

ON THE RELATIVE ORDER OF ADJECTIVES IN OLD IRISH

PATRICIA RONAN
<https://orcid.org/0000-0001-5172-4971>

TU Dortmund University

ABSTRACT

This study examines the relative order of adjectives in Early Irish and seeks to determine the preferred order of adjectives in the noun phrases in a corpus of Old and Middle Irish. To date, too little research exists on this topic in Early Irish: grammars of the language typically determine the outline of adjective use, and some recent research investigates factors determining pre- or post-modification (Linnemeier, 2024). Yet so far little is known about the distribution of adjectives in corpus data and which factors influence distribution. In particular, the question which role is played by date of composition or text category has not received enough attention.

Thus, the current study uses a corpus-linguistic approach to determine the distribution of adjectives in a tagged corpus of Old and Middle Irish, the POMIC corpus (Lash 2014). To do so, the corpus search interface *CorpusSearch 2* (Randall 2009) is used to detect complex noun phrases which involve one or more adjectives. The study provides some evidence for diachronic variation in the use of adjectives in Old and Middle Irish corpus data, but larger databases are needed to determine the relative influence of genre and time of composition. There are some indications, however, that previous mention of a concept and the use of parallel structures in other languages may influence prefixed or postnominal position of adjectives.

Keywords: adjective, word order, Old Irish, corpus data, complex NPs.

1. Introduction

The morphological formation of adjectives in Old and Middle Irish is comparatively well researched, with contributions having been made for example by Pedersen (1913) or Thurneysen ([1946] 1980). Research on syntactic and other distributional features, by contrast, is considerably less well advanced. While

there has been some research on other parts of noun phrases and their semantic and syntactic distribution (e.g. Goldstein 2022 or Ronan 2004 on articles in Old Irish, Breatnach 2020 on demonstratives), and some notable work on adjective phrases and their complementation patterns (Matasovic 2009), the relative order of other elements is less well researched. Especially under-researched is the relative distribution of different types of adjectives and variation and change of adjectival distribution. An exception is recent work by Linnemeier (2024), who uses a corpus-based approach to show that semantic differences exist between adjectival premodification and post-modification.

Otherwise, however, semantic approaches, and here especially possible chronological or genre variation of the distributional variation of adjectives in Early Irish, have so far received little consideration. The current study aims to help to bridge this research gap by investigating the following research questions: 1) what is the order of (multiple) adjectives in Old Irish? 2) can differences be determined between corpus texts from different periods or different genres? Following from this, question three arises: 3) what conditions the order of adjectives in the corpus materials?

In the Insular Celtic languages, we find certain prefixed adjectives, such as Old Irish (OIr) *sen-*, Middle Welsh (MW) *hen-* ‘old’, or OIr *fír-*, MW *gwir* ‘true’. These are a class of adjectives which can be prefixed to a noun. We might expect that prefixes are an archaic feature that might be more in evidence in earlier texts than in later texts. Similarly, we might assume that, if they are archaic features, the prefixed adjectives would be more frequent in more formal than in less formal texts. Linnemeier (2024) has recently investigated the use of pre-modifying adjectives in comparison with post-modifying adjectives in narrative texts from *Táin Bó Cúailnge* and further Ulster-Cycle and non-Ulster-Cycle tales. The current study takes a related but complementary perspective and investigates the use of pre- and postmodifying adjectives in the corpus materials found in the *Parsed Old and Middle Irish Corpus* (POMIC, Lash 2014a), which contains texts from different genres of texts and from early to late periods of Old and Middle Irish. That the corpus is part-of-speech tagged means that all attestations of the tagged adjectives can be found conveniently. The tool *Corpus Search 2* is used for semi-automatic retrieval of the tagged adjectives in the corpus. The results provide a good overview of qualifiable as well as quantifiable results on adjectival distribution in the corpus materials.

In the following, the current state of knowledge is summarized in section 2. Then the data and methodology employed in the current study are introduced in section 3. In section 4, first quantitative results are presented to in answer to research questions one and two. Then, section 5 presents qualitative results for research question three, before a conclusion is offered.

2. Previous research

Cross-linguistic research on adjectives defines these as a class of words which express properties and denote qualities. Typically, they are gradable (Demonte 2011: 1314–1317) and they can be used both in attributive (*the clever man*) and in predicative (*the man is clever*) contexts, though some adjectives may be restricted to one or the other type, such as *the mere fact* versus **the fact is mere* (Demonte 2011: 1318). Different semantic classes of adjectives have been identified, such as colour and relational adjectives or modal, manner or frequency adjectives (Demonte 2011: 1323). Where more than one adjective is used in adjectival phrases, some research has pointed to (cross-linguistic) preferences in the ordering of multiple adjectives. Thus, Scott (1998: 71, cf. Laenzlinger 2000: 59) observes the following cross-linguistic ordering patterns for multiple adjectives modifying object nouns:

Ordinal > Cardinal > Subjective Comment > Evidential > Size > Length > Height > Speed > Depth > Width > Temperature > Wetness > Age > Shape > Colour > Nationality/Origin > Material

This pattern may be somewhat fine-grained and Laenzlinger (2000: 59) suggests to condense the pattern to:

QUANTIFIERS (Ordinal > Cardinal) > SPEAKER-ORIENTED (Subjective Comment > Evidential) > INTERNAL PHYSICAL PROPERTY (Size > Length > Height > Speed > Depth > Width) > MEASURE (Weight > Temperature > ?Wetness > Age) > EXTERNAL PHYSICAL PROPERTY (Shape > Colour > Nationality/Origin > Material)

As pointed out in section 1 above, variational patterns of adjectives in Early Irish are not yet well researched. The composition of adjectives is discussed in detail in various grammars, e.g. in Thurneysen ([1946] 1980: 218–38, §§343–378). Thus Thurneysen points out that adjectives are mostly placed in second, postmodifying, position in noun-adjective compounds, though premodifying structures and adjective-noun compounds also exist (pp. 218–219, §344). Premodifying adjectives can especially be ordinal numbers such as *cétn(a)e* ‘first’ or *tán(a)ise* ‘second’ (Thurneysen ([1946] 1980: 247–250, §§393–398). Further, nominal compounds exist with prefixed adjectives. In these prefixed structures, the second part of the compound will be lenited by the prefix, as for example in *ard-chenn* [high-head.NOM.SG] ‘high-headed’. In addition, non-inflected adjectival particles can be prefixed to nouns (p. 219, §345), for example *so-chénéuil* [good-race. GEN.SG] ‘well-born’. According to Thurneysen, such

attributive premodifiers have to be simple adjectives, complex adjectives can only be used in this position if they are formed with the suffixes *-de*, *-ach* or participial *-the* (p. 230, §363), while Linnemeier (2024) points to the rare existence of double prefixes in *mor-deg-mainib* [big-good-gift.DAT.PL] ‘great-good-gifts’ (ML 25c17).

