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Evaluating directionality in the internal reconstruction of pre-Old Irish copular clauses

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Abstract

This article reconstructs the syntax of pre-Old Irish copular clauses using relic or anomalous formations within Old Irish. It is therefore an exercise in syntactic internal reconstruction. The two patterns that are reconstructed are (a) the word order of subject and predicate, which was Predicate Subject in Old Irish but is argued to have been Subject Predicate in pre-Old Irish; (b) the order of negation, the clause-typing enclitic **de*, the relative pronoun and the copula which is argued to be NEG+REL+*de*+COP. Furthermore, It is argued that a change from a fully verbal copula **issi* in pre-Old Irish to a clause-typing particle *is* in Old Irish is implicated in the innovation of both (a) and (b). The reconstruction is evaluated using the technique of ‘local directionality’, by examining detailed feature/phrase-structure analyses of the constructions in at least two languages and hypothesizing the most economical and plausible relation between the two.

Keywords

Old Irish – Celtic – syntax – internal reconstruction – local directionality – copula

1 Introduction

According to Thurneysen (1946) the contemporary sources of Old Irish display no discernable dialect variation. Nonetheless, these various sources provide evidence for a number of variations at all linguistic levels. The common opinion (expressed, for instance, by McCone 1997a) is that the differences are

largely diachronic in nature. Syntax is not immune to variation or change, and in fact a wide variety of Old Irish structures, including copular clauses, display variant formations. Many of these may be archaisms and have therefore been used as comparanda in syntactic reconstruction (see Watkins 1963, Newton 2006). In this paper I argue that two attested variants in the syntax of copular clauses have implications for the internal reconstruction of pre-Old Irish copular clauses: the placement of enclitic particles such as **de* relative to copular forms and the position of subject and predicate in copular sentences.

The paper is organized as follows. In section two I introduce the sources of the data used in this paper and describe the main features of copular clauses in Old Irish. Section three is focused on developing a methodology for syntactic comparative and internal reconstruction. I will introduce recent proposals for addressing the so-called correspondence and directionality problems (Willis 2011: 409–410). In section four the major variations in the formation of copular clauses are discussed and preliminarily classified as either archaic or innovative. In section five I discuss Watkins (1963) and Newton (2006) with the aim of showing how some conclusions derived from their reconstructions of pre-Old Irish can be used as a starting point for the characterization and formalization of the changes that link the proposed archaic formations of section four to their innovative counterparts. The evaluation of the directionality of the proposed changes occupies section six, while section seven concludes.

2 Old-Irish data

2.1 *Corpus overview*

Old Irish was spoken and written from the sixth to the ninth centuries. There are two main stages: Early Old Irish (sixth to seventh centuries) and Classical Old Irish (eighth to ninth centuries). I have chosen examples to represent both stages. I use two glossed corpora as representatives of Classical Old Irish: the mid-eighth-century Würzburg glosses (Wb.) on the *Pauline Epistles* and the late eighth or early ninth-century Milan glosses (Ml.) on a Latin translation of Theodore of Mopsuestia's *Commentary on the Psalms*. The standard edition of both of these is found in Stokes and Strachan (1901). As representatives of an earlier stage of the language, I use some examples from the early eighth-century Lambeth *Commentary on the Sermon on the Mount* (Lam.Com., Bieler and Carney 1972), and late seventh or early eighth-century *Archaic Legal Poem* (ALP, Binchy 1971). Other examples are drawn from a variety of Old and Middle Irish sources, whose date is not relevant to the argument. References to these are found in the primary sources section.

2.2 Old-Irish sentence structure

There are two main types of sentences in Classical Old Irish: verbal and non-verbal, which are surprisingly different in their syntax. In verbal sentences the main predicate is a VP headed by a lexical verb (1). In non-verbal sentences the predicate is an NP, AP, or PP, which is accompanied by what I argue to be a non-verbal copular auxiliary (2).¹

- (1) *co ni pred{cloitis} sbj[geinti] pred{tairchital*
 that not heard_{SUBJ.PAST.3PL} gentiles_{NOM(PL)} prophesy_{ACC}
Crist}
 Christ_{GEN}
 “that the Gentiles would not hear of the prophesy of Christ” (Wb. 5^a8)

- (2) *Is pred{dered mbetho} sbj[inso].*
 COP_{PRES.3SG} end_{NOM} world_{GEN} this
 “This is the end of the world.” (Wb. 10^b3)

Most verbal and non-verbal sentences differ with regard to the placement of the subject in relation to the predicate. The typical order in verbal sentences is VSO (or VSX in intransitive sentences), while non-verbal predicates are not discontinuous and therefore have the order COPULA > PREDICATE > SUBJECT.²

- 1 I have divided words in the examples along the following lines: all syntactic words are divided with spaces, even when the edition cited has no spaces (for ex., the division of (1) in the edition is: *conicloitis geinti tairchital Crist*). The non-division of *conicloitis* in the edition reflects the fact that this sequence has one stress. This is the usual practice of many Irish manuscripts. Since this article is concerned primarily with syntax and not accentuation, I have drawn attention to the syntactic autonomy of each part of this accentual unit. Only when one of the syntactic words is non-syllabic, is the word-division of the edition adhered to. For example, *dond* is made up of *do* ‘to’ and *-nd* ‘the’, but this is not divided. The consequences of the decision to introduce spaces, is that conjunct particles are divided from verbs, while preverbs, which together with the verb root form one syntactic and lexical unit, are not separated. Another editorial decision that I have made is to separate compound words with a hyphen (*mór-slúag*), nasalization before vowels with a hyphen (*n-aidrech*), and potential affixes with a hyphen (*ro-d-bo*, *co-ndid*, *ni-pa*, etc). The reasons why I view these as affixes and not syntactically autonomous is found in the text. Where relevant, I have used curly brackets to denote the predicate, and square brackets to denote the subject.
- 2 Under unclear conditions the predicate in non-verbal sentences can also be split.

- (i) *Ar is pred{irlam} sbj[ind] sbj[anim] pred{do thuil Dée}.*
 for COP_{PRES.3SG} ready_{NOM} the_{NOM} soul_{NOM} for will_{DAT} God_{GEN}
 “For the soul is ready for the will of God.” (Wb. 5^c18)

In section 6.2 I will briefly discuss my assumptions regarding the derivation of the two types of sentences.

2.3 *Non-verbal copula*

Several diagnostics indicate that the 3rd-sg. copular auxiliary is non-verbal. In matrix clauses there is an asymmetry in the types of 3rd-person clitic pronouns that lexical verbs and the 3rd-sg. form of the copula can host. Simple verbs host pronominal suffixes (3a) (see Eska 2009 and Griffith 2011, 2015 for evidence that the suffixes are non-referential) and compound verbs host Class A or Class B infixed pronouns (3b), depending on phonological factors. The 3rd-sg. form of the copula, on the other hand, always hosts Class C infixed pronouns (3c), which otherwise are only found in wh-dependency contexts,³ such as relative clauses (3d–e).⁴

- (3) a. *Aincith-i* *fer* *díb.*
 protect_{PRES.3SG}-him(Suffixed) man_{NOM} of_{3PL}
 “One of them protects him.” (Knott 1936: 142)
- b. *Co-t-nessiu* *sa hūam chosaib.*
 PV-him(Class-B)-trample_{PRES.ISG} 1SG from.my ^{LEN}feet_{DAT(PL)}
 “I trample him with my feet.” (ML. 126^c17)

3 I disregard here the usage of an infixed *-d-* (seemingly a neuter Class C pronoun) in indicative concessive or conditional clauses. More research is necessary in order to explain this usage.

4 Although placing enclitic pronouns after either the absolute or conjunct forms of the copula in Old Irish is fairly rare, it does seem to have been a living pattern that was therefore susceptible to change. That it was not a ‘frozen’ construction only available in a few stereotyped expressions can be seen from its range. In particular, in the attested examples, there are seven (or six) examples with the adjective *éicen* ‘necessary’, seven (or five) with the adjective *aithrech* ‘repentant’, two with *ómun/omun* ‘fear’, nine with various comparative adjectives, three with equatives, two with superlatives, twelve with the adjective *fiú* ‘worthy, worth, equivalent to’, two with other adjectives in the positive degree, and three (or two) with nouns, see Thurneysen 1946: 269–270, Ó Máille 1912: 69, Hancock et al. 1901: 97, Meid 2009: 206, McCone 2000: 147–148, *eDIL* dil.ie/29104, Stokes 1899: 260, Meyer 1919: 51, Murphy 1956: 36–38. The variant numbers given above in parentheses are due to uncertain examples which represent possible Middle Irish changes or scribal corruptions. For instance, Ó Máille 1912: 69 cites *atabair ecen techt* ‘you must go’, with the infixed *-bair*, which is originally a possessive. This is clearly a Middle Irish development. Likewise, The *eDIL* dil.ie/29104 cites *núm* in *núm nert acht mac Dé de* ‘I do not have strength, save for the son of God therefore’, a line from a poem in the book of Leinster (*LL* 15980). But this line is hypometrical, and the only form that could be emmended is *núm* itself (it has a suspension stroke in *LL*, not an *m* fully written out).

- c. *Iss-id* *n-aidrech.*
 COP_{PRES.3SG}-him(Class-C) ^{NAS}repentance_{NOM}
 “He is repentant.” (Lit. “It is a repentance to him.”) (Ml. 90^d12)
- d. *ind* *hūall* *ro-d* *ngab* *som*
 the_{NOM} pride_{NOM} PRF-him(Class-C) ^{NAS}seize_{PAST.3SG} 3SG_{MASC}
 “the pride that had seized him” (Ml. 61^a1)
- e. *cach* *ngrád* *as-id* *n-íslu*
 every_{NOM} ^{NAS}grade_{NOM} COP_{PRES.REL.3SG}-him(Class-C) ^{NAS}lower_{COMP}
 “Every grade which is lower than his.” (Binchy 1979: 15.373–374)

The fact that the 3rd-sg. form of the copula can host Class C pronouns in both matrix clauses and relative clauses is unusual. I suggest that this usage points towards a special relationship between the copula and the head of CP, the projection typically associated with wh-dependencies.

A second asymmetry in the formation of wh-dependencies themselves lends further support to this proposal. Old Irish wh-dependencies have a complex morphosyntactic profile. The relevant feature for the present argument is that in many contexts wh-dependencies involve consonant mutations: either ‘lenition’ (stop > fricative, /s/ > /h/, /f/ > ø), or ‘nasalization’ (voiced stop > prenasalized voiced stop, voiceless stop > voiced stop, vowel > *n*-vowel). The target of mutation differs in copular clauses and verbal clauses: ‘relative mutations’ appear after the copula (4a), but before simple verbs (4b), compound verbs (4c), where the verbal root is preceded by a preverb, and verbs preceded by conjunct particles (4d–e). For some discussion of the usage of mutations and relative syntax generally see Thurneysen (1946: 314–320), McCone (1980), Ahlqvist (1985), and Ó hUiginn (1983, 1986).

- (4) a. *céin* *bas* *mbéo* *in* *fer*
 as.long.as COP_{PRES.SUBJ.REL.3SG} ^{NAS}alive_{NOM} the_{NOM} man_{NOM}
 “as long as the man is alive” (Wb. 10^b23)
- b. *in* *tan* *mberes* *claind*
 the_{NOM} time_{NOM} ^{NAS}bring_{PRES.REL.3SG} children_{ACC}
 “when she brings forth children” (Ml. 129^c3)
- c. *hóre* *do-n-adbat* *pecthu*
 because PV.^{NAS}manifest_{PRES.3SG} sins_{ACC(PL)}
 “because it manifests sins” (Wb. 3^c21)

- d. *Is hed inso no chairigur.*
 COP_{PRES.3SG} 3SG_{NEUT} this PTCL_{LEN}reprimand_{PRES.1SG}
 “This is what I reprimand.” (Wb. 11^{d1})

- e. *amal nech nad chomainsea a choimdid*
 like someone_{ACC} NEG_{REL}LENtrample_{SUBJ.3SG} his lord_{ACC}
 “like someone who does not trample his lord” (Ml. 42^{b28})

The difference in the type of pronoun (3) and the position of the mutations (4) implies that the syntactic position of the 3rd-sg. copula differs from that of main verbs. While example (3) merely suggests that the copula is closely associated with *c*, the placement of relative mutations in (4) shows that it is in complementary distribution with conjunct particles or preverbs, i.e. (4) shows that it is in fact a complementizer in *c*. The position of the copula in relation to the relative mutations can be associated with *c*, if one assumes a modified version of the ‘mutation hypothesis’ of Duffield (1995: 83). Duffield argues that Modern Irish verbal mutation is a phonological process with syntactic basis. In particular, he argues that elements immediately following *c* at PF are nasalized, while an element immediately following *T* is lenited. The situation is slightly different for the Old Irish relative examples, where it seems that relative *c* assigns nasalization or lenition to the element following it, depending on the features of the Operator/Gap: (4a–c) show that nasalization is found in adverbial clauses, while (4d–e) show that lenition is found where the subject or object is gapped (see section 6.3.3 for a rudimentary formal description of these facts). If it is the case that *c* assigns mutation to the initial consonant of a following element in this way, the lenition or nasalization of predicates found after the relative forms of the 3rd-person copula implies that these forms are in the *c* position. Verbal roots cannot be in *c* (in compound verbs at least), since their root-initial consonants are mutated as if they followed *c*.

