

# PRONOUNS AND PROSODY IN IRISH\*

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## 1. BACKGROUND

One of the stranger properties of human language is the way in which it creates a bridge between two worlds which ought not be linked, and which seem not to be linked in any other species—a bridge linking the world of concepts, ideas and propositions with the world of muscular gestures whose outputs are perceivable. Because this link is made in us we can do what no other creature can do: we can externalize our internal and subjective mental states in ways that expose them to scrutiny by others and by ourselves. The existence of this bridge depends in turn on a system or systems which can take the complex structures used in cognition (hierarchical and recursive) and translate them step by step into the kinds of representations that our motor system knows how to deal with. In the largest sense, our goal in the research reported on here is to help better understand those systems and in particular the processes of serialization and flattening that make it possible to span the divide between the two worlds. In doing this, we study something which is of central importance to the question of what language is and how it might have emerged in our species.

Establishing sequential order is, obviously, a key part of the process of serialization. And given the overall perspective just suggested, it is

\*Four of the examples cited in this paper (examples (35), (38a), (38b), and (38c)) have sound-files associated with them. Those sound files are available at the following URL: <http://ohlone.ucsc.edu/Downloads/Bennett-Elfner-McCloskey/>. Sound-files are linked with the corresponding examples by way of the example number. That is, the sound-file corresponding to example (38a) is named *38a.wav*, the sound-file for example (35) is *35.wav*, and so on. These samples have been taken from the following sources:

KERRY: *Ó Bhéal an Bhab, Cnuas-scéalta Bhab Feiritéar*, Bo Almqvist and Roibeard Ó Cathasaigh (eds), Cló Iar-Chonnachta, 2002.

DONEGAL: *Seanchas Rann na Feirste*, Maeleachlainn Mac Cionaoith (ed.), Coiscéim, 2005.

GALWAY: *Rogha na Seachtaine, 7 Samhain 2009*, podchraoladh de chuid Raidió na Gaeltachta: [http://www.rte.ie/radio/podcast/rnag\\_archive.html](http://www.rte.ie/radio/podcast/rnag_archive.html).

unsurprising that syntax and phonology would conspire to determine an ordering for the elements that make up a phrase or a sentence; it is exactly in the borderlands between these two domains that the transition from purely hierarchical structure to serial structures must be managed. It is in turn then unsurprising that in recent years a growing number of researchers (among many others Zec and Inkelas (1990), Halpern (1995), Chung (2003), Gutiérrez-Bravo (2005), Vicente (2005), Göbbel (2007), Anttila (2008), Anttila *et al.* (2010), Agbayani and Golston (2010), Sabbagh (2014), Manetta (2012), Culicover and Jackendoff (2005)) have come to the conclusion that phonological mechanisms play a central role in shaping word order. Here we bring the evidence of current varieties of Irish to bear on these issues, focusing on two questions:

Question 1 What kinds of mechanisms determine the order of elements in a sentence? More specifically:

Question 2 What are the relative contributions of syntactic and phonological factors in determining that order?

We probe these questions by way of close analysis of a phenomenon in Irish—Pronoun Postposing—which is well known but also, it seems to us, under-appreciated in its complexity and intricacy. We argue that phonological factors play a central role in this system. Word order is not exclusively the domain of syntax.

## 2. PRONOUN POSTPOSTING: THE BASICS

Pronoun Postposing is typologically odd in that it involves the rightward displacement of a phonologically light element. In this it runs counter to a well-established cross-linguistic tendency—phonologically light elements (clitics and so on) are often displaced leftwards towards a clause-initial position, while phonologically heavy elements (complement clauses, ‘heavy’ NP-objects and so on) tend to appear in clause-final position. Irish presents us with a case in which light pronouns displace to the right. Despite its typological oddity, though, Pronoun Postposing is characteristic of all the Gaelic languages and has been a stable feature of those languages for almost a thousand years.<sup>1</sup> For modern varieties of

<sup>1</sup> The patterns we are concerned with here emerge in the literary language as soon as independent pronouns emerge (first alongside, later replacing, infixes or suffixed clitic pronouns) in the early Middle Irish period (eleventh century). Given the conservatism of medieval Irish linguistic and literary traditions, they were presumably part of the spoken language before they emerge in the written record; see Ahlqvist (1975/6), Breatnach (1994: 269–70). We will have a little more to say about some of the diachronic issues in Section 9 below.

Irish (our focus here), the core observations can be made quickly. As is well known, all varieties of Irish show fairly rigid vso order in their finite clauses:

- (1) Fuair sé nuachtán Meiriceánach óna dheartháir an lá cheana.  
 got he newspaper American from-his brother the-other-day  
 'He got an American paper from his brother the other day.'