Considering the syntactic distribution of adjectives, Lash (2014b) finds that in his Part-of-Speech tagged POMIC Corpus, adjectives can be found with the roles of heads of adjective phrases, as adjective phrases with noun phrase, prepositional phrase or complementizer phrase complements. Additionally, adjectives can themselves be modified by phrasal or by prefixed adverbs. Matasovic (2009) discusses complementation patterns with nominal and prepositional complements in the Würzburg Glosses, as in *cosmil* [*fri crist fessin*] [similar.NOM.SG against Christ.ACC self] ‘similar to Christ himself’ (Wb. 13d13) (Matasovic 2009: 195). Matasovic finds that adjective phrases in his corpus may consist of adjectives governing nouns in the genitive, accusative or dative, as in *nidan chumachtig for nirisce* [NEG.COP.PRES.1PL powerful. NOM.PL 2PL.POSS faith.GEN.SG] ‘we are not potent over your faith’ (Wb. 14c41, Matasovic 2009: 198). While adjectives governing prepositional structures, as in Wb. 13d13 above, are more frequent than those governing nouns, he observes that a number of adjectives allow both prepositional and nominal complements. He argues that nominal complementation patterns are an older type than prepositional ones and are found in all Indo-European languages. Nominal complementation is especially found in Early Irish gnomic literature, as in *Tecosca Cormaic* (Matasovic 2009: 206). According to him, attributive use of adjectives, as in *don brathir enirt hi n-iriss* [to.ART brother.DAT.SG weak.DAT.SG.M in faith.DAT.SG] ‘to the brother (who is) weak of faith’ (Wb. 10b28) is rare, and can be avoided by using a relative clause, as in *intí as hénirt hiress* [ART_DEICT COP.PRES.3SG weak.NOM.SG.F faith.NOM.SG] ‘he whose faith is weak’ (Wb. 6b9).

Further, recently emerging research investigates semantic differences between prefixed and postposed adjectives in Old and Middle Irish, as well as in Insular Celtic and in its medieval daughter languages or in Continental Celtic. Thus, Linnemeier (2024) investigates the alternation between pre-modifying and post-modifying attributive adjectives from a functional perspective. He uses a corpus-based approach that is based on *Táin Bó Cúailnge*, *Táin Bó Froích*, *Mesca Ulad*, *Compert Con Culainn*, *Aislinge Óenguso* and *Tochmarc Étaíne*. He compares the results obtained from these narrative texts to the attestations of prenominal adjectives in the Würzburg, Milan and St. Gall Glosses and expects that the Glosses should show more archaic features. He investigates more than 220 prenominal adjectives attested in the Electronic Dictionary of the Irish Language (eDIL 2019) and points out that a small number of about a dozen core adjectives in Old Irish can regularly be found in pre-modifying position in Old Irish. However, he argues

further adjectives that do not belong to this core class can on occasion be found in the pre-modifying position in order to allow stylistic modification.

Pre-modifying adjectives, Linnemeier (2024) argues, often specify the class of the head noun, e.g. the *crom-sciath* [bent-shield.NOM.SG] ‘bent-shield’, and such expressions approach lexicalisation. Drawing on Bolinger’s (1967) work on adjectives in English, he suggests that the adjective is *referent*-modifying, i.e. it modifies the meaning of the head noun itself, whereas the postmodifying adjective expresses the *reference*, what is predicated to the noun. A similar distribution, he argues, can be found for example in pre- and postposed adjectives in the Romance languages, as in the French examples taken from Waugh (1977: 87) *furieux menteur* [furious.NOM.SG.M liar.NOM.SG], ‘compulsive liar’, compared to *menteur furieux* [liar.NOM.SG furious.NOM.SG.M], ‘furious liar’. Amongst others he cites the examples of *ard-rí* [high-king.NOM.SG] ‘high-king’ or *árt-phersine* [high-person.NOM.SG] ‘high-person’ (Wb. 24d9) versus *hi tilchaib ardaib* [in hill.DAT.PL high.DAT.PL.F] ‘in high hills’ (Ml. 14a09), and points to the similarity of distribution of the Italian adjective *grande*. He illustrates similar behaviour for the use of the doublet pairs (Linnemeier, 2024), for example in *dag-/maith* ‘good’ or *droch-/olc* ‘bad’, as in *droch-dub* [bad-ink.NOM.SG] ‘bad-ink’ (Sg. 214a), an ink that is inherently bad, versus *béssti olca* ‘bad beasts’ [beast.NOM.PL bad.NOM.PL.F] (Wb. 31b21), which are not bad at being beasts, but show cruel behaviour. He does caution, however, that in the postmodifying position, the use as *referent* and *reference* modification may be ambiguous.

Linnemeier (2024) argues that some of Bolinger’s findings on adjectives also apply to Old Irish adjectives, including the fact that the line between reference and referent modification can be blurry for semantically non-specific nouns. Further he argues that adjectives in reference-modifying, i.e. prenominal, position often express a specific meaning of their head noun. He suggests that consequently the postmodifying adjectives are well-suited for contrastive contexts. This argument, that postmodifying adjectives are used to provide contrast, will be taken up again in Section 4 below. Linnemeier does concede that contrastive use can also, albeit rarely, be found with prenominal adjectives and he cites *de[g]-gnímae* [good-deed.NOM.PL] ‘good deeds’ versus *droch-gnímae* [bad-deed.NOM.PL] ‘bad deeds’ (Ml128d09). Special cases, he argues, are constituted by *sen-* ‘old’, or *hen-* in Brythonic, which he identifies as always prenominal in attributive use, both in the early Goidelic and Brythonic languages, exemplified by Old Irish *fír-* ‘true’ and Old and Middle Welsh *gwir/guir* respectively. These are always prenominal in Old Irish and predominantly prenominal in the Brythonic languages. Further, he argues that *mór* ‘big’ may not follow the *referent* and *reference* classification. How far these factors play a role in the present corpus data will be shown in Sections 4 and 5.

