inflection. Hale, K. & S. J. Keyser (eds.) *The view from building 20*. MIT Press, Cambridge MA, pp. 111–176.
- Halpern, A. (1995). *On the placement and morphology of clitics*. CSLI Publications, Stanford CA.
- Kiparsky, P. (1995). Indo-European origins of Germanic syntax. Battye, A. & I. Roberts (eds.), *Clause structure and language change*. Oxford University Press, New York, pp. 140–170.
- Lightfoot, D. (1999). *The development of language: acquisition, change and evolution*. Blackwell, Oxford.
- McCloskey, J. (1996). On the scope of verb-movement in Irish. *Natural Language and Linguistic Theory* 14, pp. 47–104.
- McCone, K. (1979). Pretonic preverbs and the absolute verbal endings in Old Irish. *Ériu* 30, pp. 1–34.
- McCone, K. (1980). The nasalizing relative clause with object antecedent in the glosses. *Ériu* 31, pp. 10–27.
- McCone, K. (1985). The absolute and conjunct verbal inflection in Old Irish. Schlerath, B. (ed.), *Grammatische Kategorien: Funktion und Geschichte*. Wiesbaden, pp. 261–270.
- McCone, K. (1996). *Towards a chronology of ancient and medieval Celtic sound changes*. Maynooth Studies in Celtic Linguistics I.
- Newton, G. (2005). The Old Irish double system of verbal inflection: towards a synchronic analysis. Chalcraft, F. & E. Sipetzis (eds.), *Cambridge Occasional Papers in Linguistics* 2, pp. 149–172.
- Newton, G. (forth.). The contribution to the Old Irish verbal system to the reconstruction of Proto-Indo-European syntax. Yáñez-Bouza, N. (ed.), *Papers in Linguistics of the University of Manchester (PLUM) 2005: Proceedings of the 14th Postgraduate Conference in Linguistics*
- Newton, G. (in progress). *The development and loss of the Old Irish double system of verbal inflection*. PhD thesis, University of Cambridge.
- O hUiginn, R. (1986). The Old Irish nasalizing relative clause. *Ériu* 37, pp. 33–86.
- Pollock, J-Y. (1989). Verb movement, universal grammar and the structure of IP. *Linguistic Inquiry* 20, pp. 365–424.
- Rizzi, L. (1997). The fine structure of the left periphery. Haegeman, L. (ed.), *Elements of grammar: handbook of generative grammar*. Kluwer, Dordrecht, pp. 281–338.
- Roberts, I. (1985). Agreement parameters and the development of English modal auxiliaries. *Natural Language and Linguistic Theory* 3, pp. 21–58.

- Roberts, I. (1993). *Verbs and diachronic syntax: a comparative history of English and French*. Kluwer Academic, Dordrecht.
- Roberts, I. (2005). *Principles and parameters in a VSO language: A case study in Welsh*. Oxford University Press, Oxford.
- Roberts, I. & A. Roussou (2003). *Syntactic change: a minimalist approach to grammaticalization*. Cambridge University Press, Cambridge.
- Rodway, S. (1998). Absolute forms in the poetry of the Gogynfeirdd: functionally obsolete archaisms or working system? *Journal of Celtic Linguistics* 7, pp. 63–84.
- Rohrbacher, B. (1997). *Morphology-driven syntax*. Benjamins, Amsterdam.
- Russell, P. (1995). *An introduction to the Celtic languages*. Longman, London.
- Schrijver, P. (1994). The Celtic adverbs for ‘against’ and ‘with’ and the early apocope of *-i. *Ériu* 45, pp. 151–189.
- Schrijver, P. (1997). *Studies in the history of Celtic particles and pronouns*. Maynooth Studies in Celtic Linguistics II.
- Sims-William, P. (1984). The double system of verbal inflection in Old Irish. *Transactions of the Philological Society*, pp. 138–201.
- Vikner, S. (1997). V-to-I movement and inflection for person in all tenses. Haegeman, L. (ed.). *The new comparative syntax*. Longman, London, pp. 189–213.
- Wackernagel, J. (1892). Über ein Gesetz der Indogermanischen Wortstellung. *Indogermanische Forschungen* 1, pp. 333–436.
- Watkins, C. (1963). Preliminaries to a historical and comparative analysis of the syntax of the Old Irish verb. *Celtica* 6, pp. 1–49.
- Watkins, C. (1976). Towards Proto-Indo-European syntax: problems and pseudo-problems. Steever, S., C. Walker & S. Mufwene (eds.). *Papers from the parasession on diachronic syntax*. Chicago Linguistic Society, Chicago, pp. 305–326.
- Willis, D. (1998). *Syntactic change in Welsh: a study of the loss of verb-second*. Clarendon Press, Oxford.
- Zwicky, A. & G. Pullum (1983). Cliticization vs. inflection: English n’t. *Language* 59, pp. 502–513.