In (1), the direct object appears in its routine position immediately following the subject. When the object is a simple pronoun, however, the preferred order is the one seen in (2), in which the object pronoun appears farther to the right than an object really ought to—in clause-final position. (Here and below we occasionally highlight the position of a postposed pronoun by placing it in a box; we will also occasionally mark the syntactically expected position of the pronoun by way of the symbol –.)

- (2) Fuair sé –óna dheartháir an lá cheana é.  
 got he from-his brother the-other-day it  
 'He got it from his brother the other day.'

When displaced, the pronominal object is often very far from the verb of which it is a complement, as in (3).<sup>2</sup>

- (3) a. D'fháisceadh sé chuige lena ucht arís agus aríst eile go ceanúil í.  
 squeeze [PAST-HABIT] he to-him by-his breast again and again other affectionately her  
 'He would squeeze her affectionately to his breast time and time again.' SJSJ 18

<sup>2</sup> Most of the examples used in this paper have been taken from published sources of one kind or another. When this is the case, it is indicated by way of a tag, which consists of an abbreviation of the title of the publication followed by the page number on which it appears, or the date of broadcast in the case of material excerpted from radio broadcasts. The abbreviations used are explained in Appendix A. The following abbreviations are used in glossing the examples:

COMP = complementizer (subordinating particle),  
 COND = conditional form,  
 COP = copula,  
 DEMON = demonstrative particle,  
 INFIN = infinitival,  
 FUT = future tense,  
 GEN = genitive,  
 HABIT = habitual,  
 IMPERS = impersonal (autonomous) form,  
 INTERR = interrogative,  
 NEG = negative,  
 PASS = passive,  
 PAST = past tense,  
 PRED = marker of predication,  
 PRES = present tense,  
 PROG = marker of progressive aspect,  
 REFL = reflexive marker.

- b. nó gur fritheadh curtha i bpoll portaigh in aice Bhearna ina dhiaidh sin  
 until find [PAST-IMPERS] buried in hole bog [GEN] near after-that  
 é.  
 him  
 ‘until he was found buried in a bog-hole near Bearnna after that’ M 240–1
- c. chuir sí ag freastal Aifrinn na maidne sa tséipéal trasna an bhóthair  
 put she serve[PROG] Mass the morning in-the chapel across the road  
 ón scoil é  
 from-the school him  
 ‘She had him serve morning Mass in the chapel across the road from the school.’ AGMTS  
 65

Postposed pronouns, however, do not always appear in clause-final position:

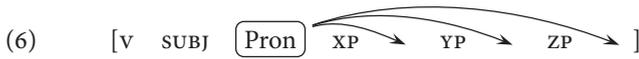
- (4) a. D’fhuadaigh sé leis chun an bhaile í i ngan fhios  
 abduct [PAST] he with-him to the home her in secret  
 ‘In secret he took her home with him by force.’ PNG 7
- b. Rugadh i nGabhla é sa bhliain 1784.  
 bear [PAST-IMPERS] in him in-the year  
 ‘He was born in Gabhla in the year 1784.’ GAT 56
- c. Thugadh Stiofáin ag iascaireacht leis é go minic  
 bring [PAST-HABIT] Steven fishing with-him him often  
 ‘Steven would often take him fishing with him.’ NGTTS 73
- d. Chroch Stiofáin agus Neilí leo abhaile go dtí a dteach féin mé ar an  
 lift [PAST] Steven and Nelly with-them home to their house [REFL] me on the  
 tráthnóna úd.  
 afternoon DEMON  
 ‘Steven and Nelly carried me off home to their own house that afternoon.’ NGTTS 53

Finally, rightward displacement of the pronoun, though often preferred, is virtually never required. In the examples of (5), for instance, the object pronoun appears in the normal position for direct objects—immediately following the subject. We will see many other such examples as the discussion proceeds.

- (5) a. D’fhág Wilhelm iad ansin  
 leave [PAST] them then  
 ‘Wilhelm left them then.’ NGTTS 43
- b. go dtí gur goideadh í samhradh na bliana 1993  
 until COMP steal [PAST-IMPERS] it summer the [GEN] year [GEN]  
 ‘until it was stolen in the summer of 1993’ PNG 511
- c. Thóg siad í ar bord.  
 raise [PAST] they her on board  
 ‘They lifted her on board.’ OTA 176
- d. níor cluineadh ariamh í ag rádh go rabh fuath ar aon duine  
 NEG[PAST] hear [PAST-IMPERS] ever her say [PROG] COMP was hatred on any person  
 aice  
 at-her  
 ‘She was never heard to say that she hated anyone.’ SB 144

Putting all of this together, we can summarize the principal puzzle by way of the informal diagram in (6), where the three arrows indicate three possible

‘trajectories’ for the displaced pronoun and in which XP, XY and ZP represent the major clausal constituents around which the pronoun may postpose.<sup>3</sup>



Notice that the diagram in (6) gives no special status to the option of clause-final position, that being just one among three possible outcomes. We believe that in this (6) is accurate, a point to which we will return.