3. Data and method

The current study draws on a parsed corpus of early Irish, the *Parsed Old and Middle Irish Corpus* (POMIC, Lash 2014). The POMIC corpus consists of 14 Old and Middle Irish texts, which are parsed and tagged for part-of-speech (cf. Lash 2014). After extraction, the data were then manually analysed in the text-editor BBEdit. While using corpora can have certain drawbacks, in particular leaving out of consideration those materials that do not form part of the corpus, corpus-based approaches have persuasive advantages, such as ease of access, being able to quantify overall data and results, as well as accountability and replicability of the obtained results. Using parsed versions of corpora amplifies these advantages and disadvantages: target structures can be found easily with automated or semi-automated approaches and exhaustive lists of all the target structures can be compiled with relative ease. Again, the drawback of this approach is that items that are, for whatever reason, not tagged as the target category cannot be found by the approach. While most research on earlier varieties of Celtic languages has used manual approaches so far, this study harnesses the search options provided by a POS-tagged corpus. The source texts included in the POMIC are given in Table 1. The classification of genre is based on the main topic matter of the text. The composition date follows Lash (2014) unless otherwise stated.

Table 1. Corpus texts and likely dates of composition

Text	Genre	Composition	Line-count Corpus output
Cambrai Homily (Cam)	Religious	Late 7 th cent.	749
Additamenta from the Book of Armagh (Arm)	Religious	Ca. 700	1811
Lambeth Commentary on the Sermon on the Mount (Lc)	Religious	Ca. 725	6212
Old Irish Table of Penitential Commutations (Com)	Religious	Ca. 751–800	2316
The Treatise on the Mass (Mass)	Religious	8 th or early 9 th cent.	1300
The Treatise on the Psalter (Ps)	Religious	Early 9 th cent.	5941
The West Munster Synod (WMS)	Political/ legal	(Early?) 9 th cent.	956

The Monastery of Tallaght (MT)	Religious	830–840	13062
The Old Irish Homily (Hom)	Religious	Mid 9th cent. ?	1466
The Vision of Laisrén (Lais)	Religious	Late 9th or early 10th cent.	1530
Fingal Rónáin (FR)	Narrative	Early 10th cent.	2934
The Story of Finn and Gráinne (FG)	Narrative	Late 9th or early 10th or 11th	592
The Irish prefaces for the Liber Hymnorum (LH)	Religious	End of 11th or early 12th cent.	9386
The Three Drinking Horns of Cormac úa Cuinn (Tdh)	Narrative	?, (or 900–1200, Gwynn 1905)	568

The POMIC corpus was searched with the Corpus search tool *Corpus Search 2*. This tool is a Java program that was developed for the automated extraction of data from early language varieties. The syntactic annotations are in Penn-Treebank format. To obtain appropriate search results, the following examples of query syntax have been trialled (Table 2):

Table 2. Possible query syntax in CorpusSearch 2

Specified nodes	Query syntax
CP/NP*	(ADJ* iPrecedes N*)
CP* / NP*	(N* iPrecedes ADJ*)
CP* / NP*	ADJ exists

The ‘specified nodes’ instruct *Corpus Search 2* to search all CPs, Complementizer Phrases, thus essentially any sentence, and every NP, i.e. any Noun Phrase. The asterisk * indicates a ‘wild card’, this means any type of a specific item. The query syntax specifies further that any type of adjective (ADJ*) should be found which directly precedes (iPrecedes) any kind of noun (N*), or that any noun (N*) should be found that directly precedes any adjective, or as indicated in the final row, that any existing adjective in the text should be found.

Manual inspection of the output showed that the query ADJ exists returned the best results as it had higher, i.e. more complete, recall of adjective attestations than the other queries. The obtained hits were then entered into Excel, where they were manually classified. The descriptive statistical analysis was carried out in the statistics programme R (R Core Team, 2021). Certain adjective types were not considered in the analysis: they were not considered if they were predicative

rather than attributive (as in example [1]) or adverbial (example [2]), or if they did no longer have any positional movability because they formed part of (fossilized) modifiers in names (examples [3] and [4]).

1. mā beith nech bes
 if be.PRES.SBJ.3SG anyone.NOM.SG COP.PRES.SBJ.3SG.REL
 maith diib...
 good.NOM.SG.N from.3PL
 ‘if there be one of them [available] who is good ...’ (Arm.8)
2. 7 bēim a bruindi **co m=menic** ...
 and striking.NOM.SG 3SG.POSS breast.GEN.SG PRT frequent.ACC.SG.N
 ‘Further, [there is] frequent striking of the breast...’ (Com.25)
3. ... do-luid **āedh** **oirdnidhi** mac
 go.PRET.3SG Aed.NOM.SG ordain.PPL.NOM.SG.M son.NOM.SG
 nēill
 Néill.GEN.SG
 ‘One time Áed Oirdnide, son of Níall Frosach came ...’ (Tdh.0)
4. ocus bŭi brendān and 7 fīnān
 and be.PRET.3SG Brenan there and Finan.NOM.SG
 cam...
 bent.NOM.SG.M
 ‘And Brendān and Fīnān Cam were (there).’ (WMS.8)

The results of this investigation are discussed in sections 4 and 5 below.

4. Results

In this section, a quantitative survey is presented of the adjectives that are postmodifying pre-modifying or prefixed. The aim of this section is to determine whether the textual factors composition date or text type can be shown to lead to statistically significant quantitative differences.

4.1. Postposed, preposed and prefixed adjectives in the corpus

In the corpus texts, the majority of adjectives was found in the postmodifying position. Pre-modifying adjectives were partly used as adjectival prefixes in compound nouns, such as *droch-ben* [evil-woman.VOC.SG] ‘evil-woman’ (FR

111) or *cām-cornn* [twisted-horn.ACC.SG] ‘twisted-horn’ (Tdh.27), denoted Adjective-noun in Figure 1. Furthermore, they partly appeared in independent pre-modifying position, such as *cétna gabāl* [first.NOM.SG.F division.NOM.SG] ‘first division’ (MT 191), denoted AdjectiveNoun in Figure 1. This latter type was particularly frequent in the case of numerals. An overview of the corpus attestations is given in Figure 1

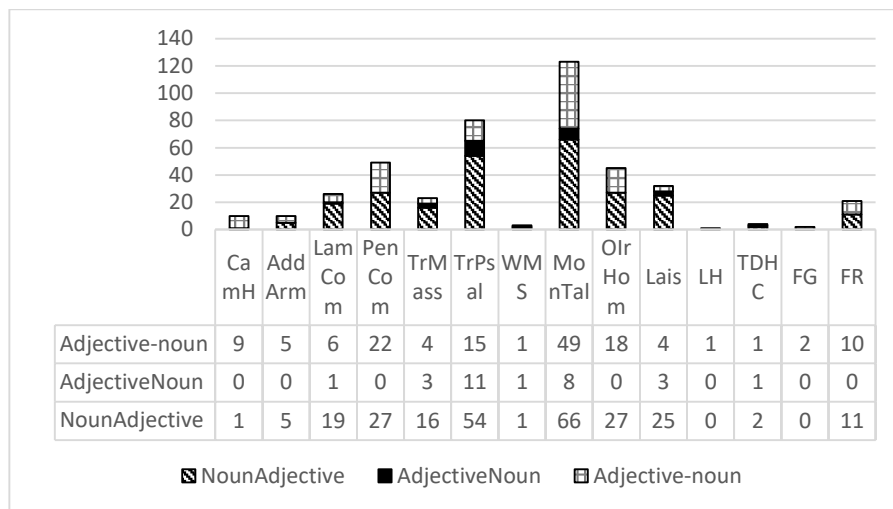


Figure 1. Distribution of adjectivally modified noun phrases in the POMIC corpus in absolute numbers.