Verbs also behave differently from the 3rd-sg. copula with regard to the so-called absolute/conjunct distinction (Thurneysen 1946: 350). Briefly put, the person/tense/mood endings of Old Irish simple verbs have two endings for each person/tense/mood combination, depending on the presence or absence of certain preverbal particles, such as negation particles and some subordinators, which are termed ‘conjunct particles’. In the same context compound verbs, which always have conjunct endings, show a prosodic distinction between prototonic and deuterotonic forms (Thurneysen 1946: 27–30, 351).

While verbs have a one-to-one mapping between absolute and conjunct forms for each person/tense/mood combination, the copula has a many-to-many mapping (for evidence see Thurneysen 1946: 484–492). Consider the

distinction between the simple verbs in (5) and the copula in (6). On the one hand (5a) shows that when no preceding particle is found, the verb is absolute. On the other hand (5b) shows that the conjunct form is found when the verb is preceded by negation, here *nad*.

- (5) a. *Beirid cach díbad 7 cinaid araili.*
 obtain_{PRES.ABS.3SG} each_{NOM} inheritance_{ACC} and liability_{ACC} other_{GEN}
 “Each obtains the inheritance and (incurs) the liability of the other.”
 (Thurneysen 1936: 149)

- b. *Ní rodam nad beir a roí.*
 NEG.COP_{PRES.3SG} great.ox_{NOM} NEG_{REL} obtain_{PRES.CONJ.3SG} his battle_{ACC}
 “Every champion wins his battle.” (Lit. “It is no great ox who does not obtain his battle.”) (O’Donoghue 1921: 49)

Example (6a) shows after the particle *má*, which crucially does not normally trigger conjunct inflection, the copula takes the form *su*. The copular form in (6a) must therefore be a special absolute form. (6b) and (6c) show that after conjunct particles, such as the subordinator *co^N* ‘so that’ and the interrogative particle *in*,⁵ the present copula has two different conjunct forms.

- (6) a. *ma su chundubart*
 if COP_{PRES.ABS.3SG} doubt_{NOM}
 “if it is a doubt” (Wb. 4^d28)
- b. *co-ndid flaith dō in Coimdiu*
 that-COP_{PRES.CONJ.3SG} prince_{NOM} to_{3SG.MASC/NEUT} the_{NOM} Lord_{NOM}
 “so that the Lord is a prince to it” (Wb. 9^d2)
- c. *An beó do thigerna?*
 INT.COP_{PRES.CONJ.3SG} alive_{NOM} your lord_{NOM}
 “Is your lord alive?” (Knott 1936: 45)

5 The actual morphological form of the copula with the interrogative is not zero as it might appear from (6c). Instead, it is likely to be *-d*, which is nasalized by the interrogative particle and then may be written as *n* (as in *inn* from *ML*. 44^b10) or zero, as in (6c). The combination of the copula with the interrogative particle, which does not cause nasalization on a following word, is distinct from the interrogative particle without the copula, which does cause nasalization on a following consonant initial verb (see *eDIL* *dil.ie/29104*).

The special absolute form in (6a) shows that the copula has a special relationship with clause-typing elements like the conditional particle *má*, which one may assume to be within (Spec?)CP. Because even the absolute form is associated with C, I assume that this means that all forms, (6a–c) are associated with C and that the conjunct forms in particular represent PF manifestations of finiteness features on C, rather than auxiliary verbs that cliticize to C. This is supported by the fact that two of Pullum & Zwicky's (1983) diagnostics for clitics do not apply to the conjunct forms. First, they claim that clitics ought to be able to combine with any host, unlike inflectional affixes, which display gaps in their distribution. Since special conjunct forms appear only in certain contexts (subordinate in 6b and interrogative in 6c), the conjunct forms behave more like affixes rather than clitics. Even stronger evidence of this is the fact that clitics tend to straightforwardly combine with their hosts with no phonologically unexpected results, unlike affixes, which frequently have many allomorphs. The two forms of the conjunct copula in (6b) and (6c) are clearly irregular, suggesting that each combination is an individual functional item having idiosyncratic phonological realization.

The evidence shows that Old Irish possessed a special portmanteau C that combined at least Force features (Rizzi 1997) and verbal features (for verbal features in C see Chomsky 2004). We may further specify the features of the Old Irish C head as follows. Like all complementizers in Old Irish, the Force feature of the copular C can have two values: relative [rel] and interrogative [wh]. This combined with at least two types of verbal features: an uninterpretable Tense feature [uTense], which drives tense agreement and accounts for the conjunct forms, and an interpretable finiteness feature [iFIN], which implies that the copula is required if no other finite form is present in the derivation. In some circumstances the portmanteau C also expressed negative polarity [neg], as other Old Irish complementizers do as well.

The 1st and 2nd-person forms do not exhibit the same non-verbal diagnostics as the 3rd-sg. form. The contrasting properties are exhibited in (7). (7a) shows that relative mutations affect the initial consonant of the conjunct form of 1st or 2nd-person copula. (7b) shows that there is a one-to-one mapping between 1st/2nd-person absolute forms and the corresponding conjunct forms. The third diagnostic, the position of object clitics, is inapplicable, since pronouns only cliticize to 3rd-sg. forms of the copula.

- (7) a. *amal no nda frendircc sa*
 since PTCL ^{NAS}COP_{PRES.CONJ.ISG} present_{NOM} 1SG
 “since I am present” (Wb. 9^b4)

b. *am* 'I am' (Absolute) > *da* 'I am' (Conjunct)

According to these two diagnostics, the 1st and 2nd-person forms of the copula should be categorized as verbal. Nonetheless, like the 3rd-sg. non-verbal copula, they differ in one crucial aspect from other verbs in having the order COPULA > PREDICATE > SUBJECT.

3 Syntactic reconstruction

In the preceding section I argued that the Old Irish 3rd-sg. copula is a non-verbal portmanteau complementizer. Furthermore, I noted that, unlike verbal sentences, copular sentences do not 'split' the predicate. I will refer to the option to not split the predicate in copular sentences as 'predicate fronting'. In the remainder of the paper I focus on the historical development of the 3rd-sg. copula as a non-verbal complementizer and the innovation of 'predicate fronting'. I propose that the 3rd-sg. forms became non-verbal in pre-Old Irish, via a contextually determined grammaticalization triggered by phonological change. Furthermore, I argue that predicate fronting was an optimal solution to ambiguous word-order possibilities in copular clauses with right-dislocation or extraposition.

The focus on pre-Old Irish developments is necessarily speculative, as there is no direct access to sentences produced by the grammar of relevant earlier stages of Old Irish, i.e. 'pre-Old Irish': the aggregate of competence grammars preceding the grammar underlying the various glosses and other early material. Nonetheless, certain aspects of pre-Old Irish copular and verbal syntax, can be reconstructed by analyzing possible archaisms found Old Irish itself and to some extent through comparison with other Indo-European languages. This paper presents two case studies that aim to evaluate the effectiveness of internal syntactic reconstruction (section 6). To do so properly, some of the problems inherent in syntactic reconstruction generally must be addressed.

3.1 *Problems with syntactic reconstruction*

For many scholars, prominent amongst them Lightfoot (1979, 2002a, 2002b, 2006), syntactic reconstruction has been seen as theoretically problematic. Willis (2011: 409–410) identifies two of these problems: the 'correspondence problem' and the 'directionality problem'. The first refers to the apparent lack of obvious syntactic comparison sets, which leads to difficulty in finding something to compare. Does one compare constructions (Harris and Campbell 1995), individual (ritually preserved) sentences (Watkins 1976), or something

else? Without establishing what is to be compared, reconstruction cannot be accomplished. The second problem refers to the difficulty in deciding which of two syntactic patterns is innovative and which a retention from an earlier stage. For Lightfoot (1979: 154, 163–165; 2002a: 125–126), the directionality problem arises because any pattern may supposedly change into any other pattern, giving the appearance of a “random walk through parametric space” (Battye and Roberts 1995: 11). Without establishing directionality, one cannot be sure of the details of the syntactic innovation.

3.2 *The correspondence problem*

It has been suggested that unlike phonological reconstruction, where determining correspondence sets of phonemes from cognate lexical items of related languages is relatively easy, assembling syntactic correspondence sets is more difficult (Lightfoot 1979). This is because, as Winter (1984) notes, whereas comparison in phonology is made on the basis of a given sound (the ‘type’) under equivalent conditions in its various occurrences (‘tokens’) in cognate items, what constitutes a type or a token in syntactic terms is not clear. Although cognate sentences are an obvious answer, Lightfoot (1979: 163; 2002a: 120–121), among others, correctly points out that the idea of ‘cognateness’ cannot be applied straightforwardly to sentences, since sentences are constructed by each new generation and are not diachronically transferable. An alternative approach is to use both the surface patterns and the abstract mental grammars underlying them. Kiparsky (1974: 259–263) showed that by approaching analogy from such a perspective, language change becomes more explanatory. By extension, a better means of undertaking and evaluating syntactic reconstructions may be possible using the same method. In fact, many current approaches to reconstruction follow this process implicitly or explicitly. Pires and Thomason (2008) clarify this kind of methodology by suggesting that syntactic reconstruction should be based on three types of hypotheses: (a) hypotheses about the grammars of cognate languages, (b) hypotheses about the grammar of the speakers of the proto-language, and (c) hypotheses about the reanalyses and extensions that link the grammars of the proto-language with the grammars of the cognate languages. As with any syntactic analysis, the grammars themselves are modeled through observing the properties of surface strings combined with the theory of UG. Two examples of this kind of syntactic reconstruction in action are Willis (2011) and Walkden (2014).

Walkden (2009: 35, 2014: 55) attempts to address the correspondence problem by relying on the comparison of features of lexical items, particularly the exponents of (potentially null) functional heads. This method is grounded in the so-called Borer-Chomsky Conjecture (Baker 2008: 353), which takes the fea-

tures of functional heads to be the sole locus of parametric variation. Both surface exponents of syntactic structures (i.e. functional items and word order) as well as the structure itself (i.e. parameterized feature values) are utilized. Walkden (2009: 55–60) pursues an analogy between phonological and syntactic reconstruction in which lexemes and phonemes are equated, since both are minimal units of composition, building sentences and words respectively. Additionally, both are stored in an inventory and can be decomposed into features. In the case of phonology, such features undergo conditioned changes in specific environments, i.e. regular changes that are then exploited in comparative reconstruction. Likewise most syntactic changes that have been described are due to ambiguities due to string adjacency, hierarchical structure and the like, which only arise in certain contexts. For fuller exposition of this approach see Walkden (2014).

Walkden (2014: 57–60) discusses the data in (8) as an example of a syntactic correspondence set which combines phonologically cognate functional items with their grammatical features.

- (8) a. *kalla-d-i-sk*
 call-_{PAST-3SG-PASS} (Norse)
- b. *gawandi-d-a sik*
 turn-_{PAST-3SG} REFL (Gothic)

The morphemes *-sk* and *sik* can be considered phonologically and semantically cognate. Walkden implies that these two morphemes form a correspondence set that can be used to reconstruct a proto-Germanic functional item. There are essentially two possible hypotheses: either Norse innovated a passive use for an original reflexive pronoun, or Gothic created a new reflexive pronoun from a passive suffix. Two reasons make it likely that the reflexive pronoun was earlier and that Norse innovated. First, Norse has an element that is related to both the passive *-sk* and the Gothic reflexive, namely the pronoun *sik* (used in other environments). This is a case of layering: an item is grammaticalized in one context, but retained in another. Secondly, Walkden (2009: 45–47) Gothic preserves an older passive morpheme (*-[a]da*) that is cognate with other Indo-European passive morphemes. This indicates that proto-Germanic probably preserved the Indo-European passive, and that the passive use of *-sk* as the result of grammaticalization is innovative. It therefore appears that not only can correspondence sets be set up using a minimalist conception of syntax, but also that they can be useful in proposing and evaluating hypotheses about reconstruction.

3.3 *The directionality problem*

The so-called directionality problem also seems to be largely a moot point. Lightfoot's (2002a/b) major concern was that reconstruction may only be attempted where one can distinguish between possible and impossible changes, since doing so would provide a metric for categorizing syntactic constructions as innovations and retentions. However, Willis (2011: 414) notes it is in fact not necessary to define what possible and impossible changes are. Rather, for every case of reanalysis, both the original grammar and the innovative grammar must be able to produce very similar PLD (primary linguistic data). Willis argues that this severely constrains the type of transitions that can be posited and provides 'local directionality'. This is true despite the discontinuity of transmission inherent in reanalysis, which leads to the idea that it is a "random walk through parametric space". At its simplest, 'local directionality' is an evaluation of the relative likelihood that a development took place in one direction rather than another, possibly on the basis of considerations of simplicity or markedness. Implementing 'local directionality' as a tool for reconstruction is straightforward. It consists of examining detailed feature and phrase-structure analyses of some construction in two or more languages assumed to be cognate and hypothesizing the most economical and plausible relation between the two. Instead of possible and impossible changes, we can instead think of 'plausible' and 'implausible' changes.

Willis (2011: 415–416) illustrates local directionality by discussing the history of *v2* in Brittonic. Observing that Modern Breton is *v2* while Modern Welsh is *vso*, he shows that determining which word order should be reconstructed for Proto-Brittonic can be accomplished without appeal to universal directionality, i.e. a theory of possible and impossible changes. He argues that *vso* could develop from *v2* in Welsh via a reanalysis of clause-initial pronouns in SpecCP as affirmative *c*-particles. As an example, he shows that the 1st-sg. pronoun *mi* in *mi welais gath* "I saw a cat" was reanalyzed as an affirmative particle. The alternative, that a *vso* Proto-Brittonic, would not have presented evidence for acquirers to think that anything could appear before the verb, meaning that *v2* would be very difficult to derive in Breton. Therefore, since there seems to be a plausible route from *v2* to *vso*, while the reverse is at least unlikely, Willis concludes that Breton is conservative while Welsh is innovative, i.e. proto-Brittonic had a *v2* rule.