For now, though, the initial challenge is to understand the mechanisms which make the various outcomes in (6) possible. To make progress on that challenge, we must first understand certain additional conditions that govern postposing.

One central factor is the distinction in Irish between strong and weak forms of personal pronouns. Although this distinction is not represented in any standard orthography, it turns out to be critical for an understanding of the distribution of pronouns in the language. The differences between the two forms are schematized in (7).<sup>4</sup>

	ORTHOGRAPHY	STRONG FORM	REDUCED FORM
(7) 3rd sg masc, non-subject	é	[e:]	[ə]
3rd sg fem, non-subject	í	[i:]	[i]
3rd pl, non-subject	iad	[iad]/[iəd]	[əd]
1st sg	mé	[me:]	[mə]

Strong forms of the pronouns may bear an accent and their vowels are long; weak forms are unaccented and their vocalic nuclei are often shortened and centralized. The chart in (7) illustrates (in its fourth column) fully reduced variants, but unstressed pronouns may have either reduced or unreduced vowels. We will be able to say more about this variability at a later point in the paper; for now, the crucial observation is that postposing is characteristic of weak forms of the pronouns.

A second important restriction is that subject pronouns, even when weak, are never post-posed:

- (8) a. \*Chuir mo lámh 'mo phóca mé.  
       put my hand in-my pocket I  
       'I put my hand in my pocket.'  
       b. Chuir mé mo lámh 'mo phóca.

What we have instead of (8a) is the vso order of (8b), in which the subject pronoun is enclitic on the finite verb.

<sup>3</sup> See also (Stenson, 1981:42–5), Ó Siadhail (1989: 207–10) for an overview of the basic facts.

<sup>4</sup> See, for instance, Ó Sé (2000: 155–9), Ó Baoill (1996: 88–9), Lucas (1979: 93) on the distinction between weak and strong forms of the pronouns in Munster and Ulster varieties.

There is a third important property of Pronoun Postposing that we want to highlight. In Irish and in other languages, displacements to the left or right are often linked with discourse factors. It is not an accident that syntactic discussions are full of operations bearing names like Topicalization or Focus Movement—operations which place topics or foci in dedicated syntactic positions. Pronoun Postposing, however, does not seem to be such an operation. With Doyle (1998: 45), we hold that the mechanisms which position light pronouns in Irish are entirely insensitive to semantic and discourse factors. We make that case by first reviewing the only serious attempt that we know of to argue that postposing is sensitive to such factors. We then offer some observations of our own which (with Doyle (1998)), suggest a different conclusion.

Ann Mulkern (2011), drawing in part on an earlier study (Mulkern, 2003), develops the only proposal that we know of which links postposing with discourse factors in a way that is substantive enough and precise enough to be testable. While recognizing that phonological factors play a role in placement of the pronoun, Mulkern (p. 197) argues that postposing can also play a role in signalling how the speaker wishes to present the information which her utterance expresses. The pronoun (which is in this view always a topic referring to an established discourse referent) ‘typically’ marks the boundary between two parts of the information structure. The first part (preceding the pronoun) is the assertion, which expresses information that the speaker presents as new; the second part (following the pronoun) is the presupposition, which expresses given information—information which has already been presented or which the speaker assumes is mutually manifest to all participants in the exchange (see Mulkern (2011: 190–2 especially)). The core idea can be illustrated by the schema in (9), which represents the information structure (9b) assumed for a sentence (9a) in which a pronoun has been postposed to a non-final position:

- (9) a. Scaradh                      ó      chéile      iad      le linn na      stoirme.  
       separate [PAST-IMPERS] from each other them during the [GEN] storm [GEN]  
       ‘They were separated during the storm.’

	PART ONE		PART TWO
b.	<i>⟨scaradh ó chéile⟩</i>	<i>iad</i>	<i>⟨le linn na stoirme⟩</i>
	assertion		presupposition
	relationally new		relationally given

This proposal is based on a study of examples drawn from a sequence of texts in a variety of genres, many of which do in fact seem to follow the pattern of (9b) (though many are also very hard to interpret in these terms). We are not convinced, however, that the pattern is general. Mulkern points out (2011: 197), for example, that indefinites should be infelicitous in the position following the postposed pronoun. The function

of an indefinite is exactly to signal the introduction of a novel discourse referent, a function which ought to be at odds with the familiarity requirement imposed on material following the postposed pronoun. But such examples are not at all infelicitous or strange, as can be seen in (10):

- (10) Dhíol sé ansin in 1944 é le fear as Árainn Mhór.  
 sell [PAST] he then in it with man out-of  
 'He sold it then in 1944 to a man from Aranmore Island.' RNG 19-3-2005

Another routine type of postposing whose naturalness is hard to reconcile with (9b) is the type shown in (11).