Figure 1 shows that some texts show considerably larger proportions of prefixed adjectives (Adjective-noun) than others: especially the early religious text *Cambrai Homily*, but also the *Addimenta to the Book of Armagh*, show high or very high proportions of prefixed adjectives. The proportion of prefixed adjectives is comparatively low in the texts from the eighth and ninth century, though the *Monastery of Tallaght* and the *Old Irish Homilies* have higher proportions of prefixed adjectives again. The later, narrative texts *Fingal Rónáin* and *The Story of Finn and Gráinne*, as well as *The Irish Prefaces for the Liber Hymnorum* show larger proportions of prefixed adjectives again, so does the considerably earlier *West Munster Synod*. The latter is now considered to belong to a political and legal genre, while the *Prefaces to the Liber Hymnorum* also show some narrative traits. Thus, we can say that the earliest religious texts show high proportions of prefixed adjectives, but the prefixes are also well attested in some later and narrative materials. Typically, if a text has any preposed adjectives at all, it tends to have a considerable number of these. A quantitative analysis of the distribution follows below.

The preposed adjectives that are found in the texts are predominantly numerals, especially the numerals *cētna(e)* ‘first’, *dara* ‘second’, *tress* ‘third’ (examples [5–9]). *Uile* ‘other’ can also be found in pre-modifying position but has been tagged as a quantifier in the POMIC corpus and will thus not be considered here.

5. *an* *cētna* *fecht*
 ART first.NOM.SG.M time.NOM.SG
 ‘the first time’ (Lais.4)
6. *an* *dara* *comalta*
 ART second.NOM.SG.M fosterbrother.NOM.SG
 ‘the second fosterbrother’ (Tdh.17)
7. *for-sin* *tress* *lucht*
 on-ART third.DAT.SG.M troop.DAT.SG
8. *cethramud* *cenīul*
 fourth.DAT.SG.N kind.DAT.SG
 ‘fourth kind’ (Ps.276)
9. *in* *cóicatmad* *salm*
 ART fiftieth.NOM.SG.M psalm.NOM.SG
 ‘the 50th psalm’ (Ps.132)

Whether a corpus text has numerals largely depends on the topic matter of the texts, which determines whether enumerations are likely to be needed in the texts. However, not all numerals are preposed, and postposed numerals can also be found (examples [10–11]):

10. *a-sin* *chóicait* *tóisech*
 in-ART fifty.DAT.SG first.DAT.SG.M
 ‘in the first fifty’ (Ps.79)
11. *īar-sin* *troscud* *tanaise*
 after-ART fast.DAT.SG second.DAT.SG.M
 ‘after the second fast’ (MT.500)

In comparison with example (11), consider the instances of *cētna troscud* [first.DAT.SG.M fast.DAT.SG] ‘first fast’ (Mt.499), as well as *tress troscud* [third.DAT.SG.M fast.DAT.SG] ‘third fast’ (Mt.501). Instead of *troscud tanaise* [fast.DAT.SG second.DAT.SG.M] ‘second fast’, *in dara troscud* [ART second.DAT.SG.M fast.DAT.SG] might have been used in a later text, here it might not have been available yet¹. The two surrounding clauses use the preposed

¹ I am grateful to an anonymous reviewer for pointing this out.

numerals, but the factors that are ultimately responsible for the choice of one over the other still need to be determined. It has been suggested that postposed numerals are usually secondary, i.e. derived, numerals,² which may play a role here, but further research on this topic is necessary. In the following, the present study will focus on open-class adjectives rather than numerals, as open-class adjectives can be expected to show more flexibility.

The majority of attributive adjectives in the corpus are postposed, namely 254, or 59%, of 429 attributive adjectives. The postposed adjectives belong to a wide variety of semantic domains. Compared to the domains proposed by Laenzlinger (2000, based on Scott 1998), a wide variety of subjective and of evidential, i.e. evidence-based, adjectives can be found in the data. Values or properties are highly subjective from the speaker perspective. By contrast, factors like (internal) *State* or (external) *Status* can be assessed on the basis of evidence. Thus, Scott's and Laenzlinger's overall categories are consulted, but more fine-grained subdivisions in the data are introduced: Subjective comments are separated into Value and Property. Table 3 gives an overview of the semantic types that are found.

Table 3. Semantic types of postposed adjectives in the corpus with examples

Size	<i>mór</i> (big), <i>becc</i> (small), <i>ard</i> (high), <i>fota</i> (long), <i>cían</i> (long)
Colour	<i>find</i> (fair), <i>donn</i> (brown), <i>dorcha</i> (dark), <i>dub</i> (black)
Value	<i>soér</i> (free), <i>adamrae</i> (very wonderful), <i>ísel</i> (low), <i>coitchenn</i> (common), <i>sainemil</i> (unique), <i>úasal</i> (noble)
State	<i>lán</i> (full), <i>labor</i> (weak), <i>craibdech</i> (suffering), <i>mín</i> (soft), <i>cóir</i> (proper), <i>dilucht</i> (perfect), <i>sír</i> (lasting), <i>derrit</i> (remote), <i>foirbthe</i> (complete), <i>súthain</i> (everlasting), <i>allaid</i> (wild), <i>marb</i> (dead), <i>béo</i> (living), <i>spirtálde</i> (spiritual), <i>colnide</i> (bodily)
Location	<i>clí</i> (left), <i>deiss</i> (right), <i>ochtarach</i> (upper), <i>medónach</i> (middle)
Status	<i>cenélach</i> (general), <i>dligthech</i> (lawful), <i>airdic</i> (famous), <i>nóeb</i> (holy), <i>talmandae</i> (earthly)
Property	<i>deas</i> (nice), <i>maith</i> (good), <i>cóem</i> (dear), <i>rínde</i> (mystical), <i>caín</i> (fine), <i>glan</i> (clean), <i>fírian</i> (righteous), <i>féig</i> (keen), <i>forsaid</i> (firm) <i>trócar</i> (merciful), <i>dércach</i> (charitable), <i>úar</i> (cool), <i>léir</i> (clear), <i>fóena</i> (flat), <i>cam</i> (bent), <i>trum</i> (heavy), <i>trén</i> (strong), <i>ecnaid</i> (wise), <i>indocbuide</i> (glorious)
Nation	<i>latinde</i> (Latin), <i>grécda</i> (Greek), <i>ebre</i> (Hebrew), <i>baibilónde</i> (Babylonian), <i>rómanta</i> (Roman)
Age	<i>óac</i> (young), <i>sen</i> (old)

² Thanks to David Stifter, who remarked on this point in the discussion of the paper at the Göttingen workshop.