I have glossed over some nuances of Willis' reconstruction since I cite it merely for methodological purposes, but it should be noted that the reconstruction is necessarily simplified given the use of modern data, although this does not detract from the argument considerably. In fact nothing in the older material contradicts Willis' analysis (*contra* Schrijver 2011: 72–73). Willis (2007:

299) argues that, while the absolute morphology of older Brittonic languages is derived from vSO at some earlier stage, it is likely that vSO gave way to an unmarked v2 system, through the rise in frequency of clefting and other fronting structures, resulting in a decrease in markedness for such constructions (see also Willis 1998). The fact that older varieties of British have occasional instances of vSO beside some fronting examples (Schrijver 2011: 72–73) is, on this view, not problematic, since the use of vSO would be in some way marked, but not precluded by the grammar.

Willis (2011) suggests further that other important techniques that are common in phonological reconstruction can also be applied to syntax, including considerations of economy (the smallest number of innovations in the daughter languages should be posited), majority rules (only to be used when subgrouping is certain), archaisms, and the presence of anomalies. The last two are particularly important for internal reconstruction, which is the main focus of this paper.

3.4 *Internal reconstruction of syntax*

Fox (1995: 146–147) observes that internal reconstruction is crucially based on the concept of alternation, specifically the establishment of an original identity on the basis of an examination of the distribution of related forms in different contexts. For example, the alternation between word-final /s/ in the Latin word /flo:s/ ‘flower_{NOM}’ and word-internal /r/ in /flo:ris/ ‘flower_{GEN}’, may be reduced to an original non-alternating word /flo:s/ and /flo:sis/ before phonemic split (Fox 1995: 148–149). With regard to morphophonological internal reconstruction, Fox (1995: 150) notes that internal reconstruction may be attempted both where alternations are productive and where alternations are anomalous.

In principle internal reconstruction may be performed on any linguistic level, phonological, morphological, and syntactic, wherever identifiable alternations exist. However, there is an important methodological problem with applying internal reconstruction to syntax, given that syntactic alternations frequently encode meaningful distinctions. This means that it is difficult to draw conclusions about when a particular alternative structure can be regarded as innovative or a residue of a previous system. To avoid this problem, Fox (1995: 190–194) proposes that plausible syntactic internal reconstruction must combine two things: evidence for the direction of syntactic change, and a heuristic for identifying relevant and non-meaningful alternations. One way of fulfilling both of these goals is to find alternations that are due to formal differences, and therefore not meaningful. In essence Fox proposes that some morphological patterns may be the residue of previous syntactic patterns, an approach reminiscent of Givón’s (1971: 413) maxim that “yesterday’s syntax is today’s mor-

phology". As an example Fox introduces an alternative set consisting of the German compound noun *Vergißeinnicht* and the imperative sentence *vergiß mich nicht* "forget me not". This alternative set reveals a case-marking difference where *mein* is genitive but *mich* is accusative. Assuming that the morphologically bound form preserves an earlier syntactic structure, one might propose that originally the verb *vergiß* (inf. *vergessen*) governed the genitive case.

Using the methods discussed in sections 3.2–3.3, as well as concentrating primarily on morphological alternatives that have a possible syntactic origin, as suggested by Fox (1995), pursuing internal reconstruction of syntax may be viable. Morphological alternatives are similar to the alternations between two members of a set of allophones in the internal reconstruction of phonology, although in syntactic internal reconstruction the most useful alternatives are non-productive, that is synchronic anomalies, such as archaisms, even if it is occasionally difficult to be sure what an archaism is. Harris and Campbell (1995: 354–354) provide some useful heuristic criteria for categorizing structures as archaisms, including the following:

- (9) Archaisms are:
 - a. exceptions in an otherwise regular system.
 - b. structures that recede and disappear over time.
 - c. often the most commonly used expressions.

Once archaisms are determined, one may set up 'alternative sets', consisting of the features of functional elements in alternative syntactic structures, namely the anomalous or archaic forms on the one hand and the more productive or innovative form on the other. Finally, hypotheses about the history of these sets can then be made on the basis of local directionality.

4 Internal evidence for pre-Old Irish

In this section I will show that it is possible to reason backwards through various stages of pre-Old Irish using the reconstruction methodology set out in the above subsections. To begin with I will develop arguments for viewing some sets of data as innovative and some as archaic. I showed in section two that Old Irish copular clauses had the word order COP+PRED+SUBJ and argued that the 3rd-sg. forms of the copula were non-verbal. These properties may have been innovative within Old Irish as is implied by the presence of two types of variation in the formation of copular clauses: the availability of non-canonical

TABLE 1 *Canonical vs. special copular endings*

Verbal endings	Translation	Copular endings	Translation
<i>bir-i</i>	'you (sg.) bring'	<i>i-t</i>	'you (sg.) are'
<i>ber-mai</i>	'we bring'	<i>a-mmi-n</i>	'we are'
<i>beir-the</i>	'you (pl.) bring'	<i>a-di-b</i>	'you (pl.) are'
<i>-ber-am</i>	'we bring' (conj.)	<i>-da-n</i>	'we are' (conj.)
<i>-ber-am</i>	'we may bring' (subj.conj.)	<i>-ba-n</i>	'we may be' (subj.conj.)
<i>ber-am</i>	'let us bring' (impv.)	<i>ba-n</i>	'let us be' (impv.)

subject-agreement inflection, and the variable position of certain enclitic particles. These variants are the subject of the following two subsections.

4.1 *Non-canonical subject-agreement inflection*

I suggest that the non-canonical endings serve as evidence for a stage of pre-Old Irish in which predicate fronting had not yet emerged. The basic hypothesis is the non-canonical endings arose in the context of the order COP+SUBJ+PRED through grammaticalization of subject pronouns as agreement suffixes. Table 1 shows the anomalous endings of the 1st and 2nd-person forms of the copula in contrast to the canonical endings found with other verbs.

The copular endings have an extra element added to the normal ending: the 2nd-sg. ending *-i* (which is the same as the stem of the copula) is followed by *-t*; *-mmi* (a variant of *-mai*) by *-n*; *-di* (a variant of *-the*) by *-b*. The 1st-pl. conjunct and imperative forms are less transparent, but if one assumes that there has been assimilation of the ending *-m* to the added *-n* ending, they exhibit the same pattern. The extra element in all cases is potentially derived from a pronoun. The *-t* of *i-t* can be derived from the 2nd-sg. pronoun *tú*. The final *-n* of *ammi-n*, *-da-n*, *-ba-n*, and *ba-n* appears to be from *ni* 'we', the *nota augens*. *Notae augentes* are a kind of weak/unstressed pronominal element that typically has an emphasizing function in Classical Old Irish (for more information see Griffith 2011). The final *-b* of *adi-b* is possibly derivable from the pronoun **swe* (Katz 1998). Besides the special copular endings found in Table 1, mention should also be made of the 1st and 2nd-sg. preterite forms: absolute *ba-sa* and conjunct *-b-sa* 'I/you(sg.) were'. In these forms the final *-sa* is a *nota augens*, originally of the 1st person (the 2nd-sg. should have been *-so/-su*).⁶ As suggested by Thurneysen (1946: 491), the direct suffixation of the

⁶ I assume, following Schumacher (2007: 100 fn. 103, 101 fn. 105), that there was a main clause

nota augens to the copula form represents a reinterpretation of a pronominal as a verbal ending. The difference between the use of the *nota augens* -sa in the preterite and what looks like the initial consonant of the strong pronoun *tú* in the present (i.e. *i-t* 'you are') can be attributed to the possible secondary nature of the non-present copular forms: in effect, only the present copular forms are originally derived from a copular verb **es*- 'be'. The non-present copular forms are unstressed versions of the substantive verb. In section 6.3.3 I argue that the non-present copular forms are assimilated into the copular paradigm via a secondary reanalysis. So, it is at least conceivable that there were two rounds of cliticization involving two pronominal items.⁷

For many of the endings in Table 1, there is direct evidence that they are additions to the original form of the copula. In addition to the copular forms in Table 1, the forms in (10) are also found (Thurneysen 1946: 484–485).

- (10) a. *a-mmi* 'we are' (cf. Wb. 24^d9, 4^b21)
 b. *a-di* 'you (pl.) are' (cf. Wb. 21^c17)
 c. *-de-m* 'we are' (pres.conj., Stokes and Strachan 1903: 246.6)
 d. *-ta-m* 'we are' (pres.conj., Wb. 15^b21)⁸

particle **eti* > (e)t > *(e)ð/(e)s > *(e)h and that this was attached to the copula, protecting the -t of the 2nd sg. from lenition. For more discussion of the particle, see section 5. Aaron Griffith (p.c.) notes that the theory mentioned here depends on a rather eclectic choice of pronouns (*tú* is strong, while *ní* is weak/*nota augens*, for example). More research is necessary into the history of the pronouns themselves. One possibility that does not rely on the weak pronoun *ní* is the following. Assume instead that the stressed pronouns **swe* and **sní* were attached to the particle and that *(e)s + **swe* and *(e)s + **sní* became *(e)s+*we* and *(e)s + *ní*, by reduction of the geminate *ss, assuming that *(e)s was an intermediate stage between *(e)t and *(e)h. This proposal could be strengthened if pronouns lost their accent in pre-Old Irish. A reviewer points out the use of the originally strong pronoun =*tu*= as a clitic in the Gaulish phrase *iexs=tu=mi=sendi* 'v-IMPV thou this to me' (Châteaubateau inscription) may be provide a typological parallel.

- 7 Although the account sketched in footnote 6 seems plausible, the apparent use of weak pronominals as secondary endings seems to predominate: both 1st pl. -n, and 2nd pl. -b if from the weak pronominal and -sa in the 1st/2nd-sg. preterite. It may well be that the isolated nature of the final -t in *it* 'you (sg.) are' should be taken evidence that the endings in this form grammaticalized long before all the others. If so, this would leave the plural forms and the 1st/2nd-sg. preterite as evidence for the development discussed in the main text. I believe that these remaining forms still provide sufficient evidence for a stage in which subject pronouns could immediately follow the copula.
- 8 A reviewer believes that the form -da-n, which is indeed the more common 1st-pl. form, may

The contrast between the forms in (10) and the anomalous copular forms in Table 1 indicates that subject pronouns could be placed immediately after the copula in pre-Old Irish, as opposed to after the predicate as in Classical Old Irish. Only in such an environment could they have been cliticized to the forms in (10) and then reanalyzed as suffixes. This reanalysis must have occurred at some point before the eighth century, by which time the forms in (10) regularly co-occur with a second pronoun placed, as expected, after the fronted predicate (11).

- (11) *hōre a-di-b cretmig si*
 since COP_{PRES-2PL-2PL} believers_{NOM(PL)} 2PL
 “since you are believers” (Wb. 15^a8)

The anomalous copular endings may be defined as archaisms because they are (a) anomalies in a regular system of personal endings, (b) among the most frequently used items, (c) recessive (cf. ex. 11). There is however an alternative viewpoint expressed in Thurneysen (1946: 484, 487) claiming that the new endings arose via analogy with infixed pronouns. Somewhat similarly, McCone (1994: 138; 2006: 112, 120–121, 234–236) argues these endings arose due to analogy with prepositional endings. These analogy-based approaches imply that the non-canonical endings cannot be taken as showing anything about pre-Old Irish syntax. I will postpone further comment on this analysis, until section 6.4.2, where I show that the grammaticalization via reanalysis hypothesis is more likely.

4.2 *Enclitic and object pronoun placement*

In section two I argued that 3rd-sg. forms of the copula are non-verbal particles in c. One key piece of evidence for this is the fact that 3rd-sg. copular forms host enclitic pronouns, just like complementizers and other c-related particles,

be derived regularly (through phonological change?) from *-de-m* rather than through suffixation of *-n*, if **-de-m* is indeed archaic. However, I have not been able to find support for this view in the literature. It seems to imply that the prehistoric change of final /m/ to /n/ was ongoing in Old Irish, post-apocope. But, this is simply untrue. There are many post-apocope forms that show that /m/ was a licit coda consonant within the historical period. Instead, McCone (1994: 138) and McCone (2006: 112, 120–121, 234–236) largely agree in saying that *-n* is an addition to *-de-m*, via suffixation of a pronominal element (although not a subject pronoun) and Lewis and Pedersen (1937: 322) likewise say that *-da-n* is derived via suffixation of *-n* to *-de-m/ta-m*, presumably followed by assimilation. As for the archaism of *-de-m* as opposed to *-da-n*, see Schumacher (2004: 295–296).

and that these enclitics could only be Class c pronouns, which otherwise were exclusively used in relative contexts. Consider (12), which shows that both absolute and conjunct forms of the copula can host Class c clitics.

- (12) a. *Iss-id* *n-aidrech.*
 COP_{PRES.3SG}-him_{NAS}repentance_{NOM}
 “He is repentant.” (Lit. “It is a repentance to him.”) (Ml. 90^d12)
- b. *Ni-pa-d* *n-aidrech* *a* *ndu-raingert.*
 NEG-COP_{FUT.3SG}-him_{NAS}repentance_{NOM} that_{NAS}PV-promise_{PAST.3SG}
 “He does not regret what he promised” (Lit. “That which he promised
 will not be repentance to him.”) (Wb. 5^c9)

In this section I suggest that the placement of the enclitic pronoun in (12b) after the conjunct particle and copula combination (*nipa*) is innovative. In pre-Old Irish order enclitics were placed between conjunct particles and the copula. Evidence for this hypothesis comes from Early Old Irish texts, like *Lam.Com.*, where the relative form of the negative is *nad* before the copula (13), as opposed to the usual Classical Old Irish *ná*, found in Wb. (14) (see Ó hUiginn 1987: 180 for a collection of examples).