- (11) a. nach fada ráite é gur árthaí folmha is mó a dheineann an torann  
 NEG-INTERR-COP long said it COMP+COP vessels empty COP most COMP make the noise  
 'Hasn't it long been said that it's the empty vessels that make the most noise' AO 47  
 b. Is minic ráite é gur mó de bhac ar ghluaiseacht an chuid is lú céille agus  
 COP often said it COMP-COP greater of obstacle on movement the portion least of-sense and  
 tuisceana dá cuid ball ná an chuid is cliste dá cuid naimhde.  
 of-understanding-of-its share of-members than the portion cleverest of-its share of-enemies  
 'It has often been said that the least sensible and perceptive among its own members are a greater  
 hindrance for a movement than the cleverest of its enemies.' CST43

In cases such as these, an adjectival or adverbial predicate (*fada* or *minic*) has as its complement a phrase headed by a perfective passive participle (*ráite* in both examples of (11)). That participle in turns takes a clausal complement and its own subject position is occupied by the pronoun *é* (accusative in form as always in such cases). That pronoun may be, but need not be, postposed. It is partially postposed in (11a) and (11b)—to a position following the participle but preceding its complement. Such examples are extremely common.

If the schema in (9b) really governs the possibility of postposing, then the material following the partially postposed pronoun in the examples of (11) should be given, or presupposed. In fact, though, the clause in both cases expresses a proposition which is entirely novel in context ((11b) is the opening sentence of an essay) and which furthermore expresses the 'main assertion' of the utterance (in the sense of Hooper and Thompson (1973)). That material is in no sense presupposed, or given.<sup>5</sup>

<sup>5</sup> Examples such as (11) in fact raise another kind of issue as well. There are two ways in which one might interpret the grammatical function of the pronoun *é* in examples like those of (11). In one view, the pronoun has semantic content and refers forward to the content of the complement clause. In this view it is a proleptic, or cataphoric, pronoun. In another interpretation, it is semantically empty and has no referent. It is rather an empty placeholder for the required subject position linked with the participle *ráite*. In this view it is an expletive, or pleonastic, pronoun. Our own position is that the second interpretation is correct. In neither view, however, does the pronoun represent a topic referring to an established discourse referent. The fact that Pronoun Postposing applies to elements which serve a purely grammatical function rather than a referential function is one further indication that the process is divorced from discourse or pragmatic factors; such elements are entirely inert with respect to meaning and systems of use.

Let us finally consider some additional observations which, we contend, suggest strongly that postposing is, at its core, blind to pragmatic and discourse factors. The relevant observations involve an interesting kind of natural experiment, one which shows that even when we hold the semantic content and the context of utterance constant across different productions, we still get variability of placement of the pronoun. We have in mind certain formulaic announcements broadcast regularly on the national Irish language radio station, *Raidió na Gaeltachta*. These are death-notices, broadcast as part of the local news for each region. Each announces a death, and then gives details about where and when the funeral will take place. As part of the 6pm bulletin on 22 January 2012, for example, the following four announcements were made in sequence by the same news-reader from a studio in Donegal:

- (12) a. Cuirfear i reilg na Cruite (é) Dé Máirt i ndiaidh aifreann an  
bury [FUT-IMPERS] in graveyard Cruit him Tuesday after mass the  
mheán lae i dteach pobail Cheann Caslach.  
midday in church Kincasslagh  
'He will be buried in Cruit graveyard on Tuesday after midday mass in the church in  
Kincasslagh.'
- b. Cuirfear (é) i ndiaidh aifreann a haon dhéag i dteach pobail Naomh  
bury [FUT-IMPERS] him after mass eleven i church Saint  
Pádraig i mBéal an Átha Mhóir i Liatroma  
Patrick in Ballinamore in Leitrim  
'He will be buried after eleven o'clock mass in Saint Patrick's church in Ballinamore in  
County Leitrim.'
- c. Cuirfear amárach (é) i ndiaidh aifreann a haon dhéag i dteach pobail  
bury [FUT-IMPERS] tomorrow him after mass eleven in church  
Ghleann Colm Cille.  
Glencolmcille  
'He will be buried tomorrow after eleven o'clock mass in Glencolmcille church.'
- d. Cuirfear amárach (é) i reilg na gCealla Beaga i ndiaidh aifreann  
bury [FUT-IMPERS] tomorrow him in graveyard Killybegs after mass  
a haon dhéag i dteach pobail Chill Chartha  
eleven in church Kilcar  
'He will be buried tomorrow in Killybegs graveyard after eleven o'clock mass in Kilcar  
parish church.'