Further, a large variety of prefixed adjectives are found in the corpus materials. They modify the meaning of the head noun to indicate an inherent property, as argued by Thurneysen ([1946] 1980: 21), or specify the semantic class of the head noun (Linnemeier, 2024). The prefixed adjectives attested in the Corpus are shown in Table 4.

Table 4. Semantic types of the prefixed adjectives in the corpus

Size	<i>mór</i> - (big), <i>sír</i> - (lasting), <i>ard</i> - (high), <i>min</i> - (small)
Colour	<i>dub</i> - (black), <i>ban</i> - (white), <i>derc</i> - (red), <i>glas</i> - (grue)
Degree	<i>ro</i> - (excessive), <i>er</i> - (very), <i>fír</i> - (true), <i>uile</i> - (all), <i>óen</i> - (one), <i>il</i> - (many), <i>lán</i> - (full), <i>prim</i> - (main)
State	<i>beó</i> - (living), <i>marb</i> - (dead), <i>bith</i> - (everlasting)
Location	<i>cros</i> - (cross-), <i>rém</i> - (pre-), <i>cúl</i> - (back-)
Status	<i>nóib</i> - (holy), <i>ard</i> - (high), <i>arch</i> - (arch)
Property	<i>deg</i> - (good), <i>droch</i> - (bad), <i>dúr</i> - (lasting), <i>mi(s)</i> - (dis-), <i>sain</i> - (special), <i>caín</i> - (good), <i>trén</i> - (strong), <i>nem</i> - (un-), <i>dúr</i> - (hard), <i>cam</i> - (crooked), <i>crom</i> - (bent), <i>nú(a)</i> - (new), <i>clár</i> - (flat), <i>trom</i> - (heavy)
Age	<i>óc</i> - (young), <i>sen</i> - (old)

A comparison of Table 3 and 4 shows us that there is a considerable overlap of the semantic fields to which the prefixed and the postposed adjectives belong and various doublets that have been identified, e.g. by Linnemeier (2024), are also found in the present corpus materials. Notable here there are e.g. the size-adjectives *mór* ‘great’ and *sír* ‘long’, the colour adjective *dub* ‘black’, or the state adjectives *béo* ‘living’ and *marb* ‘dead’. Degree adjectives, on the other hand, tend to be expressed with prefixes.

4.2. Possible influences of textual factors on adjective choice

Given that there is some variation in the choice of post-modification and prefixation, the question arises whether we can observe any influence of textual factors on their distribution. It has been remarked above that preposed adjectives typically are numerals like *cétna(e)* ‘first’, *dara* ‘second’, *tress* ‘third’. Here we will concentrate on the adjectives that can be either postposed or prefixed, and the question what might influence the choice of the one or the other position. First, let us examine the distribution of postposed compared to prefixed adjectives in the individual texts. To do so, simple ratio is calculated of the number of prefixed adjectives (type: *óc-ben* [young-woman.NOM.SG]) divided by the number of postposed adjectives (type: *ben óc* [woman.NOM.SG young.NOM.SG.F]) per text. The ratios for the different texts can be seen in Table 5 below.

Table 5. Ratios of adjective-noun compounds versus noun adjective phrases in the corpus texts, including average ratios for religious/political versus narrative texts. Non-narrative texts in unshaded columns, narrative texts in shaded columns.

Text	Cam	Arm	Lc	Com	Mass	Ps	WNMS	MT	Hom	Lais	LH	Tdh	FG	FR
Adj-N	9	5	6	22	4	15	1	49	18	4	1	1	2	10
N Adj	1	5	19	27	16	54	1	66	27	25	0	2	0	11
Adj-N / N Adj.	0.1	1	3.2	1.2	4	3.6	1	1.3	1.5	6.25	0	2	0	1.1
Av. Ratio /text cat.	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1	1	1

We can see in Table 5 that the ratio of “adjective-noun” divided by “noun adjective” order in phrases varies greatly in the different texts. Generally, there are higher average ratios of adjective-noun constructions in the non-narrative texts than in the narrative texts in the POMIC Corpus. While Armagh shows equal proportions, a strong and obvious outlier here is the Cambrai Homily, which has notably more

prefixed adjectives than postposed adjectives. As *Cambrai Homily* is the most archaic text in the collection this is noteworthy. On the opposite end of the scale, we find the eleventh century *The Vision of Laisrén*, with a strong overrepresentation of postnominal adjectives. In the following, we first determine whether the observed differences can be related to text category: religious/political texts or narrative texts. Then, we determine whether statistically significant differences in distribution can be observed depending on whether a text stems from the early, middle or late period of texts represented in the corpus.

4.2.1. Testing statistically significant differences between religious and saga texts

In order to test statistically significant differences between religious and saga texts, chi-square significance tests have been carried in R.³ For this, the numbers of attestation of adjectives were considered in relation to the number of output lines of the POMIC corpus search output in the BBEdit-text editor. In the POMIC corpus materials, possible differences between non-narrative and narrative texts in the distribution of postmodifying and prefixed adjectives is not statistically significantly different.⁴ So overall, the results found here might also be applicable to Linnemeier's (2024) data set.

Equally, there is no statistically significant difference in the use of prefixed adjectives in non-narrative texts, compared to narrative texts.⁵ However, if we compare the distribution of only postmodifying adjectives, this distribution shows statistically highly significant different numbers between the non-narrative and narrative texts.⁶ This is an interesting observation as it tells us that the non-narrative texts in the corpus use more postmodifying adjectives than the narrative texts, while no statistically significant difference exists between the use of prefixed and postmodifying adjectives in the two text types. This observation raises the question whether another factor, the time of text composition, may have had influence on the distribution of prefixed and postposed adjectives.

4.2.2. Testing statistical differences between early, middle and late period texts

In the next step, the statistical differences between the texts from the early period (seventh and eighth centuries), the middle period (ninth century) and the late

³ Chi-square tests, or here more specifically: chi-square adjacency table tests, are used on numerical variables that can be assigned to specific categories, such as different texts, or categories like prefixed versus postposed. The test determines whether the observed values of attestation differ statistically significantly from the values that would be expected, all things being equal. See also Schneider & Lauber (2020).