- (13) *Óre ní cinni* *hīc ped* *Día*
 since NEG define_{PRES.3SG} here COP_{SUBJ.PAST.3SG} God_{NOM}
 do-d-immarnad *uel nad mbed* *hé.*
 PV-it(c)-command_{IMPF.3SG} or NEG_{REL} NASCOP_{SUBJ.PAST.3SG} he
 “Since it does not define here whether it was God who commanded it or
 whether it wasn’t him.” (*Lam.Com.*, Bieler and Carney 1972: 34)

- (14) *Bied aimser ná-mba* *lobur.*
 BE_{FUT.3SG} time_{NOM} NEG_{REL}-NASCOP_{FUT.3SG} weak_{NOM}
 “There will be a time when he will not be weak.” (Wb. 6b15)

In (13) the final *d* of the negative relative morpheme *nad* is etymologically the same *d* that appears before enclitic Class c pronouns. Watkins (1963: 25–28) claims that the *-d-* in Class c pronouns and the negative is derived from the enclitic-connective particle **de*, cognate with the Greek particle *δέ* (see also the discussion in Schrijver 1997: 131–146). The negative *nad* is therefore derived from the composition of the Indo-European negative **ne* and the enclitic-connective particle **de*. If we compare (12b) to (13), we may observe something intriguing: the position of **de* seems to vary. In (12b) it is after the negative +

copula complex (*nipa*), while in (13) it is between the negative (**ne*) and the copula. These two positions are schematized in (15).⁹

- (15) a. **ne+*de+COP*
 b. **ne+COP+*de+PRONOUN*

Since the pattern in (15a) is found in older texts, like *Lam.Com.*, I assume that it represents an older layer that was later lost. Newton (2006) argues that **de* was a C element. Items to its immediate right, in this case the copula, were verbs in T. The innovation between Early Old Irish (15a) and Classical Old Irish (15b) was essentially a change in the expression of C in the context of a weak unstressed item in T. In other words the original verbal copula in (15a) was grammaticalized as a C particle in (15b). While the evaluation of the two different positions of the copula in (15) so far rests on the date of the texts in which the forms are found, in section 6.3.3, I will elaborate upon and evaluate the change on the basis of local directionality, which will provide further support for the archaism of (15a).

The loss of the ability to place the enclitic **de* between a conjunct particle and a form of the copula is also exhibited, in a slightly different way, by the history of the word *rodbo*, which means ‘or/either’ and ‘or may be’ (see Thurneysen 1946: 551). Consider the contrast between (16) from ALP and (17) from Wb.

- (16) *Dligthir brithem la rīg ro-d-bo brithim*
owe_{PRES.PASS.3SG} judge_{NOM} with king_{ACC} PRF-DE-COP_{PRES.SUBJ.3SG} judge_{NOM}
cadessin.
 too
 “A judge is owed to a king, or he too should be a judge.” (ALP, Binchy 1971: 152)¹⁰

9 A reviewer points out that the two formulae in (15) have slightly different distributions. (15a) is found in dependent clauses and (15b) is found in main clauses. While this is true, a comparison may still be made. Both contain **de* which, whether it is found as an addition to the negator as in (15a) or as an addition to a pronoun as in (15b), has been argued to be the same element. This is the basis for comparing them, not their distribution. However, even in terms of their distributions, it is widely assumed that both main and dependent clauses are CPS, and that both contain particles that can be related to C: see the discussion of C-related morphology in section 5. Since, I assume that both examples involve the C system in some way (following Newton 2006), I believe they are admissible as comparanda in this sense.

10 A reviewer suggests that since there are ‘zero-copula’ sentences in Old Irish, there need

- (17) *Gaibthir trā déde isin testimín se síis .i.*
 treat_{PRES.PASS.3SG} then two.things_{NOM} in.the_{DAT} text_{DAT} PROX below i.e.
rodbo is precept béstatað do Chorintib
 either COP_{PRES.3SG} preaching_{NOM} morality_{GEN} to Corinthians_{DAT(PL)}
uilib ... aliter is ind almsan ar-a-focair
 all_{DAT(PL)} otherwise COP_{PRES.3SG} the_{NOM} alms_{NOM(PL)} PV-REL.suggest_{PRES.3SG}
anúas.
 above

“Two things are treated in this text below, that is, either it is the preaching of morality to all Corinthians, ... or it is the alms which he suggests from above.” (Wb. 16^d7)

As Binchy (1971:152) argues, following Watkins (1963: 49) the infixed *-d-* in (16) is meaningful and should be translated ‘or’. In (17) a second copular form, *is*, has been introduced after *rodbo*. This is a sure sign that the infix has been bleached of this meaning and that the form *rodbo* has been grammaticalized as a conjunction that must be translated as ‘or’. After grammaticalization, the form *rodbo* is morphologically unanalyzable: the infixed *d* has become part of the phonological makeup of the word. Therefore, we see that in Early Old Irish the connective **de*, acting as a disjunctive, could be placed before the copula, while after syntactic and morphological change in later Old Irish, pre-copular **de* as an independent unit was not tolerated. This change is schematized in (18).

- (18) a. **ro+*de+COP*
 b. *rodbo+COP*

According to the heuristic set out in (9b) (i.e. archaisms recede and disappear over time), the order **de+COP* in (15a) and (18a) probably reflects pre-Old Irish grammar. In the case of the combination of the copula with a negation particle, the *-d* was dropped after syntactic change, such that the *d*-less forms are the norm in later Old Irish (14); as for the conjunction *rodbo*, this has been

not be a difference between the glossing of *rodbo* in (16) and (17). If (16) has a ‘zero-copula’, both instances of *rodbo* would merely have the disjunctive reading ‘or/either’. There are at least two problems with this analysis. First, although more research is necessary, it does not seem to be the case that ‘zero-copula’ sentences are common except when the sentence has an indicative present reading. Since we are dealing with a subjunctive reading here, it is more likely that *-bo* should be interpreted as an actual copular form. Secondly, the form *cadessin*, an intensive emphatic, reinforces both the subject and the verb, as Byrne (1982: 167) writes. It seems unlikely that a reinforced or emphasized verb can be elided.

grammaticalized as a non-copular item followed occasionally by a new copular form, additionally in some instances, a *d*-less form is attested (cf. *ropo* in Wb. 5^{d10}). Therefore, it seems that **de*+COP must have been possible before the 3rd-sg. copula was grammaticalized as *c*. In pre-Old Irish **de* would be in *c* and the copula would be below *c*, possibly in *T*.

4.3 Summary of the evidence

Although the data are quite tentative and uncertain, I believe that on the whole they are indicative of the grammar of pre-Old Irish copular clauses in two ways. First, the anomalous endings of the copular system indicate a stage in the development of the language in which the copula may have been placed immediately before the subject, which in turn preceded the predicate. Secondly, morphological variation in the placement of enclitic particles and the copula shows that at some stage the copula could follow enclitics that marked the left boundary of TP (or the right boundary of CP). At that stage the copula was still a verb in *c* and had not yet been grammaticalized as a complementizer particle (i.e. the head of CP). Note that these morphological alternatives are used as the primary basis for internal reconstruction under the assumption that morphological relics may be usefully used as a guide to earlier syntax. Comparative evidence may be used as a check on the internal reconstruction. In many other ancient Indo-European languages, the direct phonological cognate of the copula appears to be verbal (Latin *est*, Sanskrit *asti*, Greek *esti*, Gothic *ist*, etc.). This indicates that the non-verbal status of the 3rd-sg. copula in Old Irish is likely to be innovative. The argument is based on the principle of majority rules: it makes sense to posit a change in one language (Old Irish) rather than a change in four (Latin, Sanskrit, Greek and Gothic) or more languages. This comparison is based only on cases where all languages use a copular clause with nominal or adjectival ascriptional predicates.

The data discussed in this section enable the construction of the various 'alternative sets' in (19). The forms on the left side of > are anomalous from the point of view of Classical Old Irish, while the form on the right is the canonical form.

- (19) a. *ammi* (etc.) + Subject-Pronoun > *ammi-n* (etc.)
 b. *na-d mbed* (*de* + COP) > *nipa d-* (COP + *de*)

I suggest, as a preliminary stage of internal reconstruction that the anomalous forms in (19) are possible archaisms representing evidence of earlier stages of Irish. The internal reconstruction, however, is not yet complete, as two further steps are necessary. First, to properly understand the actual featural innova-

tions between pre- and Classical Old Irish, the above alternative sets, represented essentially as surface patterns, should be reinterpreted as underlying functional structures. Then, 'local directionality' must be evaluated by showing how a reanalysis from the forms on the left to the forms on the right is more plausible than the reverse. In the next two sections these two further steps will be carried out.

5 Reconstruction of pre-Old Irish

Below, I will briefly summarize the relevant points of the reconstruction of pre-Old Irish in Newton (2006: 128–129, 143, 158–159, 192–194, 197), which presents a synthesis and reappraisal of Watkins' (1963) well-known reconstruction of the pre-Old Irish verbal complex. Newton incorporates many previous insights into an innovative generative framework focusing on the features of individual lexical/functional items and their place within an underlying hierarchical structure.

She proposes that pre-Old Irish had a head-final VP and an obligatory filled-C condition, which resulted in V-to-C movement, pre-verb P > C movement, and incorporation of negatives and other conjunct particles in C. The general structure of the clause is therefore (20).

$$(20) \left[{}_{CP} \left[{}_C P/V/NEG+C=yo/k^we/de/eh \right] \left[{}_{TP} T \left[{}_{VP} \dots P/V/NEG \dots \right] \right] \right]$$

Example (20) incorporates Newton's suggestion that various sentential particles identified by previous scholars constitute special morphology associated with C. This morphology was a cue for the learner to posit the movement of material to C (for 'cues' in language acquisition, see Lightfoot 1989). The particles include the relative **yo*, the conjunctive **k^we*, the disjunctive **de*, and the main/affirmative clause particle **eh*. The last is reconstructed to account for the distinction between absolute and conjunct endings as well as the unexpected lack of lenition in compound verbs (see, among others, Schumacher 2007). As currently reconstructed, the particle in pre-Irish had the form **(e)h*,¹¹ which is derived from **eti* (cognate with Latin *et*). The preform **eti* underwent a series of phonological reductions, starting with early *i*-apocope (Cowgill 1975: 57), then reductions from **(e)t* to possibly **(e)θ* or *(e)s* and then finally **(e)h* in

11 The vowel of the particle may be dropped when the element with which it combines contains a vowel.

Irish (see Schumacher 2007: 100, 100 fn. 104 and 102 fn. 105). The particle was suffixed to verbs and introduced affirmative main clauses. This usage links it firmly with the cross-linguistic class of clause-typing particle and suggests that the clause-typing projection ForceP (Rizzi 1997) was active in pre-Old Irish. Throughout this paper I use the pre-Irish form of the particle **(e)h*, not any of its phonological predecessors, for the sake of simplicity.

Newton argues that later stages of Old Irish lost the filled-c condition in (20) and subsequently innovated v-to-T movement through the phonological loss of the c-related morphology (for details on the process of this change, see section 6.3.1). In section 6.1 I expand on the pre-Old Irish stage proposed in (20) and I evaluate the directionality of the innovations in (19).

6 Evaluating 'local-directionality'

6.1 *The structure of pre-Old Irish copular clauses*

In order to evaluate local directionality, I will refer to the two hypotheses defined in (21).

- (21) a. First Hypothesis: at some stage of pre-Old Irish the copula was not a non-verbal complementizer particle.
 b. Second Hypothesis: at some stage of pre-Old Irish word order in copular sentences was SUBJ+PRED.

The structure in example (20) corresponds straightforwardly to these two hypotheses. In (20), only one item can move to C at a time. The structure therefore predicts that pre-Old Irish would have had [V]SO, [P]SOV and [C/NEG]SO(P)V, before the loss of v-to-c and VSO, PVSO, [C/NEG](P)VSO after the rise of v-to-T movement (where [] = element in C). Example (20) is schematic. Example (22) represents two specific examples of pre-Old Irish copular clauses: (22a) clauses containing no conjunct or negative particles, and (22b) clauses with conjunct and negative particles.¹²

¹² For ease of exposition, I use the Common Celtic reconstructed forms **issi* for the copula (McCone 1994: 138), **eti* for the affixed c-particle (Schumacher 2007: 101–102), **atir* for 'father' (McCone 1994: 108), **ne* for the negative particle (McCone 1994: 138), **riks* (< **rīg-s*, McCone 1994: 202, Matasović 2009: 311) for 'king'. For the possessive 'my', I use the form **muy* reconstructed by McCone (1994: 188).

- (22) a. [_{CP} [C [v *issi*] [C *(e)t(i)]] [_{TP} [_{Pred2P} [_{DP} **muy atīr*] [_{Pred2'} Pred2 [_{VP} [_{PredPred1} [_{DP}] [_{Pred'} Pred1 [_{NP} **rīks*]]] [_v [_{v⁰} **issi*] [_{Pred1P}]]]]]]]
 “My father is a king.”
- b. [_{CP} [C [Neg **ne*] [C *(e)t(i)]] [_{TP} [_{Pred2P} [_{DP} **muy atīr*] [_{Pred2'} Pred2 [_{VP} [_{PredPred1} [_{DP}] [_{Pred'} Pred1 [_{NP} **rīks*]]] [_v [_{v⁰} **issi*] [_{Pred1P}]]]]]]]
 “My father is not a king.”