Each begins with a future impersonal form of the verb meaning 'bury', followed by a non-subject pronoun and a sequence of locative and temporal phrases (which are freely ordered with respect to one another). The pronoun may appear un-postposed, as in (12b), or in a variety of positions further to the right. We will look at a broader range of such examples, for a different purpose, later in the paper. For our present purpose their importance lies in the fact that they approach the conditions of a clean natural experiment. The formulaic and repetitive character of these announcements comes as close as we are likely to get in natural

settings to fixing semantic content and discourse context across a range of different utterances. If the application of postposing really depends on such contextual factors, then when they are held constant we should see a constant outcome. But we do not. Postposing may or may not apply (it does not in (12b)), and when it does apply the displaced pronoun may appear in a range of distinct positions. This is particularly evident in the larger dataset presented in Appendix B, which draws on a collection of 114 such announcements collected from broadcasts between 1999 and 2002. Of these, 30 were like (12b) in that the pronoun was not postposed. Of the 84 instances in which postposing did take place, 10 had the pronoun in absolute final position, and the remaining 74 had it in shifted but non-final position. Within this group of 74 ‘partial’ postposings, the pronoun appears in a range of different positions.

It would strain credulity, it seems to us, to maintain that the differences in pronoun placement here (postposed in (12a), for instance, but not in (12b)) depend on or reflect aspects of communicative intention or discourse context. To actually maintain that position, one would have to believe that there was some shift in the discourse context between the uttering of (12a) and the uttering of (12b)—a shift in some aspect of the discourse context, moreover, that was relevant to the positioning of the pronoun. Or, one would have to maintain that there was some shift in the communicative intentions of the speaker between the uttering of (12a) and the uttering of (12b)—a shift, again, that was relevant in some way to the issue of where the pronoun was to be placed. None of this, it seems to us, is credible. Rather, when listening to a sequence of hundreds of such productions, it is hard not to be struck by the intuition that placement of the pronoun has, at its core, to do not at all with discourse or semantic factors, but rather with the rhythmic planning of the utterance.<sup>6</sup> We pursue that intuition in the analysis we develop in this paper. Before taking that step, though, we need to consider other, and in a certain sense more obvious, possibilities.

<sup>6</sup> None of this means, of course, that the observations presented in Mulkern (2011) are necessarily inaccurate. At the centre of the account we develop below is a claim that the grammar of Modern Irish makes available to its speakers a range of alternative options for the placement of weak pronouns. In this view, the mechanisms provided by the grammar are blind to all matters of interpretation and discourse function. Speakers, though, may make use of the options made available by the grammar in any way they see fit and in any way that suits their communicative purposes. Those purposes may be well served if a speaker chooses, say, to make use of the option of placing a pronoun in some displaced but non-final position, leaving final position in turn usefully available to be occupied by other elements. In that conception of things, the patterns observed in Mulkern (2011) may emerge as statistical tendencies, even though they are not in any sense built into the mechanism of postposing. That is: the mechanisms of postposing are part of the grammar of Irish; the uses to which speakers put those mechanisms in real time and under communicative pressure are not. This way of understanding the whole panoply of observation represents a classic, and useful, appeal to the distinction between linguistic competence (what we have called here ‘the grammar’) and linguistic performance.

## 3 SYNTACTIC MOVEMENT

In all descriptions of Irish that we know of (Ó Siadhail (1989), for instance, or Ward (1974)), the facts of Pronoun Postposing are presented in the section on syntax. However natural it may be, though, to see a displacement like this in syntactic terms, we think that that conception is wrong. We ask in this section whether the characteristics of postposing fit the profile of known syntactic displacements. The answer, as it turns out, will be that it does not. A natural place to begin is with rightward movements whose properties are relatively well understood.

Irish is like many other languages in having a process which displaces Noun Phrases which are ‘heavy’, or complex in a certain sense, to the right—to clause-final position in fact. See (13) in English and (14) in Irish.

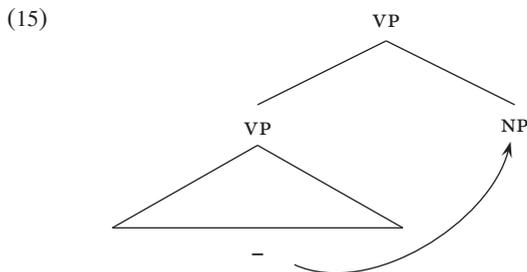
(13) She placed on the table in front of us [<sub>NP</sub> a large earthenware bowl filled with fruit ].

(14) a. *chuir na Gaeil chun báis* [<sub>NP</sub> na Spáinnigh a tháinig i dtír ]  
 put the Irish to death [GEN] the Spaniards COMP came in land  
 ‘The Irish put to death those Spaniards who made it to land.’ AILT 58

b. *chinn uirthi a chur i mbriathra béil* [<sub>NP</sub> an dóchas agus an tnúthán  
 failed on-her put [INFIN] in words mouth [GEN] the hope and the longing  
*mhothuigh sí ina croidhe* ]  
 felt she in-her heart  
 ‘She could not put into words the hope and the longing that she felt in her heart.’ U 154

The phenomenon of Heavy NP Shift has been much studied and is relatively well understood (for an overview, see Wasow (2002)). Since Pronoun Postposing is also frequently presented as a displacement to clause-final position, it is natural to assimilate it to this familiar and well-understood phenomenon. For these reasons and others, exactly this analysis is developed in Chung and McCloskey (1987). However there are many reasons to be sceptical about this identification; we elaborate here on two of them.