⁴ χ^2 -squared = 3.5603, df = 2, p-value = 0.1686.

⁵ χ^2 -squared = 0.0026105, df = 1, p-value = 0.9593.

⁶ χ^2 -squared = 350.85, df = 1, p-value < 2.2e-16.

period (tenth and eleventh centuries) were tested. Again, the two positions in potential complementary distribution—prefixed adjectives and postponed adjectives—were considered. The data on which these tests are based are displayed in Table 6.

Table 6. Adjective attestation in the early, middle and late centuries

Period	Adjective-Noun	Noun adjectives	Corpus output lines
Early (7 th & 8 th cent.)	20	25	8772
Middle (9 th cent.)	109	191	25041
Late (10 th & 11 th cent.)	18	38	15010

On these data, chi-square tests were carried out to determine whether there are statistically significant differences between the overall numbers of attestations of prefixed and postposed adjectives in the different period. The chi-square tests show highly significant differences of the three different periods overall.⁷ Testing also shows highly significant differences between the early and the middle period,⁸ as well as highly significant differences between the middle and the late period.⁹ By contrast, there is no statistically significant difference between the early and the late period.¹⁰ Thus while the middle period differs from both early and late period, early and late period do not differ statistically significantly from each other.

In the next step, chi-square tests were again used to investigate if this statistically significant difference in adjective numbers also applies to prefixed adjectives alone and to postposed adjectives alone. From this, the following results were obtained. Prefixed adjectives are used statistically significantly differently throughout the three periods.¹¹ Again, differences in the use of prefixed adjectives are statistically significant between the early and the middle period,¹² and highly significantly between the middle and the late period.¹³ And again, the differences in numbers between the early and the late period are higher than the commonly accepted linguistic standard of 5% (i.e. $p = 0.05$; cf. e.g. Schneider & Lauber 2020: 50).¹⁴

In addition to the statistically significant differences in overall adjective use and in the use of prefixed adjectives, the numbers of postposed adjectives found

⁷ χ^2 -squared = 90.417, df = 4, p-value < 2.2e-16.

⁸ χ^2 -squared = 30.325, df = 2, p-value = 2.6e-07.

⁹ χ^2 -squared = 30.325, df = 2, p-value = 2.6e-07.

¹⁰ χ^2 -squared = 4.2468, df = 2, p-value = 0.1196.

¹¹ χ^2 -squared = 32.809, df = 2, p-value = 7.51e-08.

¹² χ^2 -squared = 6.7623, df = 1, p-value = 0.00931.

¹³ χ^2 -squared = 28.378, df = 1, p-value = 9.98e-08.

¹⁴ χ^2 -squared = 3.3918, df = 1, p-value = 0.06552.

in the corpus also differ statistically highly significantly between the texts from the early, middle and late periods.¹⁵ Differences in attestation between the early and the middle period are statistically highly significant.¹⁶ Differences between the middle and the late period also differ statistically highly significantly.¹⁷ And here, again, too, there are no notable statistically significant differences in the use of postposed adjectives between the early and the late period.¹⁸

4.2.3. Summary of findings on textual influences

Summing up, we can state that on the basis of the statistical significance tests used, the text category (religious versus saga) does not seem to play a role in the distribution of prefixed versus postposed adjectives in the texts contained in this corpus. By contrast, statistically significant differences were observed in the use of prefixed and postposed adjectives between texts belonging to the early, middle and late period of the corpus materials. Here, the early period differs significantly from the middle period, and the middle period differs from the late period. However, there are no significant differences between the numbers of attestations in the early and the late periods, neither in the use of prefixed adjectives, of postposed adjectives, nor of all adjectives overall. In the following, we turn to factors that may influence their order within the noun phrases. These observations of course raise the question of whether larger and more diverse corpora would offer different results. Is there, for example, some interference by the fact that the earlier materials belong to religious contexts and the saga texts survive in later manuscripts? Here more research on more extensive data would be desirable.

5. Semantic and morpho-semantic influences?

In this section, the question is addressed whether any semantic factors can be found to influence the relative internal order of multiple adjectives modifying one noun phrase. Finally, we investigate whether contextual factors may influence the choice of pre-modifying or postmodifying adjectives.

5.1. Influences on semantic order?

The POMIC Corpus materials contain various examples of complex noun phrases with more than one adjectival modifier. It is notable that there are no examples

¹⁵ χ^2 -squared = 57.925, df = 2, p-value = 2.641e-13.

¹⁶ χ^2 -squared = 22.373, df = 1, p-value = 2.245e-06.

¹⁷ χ^2 -squared = 41.546, df = 1, p-value = 1.151e-10.

¹⁸ χ^2 -squared = 0.10814, df = 1, p-value = 0.7423.

of multiple preposed adjectives in corpus, while there are numerous examples of multiple postposed adjectives, which underlines that pre-modifying position is more marked than postmodifying position. A notable example of multiple postposed adjectives can be seen in example (12).

12. ...*rí* *már* *cáin* *cumachtach*
king.NOM.SG great.NOM.SG fine.NOM.SG powerful.NOM.SG
trén *nóeb* *glan* *fírian*
strong.NOM.SG holy.NOM.SG pure.NOM.SG righteous.NOM.SG
féig *forsaid* *trocar* *dércach*
keen.NOM.SG firm.NOM.SG merciful.NOM.SG charitable.NOM.SG
deg-máinech *sen* *óac* *ecnaid*
beneficent.NOM.SG old.NOM.SG young.NOM.SG wise.NOM.SG
úasal *indocbuide*
noble.NOM.SG glorious.NOM.SG
‘...a king great, fine, powerful, strong, holy, pure, righteous, keen, firm, merciful, charitable, beneficent, old, young, wise, noble, glorious’ (Hom.87)

In example (12), we can observe various semantic categories of postmodifiers:

- Size: *mór*
- Property: *cáin*, *cumachtach*, *trén*
- Status: *nóeb*, *úasal*
- Property: *glan*, *fírian*, *féig*, *forsaid*, *trocar*, *dércach*, *deg-máinech*, *ecnaid*, *indocbuidle*
- Age: *sen*, *óac*

There are further examples in the corpus which are modified by multiple adjectives, such as those specifying size and colour in example (13).