The assumption expressed by the structures in (22) is that pre-Old Irish copular clauses consisted of a VP ‘sandwiched’ between two PredPs (Bowers 1993). The lower PredP was the main predicate, while the upper PredP is required, because in Bowers’ framework verb phrases must be selected by a PredP. The copula, therefore, was a kind of raising verb (for parallels, see Levin and Hovav (1995), who suggest that existential and locative ‘be’ is a raising verb in English).

The above trees represent the stage preceding most of the archaisms discussed in section 4. For instance, consider the following examples, repeated from that section. The copula can be immediately before a subject that is in SpecPredP, as (11) suggested. Moreover, (13) showed that the negative+particle combination in C precedes the still verbal copula lower in the clause.

- (23) a. (=11) *a-di-b*

COP_{PRES-2PL-2PL}
 ‘you are’

- b. (=13) *uel nad mbed hé*
 or NEG_{REL} NASCOP_{SUBJ.PAST.3SG} he

“or whether it wasn’t him” (Bieler and Carney 1972: 34)

6.2 The presumed structure of Classical Old Irish copular clauses.

In order to evaluate local directionality, both the grammar of the pre-reanalysis stage and the grammar of the post-reanalysis stage must be made explicit. The pre-reanalysis stage was discussed above. In this section the assumed structure for Classical Old Irish is introduced. Recall that in Old Irish verbal clauses require the predicate to split, causing VSO word order, while copular clauses do not require the predicate to split, thereby allowing COP+PRED+SUBJ orders. I assume that both are formed in a similar manner but are subject to differing conditions on spell-out. Concretely, I assume that all predicates are formed with the functional element PredP, as argued for by Bowers (1993). I assume that the head of PredP has a linearization diacritic that moves its complement into an outer specifier (see Biberauer, Holmberg and Roberts 2008 for further details on such movement). The linearization diacritic is represented by the

symbol $\wedge$ attached to Pred, the head of PredP: Pred $\wedge$. The subject of predication occupies the inner specifier of PredP. In this system all predicational sentences have the structure in (24a) with a fronted predicate preceding the subject. Copular sentences, in particular, have the structure in (24b), which shows that the copula itself is C.

- (24)¹³ a. [_{PredP} [_{NP/VP/PP/AP} predicate] [_{Pred'} [_{DP} subject] [_{Pred'} Pred
[_{NP/VP/PP/AP}]]]]
 b. [_{CP} [_C COP] [_{TP} [_{XP=NP/AP/PP}] [_{T'} T [_{PredP} [_{XP}] [_{Pred'} [_{DP}] [_{Pred'} Pred
[_{XP}]]]]]]]]

- 13 For a fuller discussion of the sort of derivational system responsible for (24), see Lash 2011. The derivation of transitive and intransitive sentences from (24a) is technically beyond the scope of this paper. However, the following brief remarks are necessary. The main assumptions are as follows. T has verbal features that drive v-to-T movement. T also has a feature that drives movement to its specifier (i.e. an EPP feature). The specifier can be filled by NP subjects, nominal, adjectival or prepositional predicates in copular sentences, and in intransitive (specifically unaccusative) clauses null-expletives or locatives (in a Locative Inversion construction) (see Lash and Griffith forthcoming). Finally, in Classical Old Irish finite verbs move from To to Fino (see following footnote). This derives the verb initial order of Old Irish. Transitive clauses have the structure in (i) and intransitive clauses have the structure in (ii).

- (i) [_{TP} [_{DP_{subj}}] [_{T'} v-V-T [_{PredP} [_{VP}] [_{Pred'} [_{<DP_{subj}>}] [_{Pred'} Pred [_{<VP>}] [_{<DP_{subj}>}] v-V [_{VP} V
DP_{obj}]]]]]]]]
 (ii) [_{TP} [_{PP}] [_{T'} v-T [_{PredP} [_{VP}] [_{Pred'} [_{DP}] [_{Pred'} Pred [_{VP} [_{<PP>}] [_v V [_{<DP>}]]]]]]]]]]

In (i) v moves to little-v, the selection features of Pred require that its first specifier is filled by a DP, so the subject moves from SpecvP to the inner SpecPred. Pred $\wedge$ forces the movement of vP to the outer SpecPred. At this point, assuming that the maximal projection vP in SpecPred has all the same features as its head, T's verbal features can probe vP and force v-to-T movement. T's EPP features forces the movement of DP to SpecTP. Because little-v is a phase boundary, the internal argument (i.e. the 'object') DP cannot move out of PredP and is spelled-out low. In (ii) there is no little-v, so there is no external argument. The internal argument is therefore an accessible goal for the agreement features of Pred. This drives movement to the inner SpecPred. Pred $\wedge$ forces movement of vP to the outer SpecPred. In (ii), I assume that PP is an accessible goal for the EPP feature associated with T and that movement (of PP at any rate) can take place from the Left Branch of a specifier. Followed by v-to-Fin movement, the order v-PP-s is derived. This order is very common with intransitive verbs (see Lash and Griffith forthcoming). v-s-PP is also possible in intransitive verbs, but the derivation of this order is set aside as irrelevant here. Note too that I have left a discussion of Case Assignment in (24a) aside. I

Having introduced both the hypothesized pre-Old Irish stage in (22) and the assumed structure of Old Irish clauses in (24), it is now possible to replace the preliminary alternative sets proposed in (19), which is repeated here, with their formal correlates in order to better understand the changes involved and to assess directionality, that is, to determine the plausibility of the proposed pre-Old Irish stage.

- (25) (=19) a. *ammi* (etc.) + Subject-Pronoun > *ammin* (etc.)
 b. *na-d-mbed* (*de* +COP) > *nípa d-* (COP + *de*)

(25a) is a change from Pred to Pred[^]. This had the side effect of facilitating the grammaticalization of subject pronouns as agreement endings, since the subject could no longer immediately follow the copula. (25b) is a change from *c* to *c*[iFIN]: the grammaticalization of the copula as a complementizer marking finiteness. This change was wide ranging in that it not only affected the conjunct forms but the absolute forms of the copula as well, as discussed above. Below (sections 6.3.2–6.3.3), I divide them into a grammaticalization phase, in which the absolute copula becomes a complementizer, and the deverbalization phase in which the conjunct forms are assimilated to the new *c*[iFIN] analysis, and a new position of enclitics arises. There appears to have been two stages between pre-Old Irish and classical Old Irish. The proposed stages and the transitions between them are listed in (26).

- (26) a. Stage One: (P/NEG)SOV or VSO (cf. 20, 21, 22)
 b. Transition One: *c* > *c*[iFIN] (i.e. abs. copula becomes *c*) v-to-T movement innovated for other verbs.
 c. Stage Two: (C/P/NEG)VSO + COP+SUBJ+PRED (abs. copula)
 d. Transition Two: Pred > Pred[^]
 e. Stage Three: (P/NEG)VSO + COP+PRED+SUBJ (absolute copula)
 f. Transition Three: conjunct copula becomes *c*
 g. Stage Four: see (24b).

assume that nominative is assigned by T to items that move to its specifier and where this is impossible, as in the intransitive derivation in (ii), nominative case is assigned to the next available DP. the case of DP in (24b) is also typically nominative, but it is unclear in this system how this will be assigned. As nothing in this paper hinges on this point, I will leave the question for future research.

6.3.1 The grammaticalization of the copula: context

The grammaticalization of the copula as a complementizer probably began in a particular context with strong pragmatic force that could be associated with *c*. A suitable context for grammaticalization may be what Greene (1958) calls the ‘reprise’ construction, which involves right-dislocation of the logical subject. Note that in the reprise construction the copula is presentational: it brings the right-dislocated NP into focus. This construction is cross-linguistically widespread. For instance, we may compare Old Irish (27a) to French (27b).

- (27) a. *Is rí maith Eochaid.*
 COP_{PRES.3SG} king_{NOM} good_{NOM} Eochaid_{NOM}
 “Eochaid is a good king.”

- b. *C’ est une pièce intéressante, ‘My Fair Lady’*
 it COP_{PRES.3SG} a play interesting
 “‘My Fair lady’, that’s an interesting play.”

The French reprise construction can be contrasted with a non-right-dislocated variant (28).

- (28) *‘My Fair Lady’ est une pièce intéressante.*
 COP_{PRES.3SG} a play interesting
 “My Fair Lady is an interesting play.”

Irish lost the optionality found in French, so that the subject is always right dislocated. I suggest that the triggering event for the loss of optionality was the grammaticalization of the copula as an exponent of *c*, resulting in the development of a secondary usage of the predicate-marking copula as a presentational focus particle. A secondary usage of the sort proposed here is by no means uncommon. For example, a diachronic link between the copula and a focus particle is attested for several creole languages, such as the Portuguese/Spanish derived Papiamentu, where the form *ta* (derived from Spanish *estar* ‘to be’) can be a predicate marker (29a) and a focus particle (29b).

- (29) a. *Mi ta na kas.*
 I COP in house
 “I am in the house.” (Kouwenberg and Muysken 1995)

- b. *Ta e buki m a duna-bu.*
 FOC the book I PAST give-2SG
 "I gave you THE BOOK." (Kouwenberg and Muysken 1995)

In pre-Old Irish reprise constructions the right-dislocated NPs may have been 'bare' NPs and possibly also free-relative clauses in cleft constructions. As discussed above, Newton (2006) reconstructs pre-Old Irish has having an obligatorily filled-c. In non-negative copular clauses or where there is no other complementizer, the filled-c condition meant that the copular verb moves to c. The surface string of a reprise construction would have been something like (30), which shows the c-related main-clause particle **(e)h* alongside the reconstructed form of the copula.

(30) **issi-(e)h* PREDICATE NP/FREE-RELATIVE

The v-to-c movement in depicted in (30) provides the necessary link between c and the copula, such that it could be reanalyzed as an exponent of c, perhaps with a focus feature, in both cleft sentences and presentational sentences.

The grammaticalization proposed here would have been similar to that posited by Roberts and Roussou (2003: 195) for English modals. They argue that the formal correlate of grammaticalization is upwards reanalysis of some feature (along the clausal spine) associated with parameter change, i.e. grammaticalization is "reanalysis [that] gives rise to a new exponent for a higher functional head x" (Roberts and Roussou 2003: 200). They characterize parameter change in terms of the realization of features on a given functional head. For instance, a formal feature may or may not have phonological realization. If a feature is phonologically realized, the diacritic * is used. Another way that features can vary is if they are satisfied via Merge or Move (or Agree), or some combination of these. Using these terms, the change of English modals from verbs in T to exponents of T is described as a change in parameter setting T_{move}^* (triggering v-to-T movement), to the setting T_{merge}^* (whereby the element in T is analyzed as a T element exclusively).

In Irish the grammaticalization of the copula consisted of a change from c, filled by v-to-c movement, to c, filled by merge. In the notation of Roberts and Roussou, this change is denoted as the loss of C_{move}^* and the innovation of C_{merge}^* . In terms of the features of c discussed in section 2, the specific change was from a $c[uV, uTense]$ to $c[iFIN, uTense]$ features. $c[uV]$ would have driven head-movement of the verb to c, following Roberts' (2010) theory of head-movement. The loss of $c[uV]$, or rather the change to $c[iFIN]$ resulted in the change of the copula from a verb to an exponent of c.

6.3.2 The trigger for the grammaticalization

While the pragmatic context provides one half of the story, it does not explain why the copula was grammaticalized as a *c* particle and focused right-dislocated NPs were reanalyzed as unmarked, while similar reprise constructions in other languages continue to be marked. There must have been a primary reason for the reanalysis of the Old Irish copula in such contexts. I propose that that reason was morphological erosion.

Recall that Newton (2006: 152–159) argues that pre-Old Irish had special morphology associated with *c* (see section 5). Furthermore, following Cowgill (1975), she claims that the *c*-related morphology was lost during the general loss of final syllables by apocope in the fifth century A.D. (McCone 1996: 77, 91, 121–122). When the loss of specifically *c*-related morphology occurred, there was no robust evidence for a filled-*c* condition. The endings that remained only indicated person and number, which could be analyzed as being associated either with *c* or *t*. That is to say, without obvious *c*-related morphology verbs need not be analyzed as moving to *c*. Instead, what had been *v*-to-*c* movement was reanalyzed as *v*-to-*t* movement.¹⁴

The reanalysis would have proceeded as follows. Consider (31), showing absolute verb forms in *c*, with an affixed *c*-related particle **(e)h* denoting an ‘affirmative’ clause. This particle protected the final ending from early *i*-apocope (Cowgill 1975: 57; for an opposing view, see Eska 2012). Also consider (32), showing the same verbs when not affixed with the *c* particle, where early *i*-apocope is able to take place. For other phonological developments, see McCone (1996).

- (31) a. **esti-h > essi-h > issi-h* ‘is’
 b. **bereti-h* ‘brings’

- (32) a. **esti > *ess > *eh*
 b. **bereti > *beret*

14 For the purposes of this paper, I follow Newton (2006) in assuming that for non-copular verbs *v*-to-*c* movement was lost and *v*-to-*t* innovated. This development does not, however, accord well with the structure for Classical Old Irish proposed in Lash 2014, where all verbs move to *c*. The two accounts can be reconciled if one assumes that Newton’s filled-*c* condition, which for her drives *v*-to-*c* movement, actually is a filled-Force condition. In this split-CP system, there would have at least a separate ForceP and FinP. In pre-Old Irish, the filled-Force condition moves *v*, preverbs, conjunct particles, and negation to Force. When the filled-Force condition is lost, all verbs, save for the copula now move to Fin. The copula is grammaticalized as a Force particle.