Heavy NP Shift is similar to other well-studied syntactic movements in that it moves a nominal upwards and outwards—from a position within the Verb Phrase and among the complements of the verb to the right edge of that Verb Phrase:



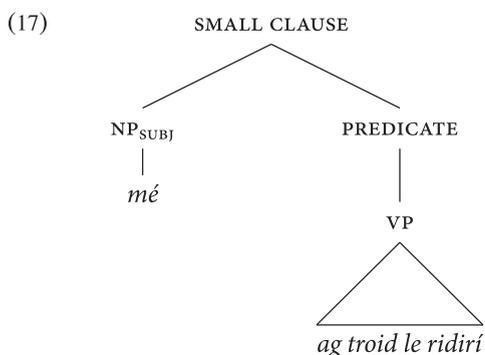
Work of the past 30 years or so on a wide range of languages and language-types suggests that in this respect Heavy NP Shift is characteristic, and that syntactic movements are always of this type. They target the edges (leftward or rightward) of major clausal constituents such as the Verb Phrase and raise some element  $\alpha$  from a position within that constituent to its edge (as in (15)). They do not move elements downwards into the interior of those constituents. This pattern is so pervasive that it has been built in to the architecture of most current strands of syntactic theory (see, for example, Chomsky (2000, 2001)). If Pronoun Postposing is a syntactic movement, it should match that profile. It does not.

Consider some attested instances of postposing, none of them in any way unusual as far as we can tell.

- (16) má chionn tú \_ ag troid mé le ridirí  
 if see [PRES] you fight [PROG] me with knights  
 'If you see me fighting with knights ...'

DC 59

In (16), the pronoun which shifts rightwards is in syntactic and semantic terms the subject of the complement of a verb of perception ('see'). This complement (the phrase *mé ag troid le ridirí*) is in turn a reduced, or tenseless, clause—a 'bare predicational nexus' in the sense of Otto Jespersen (1924), or a 'small clause' in more contemporary parlance. The internal structure of such a small clause is as shown in (17). In semantic terms, such structures denote perceivable events (the object of perception).



What is striking about such cases as (16) is that the subject pronoun does not postpose to clause-final position but rather to an intermediate position. In that intermediate position, it follows the verb of which it is a subject (*ag troid*), but precedes the complement of that verb (the Prepositional Phrase *le ridirí*). Interpreted as a syntactic movement, this would involve a lowering of the subject pronoun into the middle of the

predicate of the small clause. (18) makes the same point in a slightly different way:

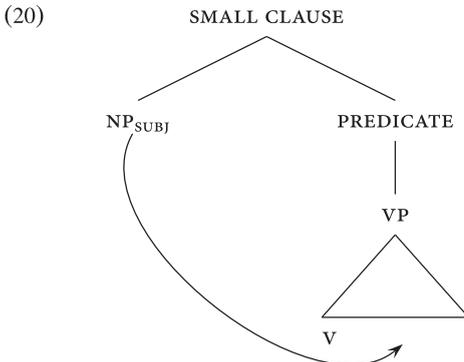
- (18) seo \_ ag cur síos dom féin [é] ar an gcuma a bheadh sé  
 DEMON put[PROG] down to-me [REFL] him on the way COMP be[COND] he  
 léi  
 with-her  
 'Here he goes describing to me how he would be with her.'
- CLENS 15

In (18), there is again a complement which is a small clause (*é ag cur síos dom féin ar an gcuma a bheadh sé léi*), whose subject is a pronoun. The small clause (in this case also denoting an event) is in turn a complement of the demonstrative or presentational particle *seo*. Once again Pronoun Postposing has applied. In this case, the postposed pronoun appears in a position following the first complement to the verb of that small clause (the complex verb *ag cur síos*), but preceding the second. This must again be, if interpreted in syntactic terms, a lowering into the interior of the Verb Phrase.