13. ...*co* *r=rāncatar* *slīab* *mār*
Until reach.PRET.3PL mountain.ACC.SG great.ACC.SG.NV
n=ar *n=dub* ...
high.ACC.SG.N black.ACC.SG.N
‘... until they came to a great high black mountain...’ (Lais.49)

In example (13), we find the following postposed adjectives:

- Size: *mór*, *ard*
- Colour: *dub*

In example (13), too, the size-modifier *mór* ‘big’ is found in the modifying position closest to the verbs, directly followed by a further size-modifier *ard* ‘high’. And indeed, further evidence can be found in the corpus for size-modifiers in first postnominal position, with the counterpart of *mór*, namely *becc* ‘small’, appearing in first postnominal position.

14. ...⁷ *is* *inildiu* *do* *anmin* *neich* *ind*
 and COP.PRES.3SG safe.CMP for soul.DAT.SG anyone.GEN.SG ART
ḟīt *bec* *mín*...
 meal.NOM.SG small.NOM.SG,F light.NOM.SG,F
 ‘and it is safer for a man’s soul [to use] a small light pittance ...’

While the size-adjective *becc* ‘small’ is found in first postnominal position, the adjectives expressing further characteristics, here the adjective *mín* ‘light’ denoting state, or in (12) and (13) above, further adjectives expressing property, status, age or colour, follow these salient size adjectives.

Judging by the corpus materials here, adjectives defining size seem to be favoured in first modifying postmodifying position. This especially holds for *mór* ‘big’ and *becc* ‘small’, which are here followed by other adjectives expressing other properties and states. * The Old Irish data thus differs from Scott’s (1998) and Laenzlinger (2000) data, where size-adjectives tended to follow subjective comments. However, investigations of larger data bases will be needed to obtain further evidence on this matter.

5.2. Morpho-semantic order

In his grammar, Thurneysen ([1946] 1980, §344) sketches semantic properties of prefixed adjectives in compounds like *mór-chenn* [big-head.NOM.SG] ‘large-head’, which illustrate inherent properties of the head noun. Linnemeier (2024) expands on this and argues that the properties of the noun are modified. This is clearly illustrated in examples (15) and (16) below, which illustrate Linnemeier’s (2024) point that the prenominal position expresses the specific property of the head noun.

15. *is* *sī* *bān-martre* *du* *duiniu*...
 COP.PRES.3SG 3SF white-martyrdom.NOM.SG to person.DAT.SG
 ‘This is the white martyrdom to man...’ (Cam.33)
16. *is* *sī* *in* *derc-martre* *dō*...
 COP.PRES.3SG 3SF ART red=martyrdom.NOM.SG to.3SM
 ‘This is the red martyrdom to him...’ (Cam.35)

17. *óc-ben* *c[h]óem* *in* *a*
 young-woman.NOM.SG beautiful.NOM.SG.F in 3SF.POSS
h-inaltus=si.
 attendance.DAT.SG=EMPH(3SF)
 ‘There was a beautiful young woman in her attendance.’ (Fr.30)

18. ...*mí* *a* *n=galur* *trum* *īar*
month.NOM,SG in illness.DAT,SG heavy.DAT,SG,N after
m=bith-erchoiliuth...
perpetual-amendment.DAT,SG
‘...a month [passed] in grievous illness after a vow of perpetual
amendment...’ (Com.64)

19. Arra .uii. m=blīadne dūr-pende
 commutation.NOM,SG seven years.GEN,SG strict-penance.GEN,SG
 .uii. mīs hi **trom**-galar īar
 seven month.NOM,PL in heavy=illness.DAT,SG after
 m=bīth-erchoiliud...
 perpetual-amendment.DAT,SG
 ‘A commutation of seven years s strict penance: seven months [passed] in
 grievous illness after a vow of perpetual amendment...’ (Com.67)

In this case taken from the Table of Penitential Commutations, the topic of dealing with grievous illness is introduced and established as a topic of conversation. After this, the discussion returns to the topic of serious illness, which is now an

established concept, and the previously postposed adjective is now prefixed as an unstressed modifier to its head noun. This suggests that after the topic has been activated by having been mentioned previously, the topic is already sufficiently established to allow its expression by an adjective prefixed to its head noun. This behaviour would be in line with Linnemeier's (2024) observation that contrastive or new information is more likely to be found in post-modifying position, whereas non-contrastive, and thus previously known, information is more likely to be found in pre-modifying position. However, as example (19) also illustrates, the text *The Table of Penitential Commutations* abounds in various adjectival prefixes to express categories of penance and related concepts. In example (19), this penchant for prefixed adjectives can be seen in the use of *dūr-pende* [strict-penance.GEN.SG] 'strict penance' as well as *bīth-érchoiliud* [perpetual-amendment.DAT.SG] 'perpetual amendment'. It would be useful to find further attestations in which noun-adjective phrases are used initially and are then replaced by adjective-noun order in the following context to strengthen the hypothesis that previous activation of a topic influences adjective order.

A further interesting case suggests the influence of contextual factors on the use of pre-modification or post-modification. This is an example from *The Treatise on the Psalter*.

20. “*eo quod scilicet **vita** **aeterna** fruitur*”
 Because of_course life.ACC.SG eternal.ACC.SG,F enjoj.PRES.3SG
ar ind I airbir biuth ind óesa
 for ART DEICT uses.PRES.3SG life.DAT.SG ART people.NOM.PL
*dilmain ón **bethaid** **suthain***
 lawful.NOM.SG.M from.ART life.DAT.SG life.DAT.SG.M
 “*eo quod scilicet vita aeterna fruitur*,” because the lawful people enjoy life everlasting. (Ps.275)

In example (20), the use of the prefixed adjective *bith-* in the compound *bith-bethaid* [everlasting-life.ACC.SG] would have been possible, and in fact the expression *bith-bethu* [everlasting-life.NOM.SG] ‘everlasting life’ (acc./dat.sg *bith-bethaid*) is frequently used elsewhere, e.g. *bidbethu* (Wb. 4a13, Stokes & Strachan 1975) or *bidbethid* (Wb. 15c14, Stokes & Strachan 1975, cf. eDIL s.v. 1 *bith*). In this example, however, we find a postmodifying adjective. Given the fact that the parallel Latin structure *vita aeterna* is discussed by the Early Irish text, it seems possible that the structure of the Old Irish noun phrase has been influenced by the structure of the Latin phrase, which also uses a postposed adjective, which is then replicated by the Old Irish phrase (for code-switching in Old Irish, see e.g. Stam 2017). This example, then, suggests that not only previous mention of a phrase in the preceding Old Irish text can play a role in the choice of prefixed or postposed

adjective, but also the use of parallel structures in other languages. These points suggest that next to the morpho-semantic context of the adjective phrases, the text-semantic and pragmatic context of the phrase may influence the preferred relative order of multiple adjectives in Old Irish noun phrases.