After the later apocope (31) would have become (33), while (32) would have become (34). In both later forms, there is no trace of the particle, and because the particle was associated with v-to-C movement, its loss can be linked to the loss of movement to C.

- (33) a. *iss^j* (= *is*)
 b. **ber*i*ʒ^j*

- (34) a. **eh*
 b. *ber^j* (= *beir*)

While the regular verb **ber*i*ʒ^j* had the same ending as all other (non-deponent) verbs in the present tense, the copula ended with an anomalous palatalized -s. So, while for most verbs the apocope of the C-morphology **(e)h* resulted in the loss of the cue for v-to-C movement and the related rise of v-to-T movement associated with the personal ending **-iʒ^j* the same change meant that the copula was isolated from other verbs, which led to the grammaticalization of the copula as a complementizer. A further difference between the copula and all other verbs is shown in transition from (32) to (34), where apocope could affect the second syllable of (32b), leading to (34b), but since the copula was already monosyllabic, no apocope could take place.

The Old Irish verbal system was tolerant of quite a range of different allomorphs and it would be surprising if morpho-phonological change alone could lead to such isolation and grammaticalization. Therefore, the context was crucial: only in the pragmatically marked context of the reprise construction could this morpho-phonological change result in the reanalysis of the copula as a complementizer. In the reprise construction, the clause possibly had a (null-)expletive subject (cf. English *it's him, John*, or French *l'état, c'est moi* 'the state, it is me.'). In non-pragmatically marked contexts and contexts where the subject was not an expletive, presumably the reanalysis did not happen and the copula remained verbal. For example, 1st and 2nd-person forms were not used in the clefting environments, so a categorial change from v to c did not apply to them.¹⁵ Additionally, 1st and 2nd-person forms always had

15 We must assume that pre-Old Irish did not have agreeing forms in clefts, as in Italian (i).

(i) *Sono io che vado a Roma.*
 COP_{PRES.ISG} I that go_{PRES.ISG} to Rome
 'It's I who goes to Rome.'

Since there is no trace of such a structure in Old Irish, it cannot be reconstructed.

TABLE 2 *Pre-Irish verbal endings with attached particle*¹⁶

PERSON	COPULA		REGULAR VERB <i>móraid</i> ‘magnify’	
	Singular	Plural	Singular	Plural
1st	* <i>e-mmi-h</i> > <i>am</i>	* <i>e-mmosi-h</i> > <i>ammi-(n)</i>	* <i>mārāyo-mi-h</i> > <i>móraigim</i>	* <i>mārāyo-mosi-h</i> > <i>móirmai</i>
2nd	* <i>e-si-h</i> > <i>i-t</i>	* <i>e-tesi-h</i> > <i>adi-b</i>	* <i>mārāye-si-h</i> > <i>mórai</i>	* <i>mārāye-tesi-h</i> > <i>mórthae</i>

recognizably verbal personal endings, as the reconstructed forms in Table 2 show. In fact, at some point the 1st person copular endings were introduced into the verbal paradigms, giving endings with non-lenited /m/ throughout both the paradigms of the copula and other verbs. The difference between the 1st and 2nd-person copular forms on the one hand, and the 3rd-sg. copula on the other, helps to derive the fact mentioned in section two that the 1st and 2nd-person forms of the copula are and always were verbal in Old Irish.

The grammaticalization of the copula as C is shown in the contrast between the pre-change stage in (35) and the post-change stage in (36), where RDC stands for ‘right-dislocated constituent’. Observe that after the change, there is no verb at all. Although there was no surface change, the structure has been greatly simplified in that a whole predicative structure was lost. Such structural simplification is often associated with grammaticalization changes.

(35) [_{CP} [_{CP} [C **issi-(e)h*] [_{TP} [DP pro_i] T [_{Pred2P} [~~DP pro_i~~] [_{Pred2'} Pred2 [_{VP} [_{PredP} [DP pro_i] [_{Pred'} Pred [_{NP} predicate]]] [_{V'} [~~V-issi~~] [~~Pred1P~~]]]]]]] [_{NP} RDC_i]]

(36) [_{CP} [_{CP} [C **issi-(e)h*] [_{TP} [DP pro_i] T [_{PredP} [~~DP pro_i~~] [_{Pred'} Pred [_{NP} predicate]]]]] [_{NP} RDC_i]]

6.3.3 Evaluating C > C[iFIN]

The stage created by the reanalysis of the copula as a complementizer differed in a crucial way from classical Old Irish: namely, only the absolute and the relative forms of the 3rd-sg. copula had been reanalyzed as C, since these alone

16 The personal endings are from Schumacher (2004: 37), except for the 2nd pl., from McCone (2006: 102).

were in *c* to begin with.¹⁷ The other forms were left as conjunct verbs, which would therefore move to *T* in the new grammar. The system of pre-Old Irish is schematized in (37).

- (37) a. Present absolute: *is* (non-verbal, *c*)
 b. Present conjunct: **eh* (verbal, *T*)

The distinction between (37a) and (37b) could be replicated throughout all of the other tenses and moods. Absolute forms, i.e. those forms that had originally moved to *c* and therefore were grammaticalized as *c* particles, were non-verbal. Conjunct forms were still verbal, since some other item like a preverb or negative particle blocked *v*-to-*c* movement. Above I introduced the fact that enclitic **de* appears to have two positions relative to the copular form as evidence that there was a difference between the position of absolute and conjunct copular forms at some point in pre-Old Irish (4.2). In this section I examine changes relating to the placement of the enclitic *-d* (**de*) with the aim of evaluating the plausibility of the proposed innovation in the *c* system. In particular some forms of the subordinating negative in classical Old Irish are useful in elucidating the history of the development of *c*[iFIN]. Since the syntax and morphology of negation and subordination in Old Irish is very complex, I only concentrate here on the three forms of the subordinating negative listed in (38), for more information see Thurneysen (1946: 538–542).

- (38) a. *nad*
 b. *nant*
 c. *ná*

The three forms differ in their distribution in two main ways: the types of subordinate clauses they are used with and the kinds of predicates they are used with. These differences are summarized in (39). Diachronic differences in the distribution of these forms are also found. Nasalization and lenition refer to the consonant mutations found in *wh*-dependency contexts, which were referred to in section 2.3.

- (39) a. *nad^l*: leniting verbal relative clauses (38a)
 b. *nad^l*: leniting present copular clause (38a)

17 In this paper I do not discuss the forms of the 3rd plural at all. I assume that they behave largely like the 3rd singular in becoming non-verbal.

- c. *nad*^N: nasalizing verbal relative clauses (38a)
- d. *nant*: form of present copula in nasalizing relative clauses. (38b)
- e. *ná*^{L/N}: non-present copular forms in leniting and nasalizing relative clauses (38c).

Note that nasalization is present in both the copular and the non-copular forms of the particle, although it is in different places. In the copular form, the final consonant of the particle is nasalized, while in the non-copular particle the initial consonant of the verb following the particle is nasalized.¹⁸

The asymmetry in (39) is unusual: if the copula was at one time a verb, why should the particle used with verbs and the copula differ? One hypothesis is that the asymmetry is the outcome of reanalysis. Two possibilities come to mind: either the copular form is older and was replaced by *nad* in verbal contexts as a result of the copula becoming non-verbal, or the non-copular form is older. The first possibility seems to make more sense when considered in light of the discussion in Newton (2006) concerning the origin of v-to-c movement in pre-Old Irish.

Newton (2006: 155–165) argued that the negative particles were grammaticalized as c through a process of ‘clause truncation’, after which they fulfilled the filled-c condition just like preverbs and conjunct particles, which also became exponents of c. Clause truncation in the history of the particle *nad* is illustrated in (40). The history of the particle *nand* is similar, except that it also involves a putative pronominal element **iom* (Breatnach 1980: 7–9, Schrijver 1997), as shown in (41). The assumption behind the trees is that the original negative particle **ne* was in SpecTopP, **de* was in c, and the pronominal element **iom* was in SpecCP.

- (40) a. [_{TopP} [Neg **ne*] [_{Top'} Top [_{CP} [C **de*] ...]]]
 b. [_{CP} [C **ne-de*] ...]

18 The different position of nasalization relative to the **de* is reminiscent of the different position of the copula relative to **de*. Compare (i) to (ii). Note that *nant* is derived from *nand*+H, see ex. 45 and associated discussion.

- (i) a. **ne+*de+COP* > *nad mbed*
 **ne+COP+*de* > *ni-pa-d n-PRED*
- b. **ne+*de+*NAS+V* > *nad n-V*
 **ne+*NAS+*de+(COP)* > *nant*.

- (41) a. [_{TopP} [Neg **ne*] [_{Top'} Top [_{CP} [DP **iom*] [C **de*] ...]]]
 b. [_{CP} [C **n-on-de*] ...]

In (40) and (41) clause truncation involved a series of affixations that obliterated the difference between projections: affixation of **ne* to **de* in (40b), and affixation of **iom* to **de* followed by affixation of **ne* to **iomde* in (41b).¹⁹ After clause truncation created an obligatory filled-C condition in pre-Old Irish, *nand* and *nad* would have been negative particles in C. According to the tree in (20), subordinating negative clauses would have the structure in (42a). After the loss of final syllables and the subsequent innovation of v-to-T movement (42a) would have been replaced by (42b).

- (42) a. [_{CP} [C **ne-de* / **n-on-de*] [_{TP} ... [v **eh* / **beret*]]]
 b. [_{CP} [C **neð* / **n-ond*] [_{TP} [T-V **eh* / *beir*] [... ⟨v⟩ ...]]]

I propose that the conjunct copula became an affix to the c particle after the development of (42b). Affixation would likely have proceeded through a stage of cliticization, which would have been possible because pre-Old Irish already allowed tensed elements to appear in c due to the previous reanalysis of the present absolute copula as c (i.e. the development of c[iFIN] discussed above). The fact that the present-tense-conjunct copula **eh* was affixed and not other verbs is possibly because the copula was unstressed and fairly phonologically weak, although this is of course speculative.

The clause truncation preceding (42) created a complementizer with the features in (43a). Once the copula was affixed to the negative particle, the features of the particle would have undergone a change to (43b). The uφ features probe the structure of the complement of CP, find an operator, agree with it, and move it to the specifier of CP.

- (43) a. c[iRel, iNeg, uφ, uTense]
 b. c[iRel, iNeg, iFIN, uφ, uTense]

The features of (43b) are essentially the same as the absolute forms of the copula proposed above (section 2.3), with the addition of specifically subordinating and negative features. This featural reanalysis arising from affixation

19 The derivation of **n-on-de* also involves assimilation of **iom-de* to **ion-de* and elision of **ne-ion-de* to **n-on-de*.

allowed acquirers to posit full tense agreement on *c*, throughout all tenses and moods instead of only the absolute forms.

The affixation of the copula to the negative particles created the forms in (44). If, after the innovation of predicate fronting and COP+PRED+SUBJ order (see section 6.4), the copula formed a prosodic unit with the following predicate, we may assume that (44) would have become (45)²⁰ via syncope, which only affected forms following under one stress. Note that the presence of the final *h* of the copula **eh* prevented the development of lenition.

- (44) a. **neðeh*
b. **nondeh*

- (45) a. **neðh* > **neθ* > *nad*
b. **nondh* > **nont* > *nant*

If the order of the particles in pre-Old Irish were consistent across copula and verbal clauses, then these particles would likely have been used in both. However, since stressed verbs following them did not undergo affixation, the particles would have been **neðe* and **nonde* before the loss of final vowels and ***nað^L*, ***nand^L* afterwards. These particles did not have the [iFIN] feature associated with the copula and because of the lack of final *h*, they caused lenition of the verb.

The above account does not explain why *nand* is not found verbal sentences in Classical Old Irish. Even though clause truncation as described above starts from a consistent system, it leads to an inconsistent one. More specifically, clause truncation created a ‘complex grammar’ of the *c*-system that was replaced by a more straightforward system through analogy. Specifically, analogy with affirmative relative clauses regularized the distributions of these particles and their mutations. In affirmative verbal relative clauses the classical Old Irish structure was (46).

- (46) [_{CP} [_{OP_i}] [_{C-φ_i}] [_{TP} [_{V-T_{REL}}]]]

²⁰ The attested forms in (45) are the result of various sound changes (see Thurneysen 1946: 67–69 for syncope, Thurneysen 1946: 72 for changes in vowels in pretonic syllables, Thurneysen 1946: 73 for loss of vowels in proclitics, and Thurneysen 1946: 82–83 for the change of voiceless fricatives to voiced).

In (46) the verb is inflected with relative endings but also is mutated according to the type of operator agreement features on *C*. According to the system developed above affirmative verbal relative clauses contrasted with the non-affirmative system in the manner sketched in (47).

(47) Affirmative:	Negative:
leniting: C^L	leniting: $C[na\tilde{d}]^L$
nasalizing: C^N	nasalizing: $C[nand]^L$

Whereas the root of (compound) verbs was lenited or nasalized in affirmative clauses, in negative clauses only lenition occurred after the particle in *C*.