The example in (19) also involves a small clause complement to a perception verb and also shows postposing of the subject of that small clause:

- (19) chonac \_ ag féachaint uirthi [é] go drúisiúil  
 I-saw look [PROG] on-her him lasciviously  
 'I saw him looking at her lasciviously.'
- LG 314

In this case, though, the subject pronoun appears to the left of a manner adverb which modifies the Verb Phrase of the small clause. But that is in turn the VP of which the pronoun, in syntactic and semantic terms, is the subject. Interpreted as a syntactic operation, this would again involve the lowering of a subject to a position inside the Verb Phrase (*ag féachaint uirthi go drúisiúil*) of which it is itself a subject. Schematically, all of these examples, if interpreted as syntactic movements, can be represented as in (20):



with the pronoun lowering into the interior of the predicate of the small clause. None of these displacements resembles (15); all of them are unprecedented in syntactic terms. A more egregious example still (in terms of the laws of syntax) is that in (21):

- (21) is            cuma        – 'na shamhradh (é) nó 'na gheimhreadh  
 COP[PRES] no-matter    PRED summer    it or PRED winter  
 'It doesn't matter whether it's summer or winter.'

U 20

The pronoun in (21) is once again the subject of a small clause (*é ina shamhradh nó ina gheimhreadh*), a small clause which is in turn the complement of *cuma*. Here too the pronominal subject has undergone postposing. In the case of (21), the pronoun once again 'lands' in the middle of the predicate of that small clause—another instance of lowering. Worse than that, though, is the fact that the shifted pronoun appears in the middle of a disjunction—following the first phrase of the disjunction (*'na shamhradh*) but preceding the second (*'na gheimhreadh*). No syntactic movement that we know of can place moved elements in such a position. The operation that would produce such an outcome would in fact stand in violation of a fundamental constraint on syntactic movement first discovered by Ross (1967), and investigated intensively in the 45 years since its discovery—the Coordinate Structure Constraint. This constraint is in turn one of the best candidates we have for the status of a universal constraint on movement operations.

Putting all of these observations together, the general conclusion must be that Pronoun Postposing, if viewed as a syntactic operation, emerges as exotic and ill-behaved, at odds with plausible generalizations about how syntactic operations do their work.

This conclusion takes on an added resonance when it is observed in addition that Pronoun Postposing shows a rich set of interactions with phonological factors—factors having to do with accentedness and the difference between phonologically weak and phonologically strong elements. We consider these interactions next. In the first place these interactions provide additional evidence that postposing is not a syntactic operation, and in the second place they suggest that the right place to look for a more natural and more successful understanding of the phenomenon is in the phonology of Irish rather than in its syntax.

What we have in mind here is not just the fact that postposing characteristically applies to weak (prosodically dependent or enclitic) forms of pronouns, but more tellingly that there are phonological consequences when postposing cannot apply. We begin by observing that there is a range of positions from which pronouns may not be postposed. In (22) to (25) below, we present pairs of examples. The a-example of each pair demonstrates a position in which a pronoun may routinely appear. The b-example of each pair demonstrates that postposing is impossible from that position.

- (22) SUBJECT POSITION OF AN UNSUBORDINATED SMALL CLAUSE
- a. É de leithscéal aici go raibh sé ródhéanach  
it of excuse at-her COMP was he too-late  
'She had as an excuse that he was too late.' LG 221
- b. \*De leithscéal aici é go raibh sé ró-dhéanach.
- (23) SUBJECT POSITION OF AN ABSOLUTIVE SMALL CLAUSE
- a. Agus é as baile.  
and him out-of home  
'And him away from home.'
- b. \*Agus as baile é.
- (24) SUBJECT POSITION OF AN INFINITIVAL (VERBAL NOUN) CLAUSE
- a. Níl iontas ar bith é mac mínádúrtha a thógáil.  
is-not wonder any him son unnatural raise [INFIN]  
'It's no wonder that he should raise an unnatural son.' DD 4
- b. \*Níl iontas ar bith mac mínádúrtha a thógáil é.
- (25) OBJECT POSITION OF AN INFINITIVAL (VERBAL NOUN) CLAUSE
- a. Níor mhaith liom é a ghortú.  
I wouldn't like him hurt [INFIN]  
'I wouldn't like to hurt him.'
- b. \*Níor mhaith liom a ghortú é.

We will not address here the question of why postposing is impossible from these positions; we simply observe that it is a fact. What is important for our present point is the observation that when postposing fails in contexts like these, the unshifted pronoun must be articulated in its strong and accented form.<sup>7</sup> If we use capitalization to indicate the strong forms of pronouns, we can represent this observation by way of (26):

- (26) a. É de leithscéal aici go raibh sé ródhéanach.  
b. Agus É as baile.  
c. Níl iontas ar bith É mac mínádúrtha a thógáil.  
d. Níor mhaith liom É a ghortú.

This is an extremely puzzling fact, since the option of using either the weak or the strong form of a pronoun is in general free. The two effects are surely linked; but why should it be the case that positions from which postposing is unavailable are also positions in which pronouns can only be

<sup>7</sup> This is true even when, as in (1), the pronoun is expletive and questions of focus and emphasis and so on are necessarily irrelevant. See Ó Baoill (1996: 90) and Lucas (1979: 94, §358(i)) for this observation with respect to *agus*.

realized in their strong, accented forms?<sup>8</sup> At the very least such observations indicate that Pronoun Postposing is not an isolated phenomenon but rather is one part of some larger system in which the difference between phonologically strong and phonologically weak elements plays a central role.