6. Conclusion

This study has used a corpus linguistic approach on the basis of the POMIC corpus (Lash 2014) to investigate the order of (multiple) adjectives in Old Irish. It has illustrated the influence of semantic differences between prefixed and postposed adjectives which have been postulated in previous studies (Thurneysen [1946] 1980, Linnemeier, 2024). The data in the corpus on which this investigation is based suggests a tendency for size adjectives, especially those denoting the polar positions *mór* and *becc*, to be mentioned in first position, with further property-, status-, and age adjectives following in the adjective phrase.

The question whether differences can be determined between corpus texts from different periods or different textual genres has received diverse answers. Attestation of pre- or postposed adjectives in the two textual categories, religious versus saga text, could not be shown to differ significantly on the basis of the texts in the POMIC Corpus. However, here larger amounts of data beyond the POMIC Corpus and more fine-grained differentiation of textual categories may offer more and more diverse insights. Statistically significant differences in the corpus data between texts from the early (seventh and eighth centuries), middle (ninth century) and late period (tenth and eleventh centuries) of attestation could already be observed. Not only could statistically significant differences in the attestation of prefixed adjectives be determined, but also differences in postposed adjectives, as well as differences in the use of all categories of adjectives. It is particularly noteworthy that while there are overall differences, as well as differences between the early and the middle period and the middle and the late period, there generally are few differences between the early and the late periods. Here, more research on larger amounts of data is desirable, ideally including more and more diverse corpus data than could have been used in the current study. Particularly in order to determine the influence of text categories, larger data sets, including law texts or glosses, could be considered.

The third question of what conditions the order of adjectives in the corpus has opened further interesting research opportunities for future research: the small data set investigated here suggests that if a postmodifying adjective has already been used, this could sufficiently establish a concept in the language users' minds to express the concept with a prefixed adjective in the further discourse. By contrast, a new, conceptually more salient adjective would then be more likely to be placed in postmodifying position. Possible further influence can be exercised by the presence of parallel structures in other languages, here Latin, which may

influence the choice of either prefixed or postmodifying adjective. These issues do, however, require further study.

REFERENCES

- Bieler, Ludwig and James Carney. 1972. "The Lambeth Commentary", *Ériu* 23 (Mar., 1972), 1–55.
- Breatnach, Liam. "The demonstrative Pronoun in Old and Middle Irish", in: Lash, Elliott, Fangzhe Qiu and David Stifter (eds). *Morphosyntactic Variation in Medieval Celtic Languages*. Berlin: Mouton de Gruyter, 115–142.
- Bolinger, Dwight. 1967. "Adjectives in English: attribution and prediation", *Lingua* 18, 1–34.
- Corpus Search 2: a tool for linguistic research. 2009.
<https://corpussearch.sourceforge.net/index.html>. (last access: Feb. 24, 2024).
- Demonte, Violeta. 2011. "Semantics of adjectives and adverb(ial)s", in: von Heusinger, Klaus, Claudia Maienborn and Paul Portner (eds). *Semantics: An International Handbook of Natural Language Meaning*. Berlin: de Gruyter Mouton, 1314–1340.
- Dottin, Georges. 1987. *Manuel d'irlandais moyen: Grammaire, textes et glossaire*, ed. P.-Y. Lambert. Geneva: Slatkine.
- eDIL 2019: An Electronic Dictionary of the Irish Language, based on the Contributions to a Dictionary of the Irish Language (Dublin: Royal Irish Academy, 1913–1976) www.dil.ie, (last access 01.03.2024).
- Goldstein, David M. 2022. "The Old Irish Article", *Journal of Celtic Linguistics* 23: 1–34.
- Gwynn, E.J. 1905. "The three drinking horns of Cormac úa Cuinn" [From the Liber Flavus Fergusiorum], *Ériu* 2 (1905): 186–188.
- Laenzlinger, Christopher. 2000. "French Adjective Ordering: Perspectives on DP-Internal Movement Types", *GG@G (Generative Grammar in Geneva)* 1: 55–104.
- Larson, Richard K. 1998. "Events and modification in nominals", *Proceedings from Semantics and Linguistic Theory (SALT)* 8: 145–161.
- Lash, Elliott. 2014a. The Parsed Old and Middle Irish Corpus (POMIC). Version 0.1.
https://www.dias.ie/index.php?option=com_content&view=article&id=6586&Itemid=224&lang=en (last access 23.10.23).
- Lash, Elliott. 2014b. *POMIC Annotation Manual*. Dublin: DIAS.
- Linnemeier, Jan. 2024. 'A man of full-sin' – Adjective position in Insular Celtic, *Indogermanische Forschungen* 129.
- Matasovic, Ranko. 2009. "Adjective Phrases in Old Irish", *Keltische Forschungen* 4: 195–210.
- Meyer, Kuno. 1899. *Stories and Songs from Irish Manuscripts*. Kuno Meyer (ed.), Reprinted from *Otia Merseiana*. London: David Nutt London.
- Ó Néill, Pádraig. 1979. "The Old-Irish Treatise on the Psalter and Its Hiberno-Latin Background", *Ériu* 30 (1979): 148–164.
- Pedersen, Holger. 1913. *Vergleichende Grammatik der keltischen Sprachen*. Band 2. *Bedeutungslehre (Wortlehre)*. Göttingen: Vandenhoeck & Ruprecht.
- Randall, Beth. 2009. *CorpusSearch (Version 2)* [Computer Software]. Philadelphia: University of Pennsylvania. Retrieved from <http://corpussearch.sourceforge.net>.

- R Core Team. 2021. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>. (last access 03.03.2024).
- Ronan, Patricia. 2004. “*Co n-accae in fer* and Functional Grammar”, *Journal of Celtic Linguistics* 8: 133–147.
- Schneider, Gerold & Max Lauber. 2020. *Statistics for Linguists*. Zurich: Pressbooks.
- Scott, Gary-John. 1998. “Stacked adjectival modification and the structure of nominal phrases”, *SOAS Working Papers in Linguistics and Phonetics* 8: 59–89.
- Stam, Nike. 2017. *A typology of code-switching in the Commentary to the Féilire Óengusso*, PhD dissertation. Utrecht: LOT.
- Stokes, Whitley and John Strachan. 1975. *Thesaurus Paleohibernicus: A Collection of Old-Irish Glosses, Scholia Prose and Verse*. Dublin: DIAS.
- Thurneysen, Rudolf [1946] 1980. *A Grammar of Old Irish*. Translated from the German by D.A. Binchy and Osborn Bergin. Reprinted with Supplement. Dublin: Dublin Institute of Advanced Studies.