I suggest that the lenition caused by the negative particle was reinterpreted as being the same as the lenition found in affirmative relatives. Originally, the lenition in affirmative clauses was different from the lenition in negative clauses, i.e. **yo* in *C* in affirmative, **de* in *C* in negative clauses. After the reanalysis the *C* particle *nað* was interpreted as leniting due to agreement with a null operator in its specifier. Similarly, the nasalization in the affirmative was associated with the features of *C*. Since nasalization and lenition could both be analyzed as due to agreement with a null operator, acquirers replaced *nand* with *nað^N* in complement clauses and subordinating contexts, by analogy with the leniting *nað^L* and the nasalizing/leniting affirmative *C*. In copular clauses by contrast, the affirmative and negative system was (48).

(48) Affirmative:	Negative:
leniting: $C[as]^L$	leniting: $C[na\tilde{d}]$
nasalizing: $C[as]^N$	nasalizing: $C[nand/t]$

In (48) there is no basis for an analogy between the affirmative and negative clauses, since the negative copula did not originally cause lenition. Rather lenition and nasalization appear to affect the final *-d* of the particle. There is no need to replace *nand*, since there is a regular correspondence between affirmative leniting clauses and *nad*, and nasalizing clauses and *nand/t*. That is to say, the mutations behave regularly from the start, in contrast to the original verbal particles. The result is that in verbal sentences the phonological correlate of $C[u\phi]$ is lenition or nasalization of a linearly following segment, while in copular sentences these features are filled via Vocabulary Insertion by special particle forms. This analogy amounts to a regularization of the phonetic expression of the ϕ -features that agree with relative operators. It can be represented as in (49).

- (49) If Affirmative $\emptyset$ /Preverb = c [u φ , iREL] /

With phonetic effect: Nasalization/Lenition (depending on value of φ)

Therefore:

Negative *nad* = c [iNeg, u φ , iREL] /

With phonetic effect: Nasalization/Lenition (depending on value of φ)

The system described above only differs in one detail from Classical Old Irish: the lack of lenition after the negative *nad* in copular clauses (see ex. 48). Presumably, the development of lenition in this context, as seen in (50a), was merely a further regularization, which involved the loss from c of explicit copular features (iFIN) in leniting contexts. Lindeman (1980: 165) notes a similar, although much more limited development, in *Críth Gablach* where nasalizing *nad^N* is used in a context in which the copular form *nant/d* would be expected. Consider (50b).

- (50) a. *olsodin nad choir iarsint intliucht*
 which.however NEG_{REL} LEN_{right}_{NOM} after.the_{DAT} signification_{DAT}
ebridíu
 hebrew_{DAT}
 “which, however, is not right according to the Hebrew signification”
 (Ml. 37^a8)

- b. *húare nád n-óg fossugud a thihe*
 because NEG_{REL} NAS_{complete}_{NOM} sustenance_{NOM} his LEN_{house}_{GEN}
 “because the sustenance of his house is not complete” (Binchy 1979: 5.130)

We may now turn to the non-present forms of the copula in a negative complex. As mentioned above in passing, it is a striking fact that almost all of the non-present forms are clearly derived from a verb, namely the substantive verb (present *attá*), all other forms derived from the root **b^heu*. The copula forms are merely unstressed variants of the substantive verb, save for the 3rd-sg. preterite *ba* which is not straightforwardly derived from *boí*, the preterite of the substantive. The fact that copular forms are unstressed verbal forms is helpful for the analysis here. Consider once again the two sentences in (51). These show that the non-present negative relative copular clause can be negated with either *ná^N* or *nád^N* in nasalizing contexts. Since conjunct forms of the copula were still verbal in pre-Old Irish as argued above, it is expected that earlier texts, like *Lam.Com.* (51a), would preserve relics of verbal syntax, as opposed to slightly later texts like *Wb.* The issue is finding a plausible reanalysis that changes archaic forms like (51a) into later forms like (51b). Note, that the

relevant difference here is the apparent disappearance of **-d* from the negative particle, not the difference in tense/mood.

- (51) a. *uel na-d mbed hé ...*
 or NEG-DE COP_{SUBJ.PAST.3SG} him
 “... or whether it wasn’t him ...” (*Lam.Com.* Bieler and Carney 1972: 34)
- b. *Bied aimser ná-mba lobur.*
 BE_{FUT.3SG} time_{NOM} NEG_{REL}-^{NAS}COP_{FUT.3SG} weak_{NOM}
 “There will be a time when he will not be weak.” (*Wb.* 6^b15)

In addition to the featural reanalysis discussed above with reference to (43), I propose that after the the copula because cliticized to preceding particles, acquirers could no longer understand the c[iFIN] feature of the particle as belonging to a cliticized copula, since there was no phonological exponent of the copula itself (i.e. **eh* > **ø*) (see ex. 44–45). Therefore, the final *d* of the negative particle was reanalyzed as the phonological exponent of the present tense of the c particle. This phonological analysis led to an unstable system. To see why, compare the presence of *-d* in (52) to its absence in (53).

(52) Proposed Older System

Present Copula:	Non-present Copula:
<i>na-d</i> (lenited /d/)	<i>na-d-bed</i> (lenited /d/ and lenited /b/)
<i>na-nd</i> (nasalized /d/)	<i>na-d-mbed</i> (lenited /d/ and nasalized /b/)

(53) New System

Present Copula:	Non-present Copula:
<i>na-d</i> (lenited /d/)	<i>ná-bad</i> (lenited /b/)
<i>na-nd</i> (nasalized /d/)	<i>ná-mba</i> (nasalized /b/)

In the unstable system of (52) the *-d* of the present was also found in non-present contexts, where the mutation pattern was distinct. The reanalysis was therefore extended to other tenses by dropping *-d* in those tenses and the reanalyzing the verb forms as the exponents of the non-present tense of c, which were mutated in the same way as the present ending, as (53) shows. The change also gave rise to (54), the underlying syntax of (55), with the *-d* enclitic (now part of a pronoun) at the edge between c and t, as in the pre-Old Irish stage,²¹ but with a conjugated c particle.

21 The actual position of the *-d* enclitic may have shifted from a position in the left periph-

(54) [C *ní-pa*] [T *dn* ...]

(55) *Ní-pa-d* *n-aidrech* *a* *ndu-raingert*.
 NEG-COP_{FUT.3SG} -him_{NAS} repentance_{NOM} that_{NAS} PV-promise_{PAST.3SG}
 “He does not regret what he promised.” (Lit. “That which he promised will not be repentance to him.”) (Wb. 5^c9)

Since *-d* in *nad* had become associated with the present tense of the copular particle, whenever there was a *-d* with a conjunct particle used with a non-present form, either it would have to be dropped as with the form *námba* or the form would have to be reinterpreted as a non-copular form, as with *rodbo* (see ex. 16–18 above). This analysis shows that *nad-mbed*, the older form, became *ná-mba* through a reanalysis of the features and expression of *c*. The changes just discussed show the syntactic consequences of the differentiation of the copula and the substantive verb: not only do forms of the substantive verb become prosodically weakened on their way to becoming forms of the copula, but they become syntactically grammaticalized as *c* particles.

The proposed development must now be evaluated for plausibility, i.e. for local directionality. I am specifically concerned with evaluating whether or not forms like *nad-mbed* (where the copula is *v* in *τ*) are older than the forms *námba* or *nípa-d*, where the copula is an item in *c*. Above, I have argued that the development of forms like *námba* depends on the innovation of *c*[iFIN]. If this is so, the presence of such forms show that *c*[iFIN] is also innovative, with respect to pre-Old Irish (or earlier forms of Old Irish). While I view the change as a reanalysis in the features/expression of *c* (from a *c* with no explicit finiteness feature to a *c* with a finiteness feature), there is a purely phonological (Ó hUiginn 1987) explanation for the loss of *-d* in *nad* > *ná*. Ó hUiginn’s main claim is that there was a ‘close connection’ between *nad* and *mbed* (or other forms of the conjunct copula) which facilitated the loss of the *erstwhile* particle, via sound change.

There are several problems with this analysis that impinge on the evaluation of the relative age of the forms under consideration. First, Ó hUiginn’s account implies that some kind of syntactic account is necessary anyway: otherwise, what does it mean that the negative and the copula had an undefined ‘close connection’? Furthermore, why does the loss of *-d* not occur with main verbs,

ery to *τ* in pronouns, however. Otherwise, there is an intermediate position, in the left periphery, where pronouns are located.

like *beir* ‘carry’ in (56), until much later, since presumably some sort of ‘close connection’ was involved here too?²²

- (56) a. *nad mbeir ...*
 NEG_{REL} ^{NAS}carry_{PRES.3SG}
 “that he does not carry ...”

- b. ***na mbeir*
 NEG_{REL} ^{NAS}carry_{PRES.3SG}

Another problem with the phonological account is that medial *d* is not usually dropped in Old Irish. For example we know that the word *adbar* ‘matter, material, gear, equipment’ did not drop its *d* until much later, as its presence is reflected in the realization of the original /a/ in modern Scottish Gaelic, which is different from the realization of the original /a/ vowel when there was no /ð/.

Finally, the main problem with Ó hUiginn’s analysis is that it does not explain why *nípa-d^N* or *námba* must be innovative. It merely states that if *nad mbed* is older, than *námba*, or the like (i.e. any other tense forms preceded by a negative particle with no *-d*), can be produced via phonological change, affecting medial *d*. It places a sufficient condition on the absence of the medial *d* in the negative copular form *námba* (i.e. phonological derivation from final *d* of *nad* in *nad mbed*) but not a necessary condition. In contrast if the change is characterized as reanalysis, in which C[iFIN] is innovated with attendant extensions, then a necessary condition on the appearance of *ná* in *námba* is available: such forms depend on a previous syntactic change, which is independently needed to account for the copula as a whole, in addition to the subordinate negatives of the present tense of the copula specifically.

When trying to run the change in the opposite direction, that is, assuming that the older grammar already had C[iFIN] and that plain C is innovative, the change becomes a lot more implausible. Assume first, ignoring the difference in tense, that *námba* had the C[iFIN, iNEG, iREL]. This was then reanalysed as *ná*=C[iNEG, iREL] and *mbed*=T[iFIN] and then through extension *ná* was replaced with *nad^N*, the usual form for verbs, deriving the form *nad mbed*. But there does not seem to be much motivation for the reanalysis in the first place. Given that other forms, such as *nípa-d*, would have provided a strong

22 There are a few examples of *na* with main verbs in Wb., but it seems that this is mostly used with infixed pronouns (i.e. Class C enclitic pronouns beginning with the old particle *d*) or before the perfect particle *ro*. In the latter case, the position of *ro* is innovative in any case (see McCone 1997a).

cue for maintainng c[iFIN], in the form c[iNEG, iFIN], since *-d* marked the boundary between c and T, the reanalysis and its extensions seem to make little sense. If such a reanalysis and its extension had occurred, it would have resulted in a complex grammar in which certain negative forms of the copula are complementizers while others are not.

Therefore, it seems as though such a reanalysis and its subsequent analogical extension would fail to occur, meaning that the opposite development, c > c[iFIN] is a very plausible innovation. An important aspect of the above evaluation is that it was accomplished with no reference to the date of the texts in which the various forms appear, but still matches the relative chronology established for the texts, such that *nad mbed* is attested in contexts supposedly written before those in which *námba* is attested. If c is older than c[iFIN], this means that *nad mbed* must represent c[*nad*] + T[*mbed*] and therefore it shows that at some stage the copula did not occupy c, but rather it occupied T. This provides an independent check on Newton's analysis in which verbs could move to T, after the loss of v-to-c movement and the development of v-to-T.

6.4 The innovation of Pred[^]

The second change that occurred between the pre-Old Irish period and the attested texts was the innovation of Pred[^], which induced predicate fronting for all predicates in Irish. In section four I introduced several anomalies in Old Irish that support reconstructing a non-predicate-fronting grammar for some stage of pre-Old Irish. In this section I will show that the likely possibility for right-dislocation in pre-Old Irish provides a plausible context for a reanalysis that produced predicate-initial word order. In addition I show that the special endings of some copular forms provide a means of testing the local directionality of the proposed innovation of Pred[^].

6.4.1 'Amplified' word order as input to reanalysis

I follow Watkins (1964) in assuming that verb-final order may have occasionally been obscured in Old Irish due to 'right-dislocation' or extraposition, what he calls 'amplified' word order. Likewise, Newton (2006) argued that part of the reason why v-to-c movement was reanalyzed as v-to-T movement was the possibility of an increase in right-dislocation of arguments leading acquirers to perceive such orders as the routine or unmarked order. This type of argumentation is particularly crucial for embedded clauses with a complementizer, where the loss of c-related morphology would still have left verb-final orders in many cases (57a). Verb-final order would also have persisted in cases of verbs compounded with preverbs in c (57b).

- (57) a. **C-eh* SOV becomes **C* SOV
 b. **P-eh* SOV becomes **P* SOV

The right-dislocated orders that could have served as input for the reanalysis of v-to-C movement to v-to-T movement may have been any of those in (58).

- (58) a. C/P-obj V SUBJ
 b. C/P *pro* V OBJ
 c. C V SUBJ

(58a) shows the right-dislocation of the subject in the context of an enclitic object pronoun; (58b) the right-dislocation of the object with a null-subject; and (58c) the right-dislocation of the subject of an intransitive verb. Confronted with normal VSO order in main clauses and the orders in (58), possibly in great abundance in the PLD, acquirers then postulated v-to-T movement in their grammars.

A similar account can be made with regard to the history of copular clauses. Whenever presentational focus needed to be marked, the new construction in which the copula behaved as a complementizer marking presentational focus with a dislocated subject was in principle available. From this basis, if dislocations generally became more salient and were perceived as unmarked, it is plausible that a similar routinization of the presentational structure may have occurred as well. However, because the copula was now a complementizer, the presentational structure lacked a lexical verb and had the order COP+PRED+SUBJ. This could hardly have been assimilated directly to the v-to-T analysis, which resulted in VSO word order. Instead, the order COP+PRED+SUBJ would have necessarily implied that the predicate moves to the left of a Pred head.

The change would have created an asymmetry: in the new grammar Pred in copular clauses would have the diacritic (Pred[^]), but in transitive clauses (and verbal clauses generally) it would not. In effect, an acquirer would have created a conceptually undesirable situation in which there are two entirely different functional heads performing the exact same function: Pred[^] for copular structures and Pred for verbal structures. Pred would have selectional features solely for VP and Pred[^] would have selectional features for all other predicate types. Another possibility is that the new system would have Pred in both copular and non-copular clauses, but that full NP subjects (as opposed to pro-subjects) would be barred from SpecPredP in copular sentences but allowed in verbal sentences. This amounts to an unnatural constraint on the specifier of Pred: there is usually no relation between how a specifier is realized and what type of complement a head has.

Instead of positing a system of this sort, I claim that acquirers posited a system with generalized predicate fronting, i.e. $\text{Pred}^\wedge$ in all instances. Therefore, when $\text{Pred}^\wedge$ was innovated, the order $\text{COP}+\text{PRED}+\text{SUBJ}$ was the default, unmarked means of predicating an ascriptional predicate rather than a pragmatically marked presentational structure and, additionally, the placement of objects in transitive clauses was mostly a question of spell-out (fn. 13).

In contrast to the grammaticalization of the copula as a complementizer, the above change was merely a parameter change with no grammaticalization in the sense of Roberts and Roussou (2003: 207–208). That is, there was no upwards reanalysis, no semantic bleaching of any particular head or lexical category (discounting the pragmatic change from presentational right-dislocation to unmarked predication function), no change in category (merely a change in the feature makeup of a category), and no phonological reduction (see Lash 2012 for discussion of another parametric change in the history of Irish which is not a grammaticalization). However, while it is not a grammaticalization change, it is also not a downwards reanalysis. This is because unlike cases of downwards reanalysis, i.e. loss of v_2 , loss of v -to- T and change from OV to VO , which all involve loss of movement (Roberts and Roussou 2003: 205), the introduction of $\text{Pred}^\wedge$ involves the innovation of movement. Interestingly, this change directly addresses the issue of Roberts and Roussou (2003: 212, note 5), in which it is stated that the mechanism for the innovation of an EPP feature (i.e. a movement diacritic) is ‘entirely unclear’. In the case of generalized $\text{Pred}^\wedge$ in Old Irish, the innovation of a movement diacritic is contingent on PLD containing ambiguous right-dislocated structures coupled with the fact that positing an obligatory rightwards position of the subject in the newly created copular predication structure would be an unnatural constraint on the realization of the specifier of Pred .

6.4.2 Evaluating $\text{Pred} > \text{Pred}^\wedge$

The directionality of the change discussed above, that is, from Pred to $\text{Pred}^\wedge$, can be evaluated by exploring the related change by which subject pronouns were grammaticalized as agreement endings. I will begin by examining the current standard account of the special copular endings (eg. *ammi* > *ammi-n*).

McCone (1994: 138; 2006: 112, 120–121, 234–236) derives the agreement affixes from infixed pronouns or prepositional agreement markers by analogy. The analogy is supposed to have occurred after the first singular form **emmi[h]* had become **emmi* via apocope and palatalization and *am[m]* through depalatalization and unstressed vowel change (McCone 2006: 112, 120–121, 234–236). At this point, the ending *-mm* was more like prepositional agreement or an infixed pronoun than a verbal ending and was reinterpreted as such. By extension,

the prepositional endings *-t*, *-n*, *-b* were then suffixed to the original copular forms.

This analogy is not convincing for at least three reasons.²³ First, one may question why the ending was reinterpreted as a pronoun at all. The regular sound changes of depalatalization and unstressed vowel change produced a form that was distinct from the 1st-singular present endings in other verbs: *-(a)imm*. If the 1st and 2nd-person forms of the copula were still verbal, and all verbs in the present have essentially the same endings, then we might expect analogy to produce uniformity across the paradigms of the copula and other verbs: that is, to regularize the irregularities produced by sound change. If regular depalatalization of the 1st-singular copular form was impetus for some kind of change the most logical one would be to reintroduce palatalization from the verbal endings *-(a)imm* rather than to reinterpret the 1st-singular copular form as non-verbal and then spread non-verbal pronominal endings to the rest of the paradigm. This is so because verbal endings of the rest of the paradigm would have likely acted to reduce the possibility of reinterpreting the 1st-singular copular form as non-verbal. Consider the rest of the copular paradigm in the present where other 1st and 2nd-person forms had perfectly recognizable verbal endings, 2nd singular *-i* (cf. *léic-i* 'you allow'), 1st plural **e-mmōsi[h]* (cf. *léic-mi* 'we allow' < **link^we-mōsi[h]*) and 2nd plural **e-tesī[h]* (cf. *léic-the* < **link^we-tesī[h]* 'you allow'). Randomly reinterpreting the suffix in the 1st person as pronominal seems to be a radical and unlikely solution to the problem introduced by sound change.

Secondly, and perhaps somewhat speculatively, if analogy acted to create a regular system of new endings, McCone's analysis cannot explain why the new endings were not extended to all verbs, producing ***marbai-t* (2nd sg.) 'you kill' or ***marbmai-n* (1st pl.) 'we kill', for example. We have seen above (see the discussion associated with Table 2) that speakers did feel that the 1st and 2nd-person copula and other verbs should have the same endings, the evidence being the introduction of non-lenited /m/ in the 1st person of verbal forms. So, morphological leveling could be expected to produce uniformity across verbal paradigms. With McCone's proposed analogy, no such uniformity is created.

Finally, the basic changes to be that in *a-mm* 'I am' the 1st-singular ending *-mm* was interpreted as an addition to the stem *a-*, which looked like prepositional agreement. McCone's account cannot explain why the analogy was not in

23 It is, however, plausible to understand later Middle Irish creations such as *isam* 'I am' (LU 8440) and *isat* 'you are' (TBC 3057) as analogical creations on the basis of infixes.

a sense more thorough. Why was the new stem not abstracted and new endings applied to it, producing ***a-n* ‘we are’, ***a-b* ‘you are’? The proposed analogy introduces irregularity into the system, rather than acting to create regularity: while *a-mm* ‘I am’, looks straightforwardly like a combination of a stem *a-* and a pronoun *-mm* and can be straightforwardly compared with existing structures in the language, such as preverb + pronoun or preposition + pronoun, a regular system produced by this reanalysis should have meant that other pronouns *-n*, *-b* were added to the same stem not to already characterized forms such as *a-mmi-n*, *a-di-b*. Put simply, McCone’s analogy does not explain why (59) did not occur.

(59) *le-mm* ‘with me’ : *a-mm* ‘I am’ = *le-nn* ‘with us’ : *a-x*, *x* = *a-n*

This seems to be a case where proportional analogy does not achieve explanatory adequacy (see King 1968, Kiparsky 1974). Rather it appears merely to describe the phonological similarity in endings of different word classes: infixed pronouns, prepositional agreement endings and the copula. Because the analogy account does not seem convincing, it seems preferable to view the pronominal endings of the copula as the result of the grammaticalization of subject pronouns. This means that the innovation of *ammin* was dependent wholly on PLD containing the linear string COP+PRON, which could only be produced if the grammar of the relevant pre-stage did not contain Pred[^]. It seems as though *ammin* and other copular forms like it with anomalous endings constitute an independent check on the antiquity of a stage having Pred alone with no movement-diacritic. This same stage would have been responsible for the order COP+SUBJ+PRED discussed above.

It is possible to argue that the grammaticalization of pronouns as agreement endings happened at the same time as the innovation of Pred[^] because copular sentences with 1st and 2nd-person pronouns could not be analyzed in any other way consistent with the new Pred[^] analysis. Consider that, if the pronoun and the verb in (60a) were in separate phrases, the underlying structure of the sentence would be (60b), which is clearly not consistent with the new Pred[^] that was innovated on the basis of the possibly frequent use of presentational 3rd-sg. copular sentences.

(60) a. **A-mmi ni mairb.* [Hypothetical sentence]
 COP_{PRES-1PL} we dead_{NOM.PL}
 ‘We are dead.’

b. [_{TP} V [_{PredP} SBJ [_{Pred} Pred [AP ...]]]]].

In order for sentences like (60a) with subject pronouns to be brought into line with the rest of the system, the pronouns were grammaticalized. This grammaticalization can be thought of as a change in the way clitic pronouns associate with T (the tense position of verbs), in a way that is similar to arguments put forward by Roberts and Roussou (2003: 186) relating to the origin of Welsh agreement affixes. Consider (61).

- (61) a. [TP V [PredP DP_{pronominal-subject} ... > [TP V+D [PredP ...
 b. [TP V+D [PredP ... > [TP V-agr [PredP ...
 (adapted from Roberts and Roussou 2003: 186, ex. 93, 94)

(61a) shows that the pronominal subject in the specifier of PredP was cliticized onto a verb in the T position, and that clitic was subsequently reanalyzed as agreement. The grammaticalization account explains why the old endings are incorporated into the new endings, instead of being wholly supplanted by them, as seems to be predicted by the analogical account. It is worthwhile observing, further, that this account of the new copular endings makes sense of the fact that it is only the copula that was susceptible to this grammaticalization; with transitive verbs, the order vs(o) could be analysed as Pred[^] together with v-to-T movement and low spell-out of an object (fn. 13).

Above, I argued that the order COP+SUBJ+PRED was available in pre-Old Irish. If this were true, this would mean that the 3rd-person copula was not proclitic on the predicate in pre-Old Irish. This proposal runs counter to the history of copular clauses developed in McCone (1996: 98, 1997b: 378, 2006: 65), where it is argued that proclisis of the copula was an Insular Celtic feature.

McCone notes that the proclitic prepositions Old Irish *amal* 'like' and Middle Welsh *ual* 'like' are related to the stressed forms Old Irish *samail*, Middle Welsh *hauail*.²⁴ He claims that the loss of /s/ in the prepositions is because they are proclitic. McCone also points out the apparently identical loss of /s/ in the present 3rd-plural form of the copula in both languages: Old Irish *it*, Middle Welsh *ynt* (< Celtic **sentī*). He concludes that proclisis of the copula on the predicate is therefore an Insular Celtic phenomenon and that it must have happened after verb-initial word order became unmarked (i.e. after obligatorily-filled-c, or v-to-c, was innovated, in the terms of Newton 2006).

However, there is simply no logical connection between the phenomenon of proclisis and the elements that are connected by proclisis. That is,

24 While McCone (1997b: 378, 2006: 64) claims that these are adjectives, there is in fact no adjective *samail* listed in the *EDIL*. The words *samail* and *hauail* are nominals.

there is no reason why it is necessary for the copula to have become proclitic to a predicate specifically. It may as well have become proclitic to a subject, for instance. This is especially so because copulas can become unstressed in a variety of positions in the world's languages. If it were the case that the copula became proclitic to the subject and not the predicate, it is obviously the case that it would have to precede the subject. However, this does not mean, as McCone (1996: 98; 1997b: 378; 2006: 65) suggests, that vso had become the unmarked order in verbal clauses by Insular Celtic. It is only necessary for it to have been an option, as I have argued in this paper.

With the above in mind, I believe that there is at least a possibility that Insular Celtic had the possibility for vso word order but that other word orders were possible and that Pred[^] (i.e. COP+PRED+SUBJ) word orders were only pragmatically conditioned and grammatically marked. That is, as I have argued above following Newton (2006), the routinization of verb-initial word order in all contexts and the innovation of the copular complementizer particle is conditioned by apocope in Irish, which occurred probably around 500 A.D. (McCone 1996: 77, 91, 121–122). Furthermore, if the innovation of predicate fronting (Pred[^]) is contingent on the routinization of presentational structures containing a copular c, then it follows that this occurred after apocope. If this is the case, then the comparative Welsh data cannot be used to date generalized verb-initial word order.

7 Conclusion

In this paper I have developed an account of the grammaticalization of the 3rd-sg. copula as a complementizer (c[iFIN]) and I have claimed that subsequently, predicate-fronting (Pred[^]) arose through the routinization of presentational right-dislocation. I showed that these were innovative on the basis of a detailed look at two instances of variation: the position of the enclitic **de*, and the anomalous copular endings. It was argued that the innovation of c[iFIN], which created a copular particle in c, led to the deverbalization of conjunct forms of the copula, such that they became phonological exponents of a tense feature in c. This caused the **de* particle, at the edge between c/t, to appear to be repositioned, since after deverbalization, the conjunct forms were in c, to the left of the particle, while before they were in t. I argued that this explanation entails that forms like *námba* are necessarily newer than forms like *nad mbed*, whereas an alternative, phonological explanation merely suggests this directionality. Crucially, this implies that there was a pre-Old Irish stage when a copular complementizer particle (formally c[iFIN]) was not available. With

regard to the anomalous copular endings, I showed that grammaticalization from post-copular subject pronouns is more likely than a later analogy with prepositional endings. Importantly this means that there was a pre-Old Irish stage before which $\text{Pred}^{\wedge}$ was innovated. The evaluation of the directionality of the changes discussed in this paper show that the formal reconstruction methodology discussed in Walkden (2009, 2014) and Willis (2011) can have significant results when applied to a set of highly complex data.

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