#### 4. INTERIM CONCLUSIONS

What we have seen so far then is that although Pronoun Postposing initially resembles a routine rightward movement in the syntax, it turns out, on closer investigation, not to be routine at all. In the first place, viewed as a syntactic process, it has properties that are puzzling and at odds with good general theories of how syntactic movements should behave. In the second place, Pronoun Postposing displays a rich set of interactions with phonological factors, but no interaction at all with semantic or pragmatic factors. All of this suggests that it might make sense to follow the intuition articulated in the discussion following (12) above (pp 26–7) and seek an understanding of the facts of postposing not in the domain of syntax, but rather in that sub-domain of phonology which is concerned with the distribution of accented and unaccented elements—with the rhythmic structuring of utterances.<sup>9</sup>

#### 5. PHONOLOGICAL PHRASING AND SYNTAX

It is evident that phonological representations are not just strings of phonemes or segments, but rather that there is ‘chunking’ of smaller units into larger; that is, there is hierarchical structure in phonological representations. This structuring is evident to the ear, and its properties play a role in determining many higher-level aspects of the acoustic signal (the placement of intonational melodies, the distribution of pauses, the distribution of stresses and accents and so on). Where does this structure come from? By what mechanisms is its outline shaped? Much remains mysterious in this area, but work of the past three or four decades has made two things clear. The first is that there is a systematic relation between syntactic phrasing and phonological phrasing. If there were not, we would be hard pressed to make sense of the large body of experimental evidence showing that phonological phrasing plays an important disambiguating role in the real-time processing of syntactic structures by listeners

<sup>8</sup> An apparent exception to this very general statement of the generalization is the case of subjects of finite clauses. From this position also, postposing is impossible in the modern language (see (8a), page 23 above). The exception is only apparent however, since here too there is a prosodic consequence or correlate of the impossibility of postposing, in that the pronoun must, in the general case, be enclitic on the inflected verb.

<sup>9</sup> In this, we develop a line of thought which has also been explored by others—by David Adger (1997; 2007) for Scots Gaelic, and by Doyle (1998), McCloskey (1999), and Elfner (2011, 2012) for Irish.

(Lehiste (1973), Marslen-Wilson *et al.* (1992), Speer *et al.* (1996), Kjelgaard and Speer (1999), Stoyneška *et al.* (2010)). The second thing that is clear, however, is that the correspondence between syntactic and phonological representations is partial and imperfect.<sup>10</sup> Syntactic phrasing and phonological phrasing mirror one another imperfectly.

The observed discrepancies between syntactic and phonological organization seem to reflect the influence of two principal factors. The first is that phonological phrasing is shaped by a number of purely phonological or phonetic constraints which have no syntactic counterpart. The second is that phonological phrasing is ‘flatter’ than syntactic phrasing. We will be more precise about what exactly this means in Section 8 below, when it will be crucial for our concerns. The general point, though, is that understanding the syntax–phonology relationship is a matter in the first place of understanding the mechanisms which lead to regular correspondence, and in the second place of understanding the mechanisms which render the correspondence partial and incomplete. We will begin with the first of these.

As is conventional, we work with the assumption that phonological representations are constructed out of exactly three kinds of elements at the level of the word and above.<sup>11</sup> In order of inclusiveness, they are:

(27) THE HIERARCHY OF PHONOLOGICAL CONSTITUENTS:

- (i) the intonational phrase ( $t$ )
- (ii) the phonological phrase ( $\phi$ )
- (iii) the phonological word ( $\omega$ )

Intonational Phrases, then, consist of sequences of phonological phrases, which in turn consist of sequences of phonological words.

(28) SYNTAX–PHONOLOGY CORRESPONDENCE PRINCIPLES

MATCH WORD:

Phonological words correspond to heads of syntactic phrases—verbs, nouns, adjectives, and so on, the basic building blocks of the syntactic system.

MATCH PHRASE:

Phonological phrases correspond to phrases in syntactic representation (Noun Phrase, Prepositional Phrase, Verb Phrase and so on).

<sup>10</sup> See, for instance, Selkirk (1984: especially Chapter 8) and Nespor and Vogel (1986).

<sup>11</sup> There is clearly also hierarchical structure below the level of the word (involving units like the syllable, the foot, and the mora, for example), but we will have little occasion here to deal with issues of phonological organization below the level of the word.

## MATCH CLAUSE:

Intonational Phrases in phonology correspond to those clauses which are used to perform speech acts (a clause with assertoric force, for example, which can be used by a speaker to make an assertion, or a clause with interrogative force, which may be used by a speaker to ask a question).

The linking principles of (28) are simple and parsimonious, and it is this aspect of the overall theory that allows us to understand why syntactic and phonological representations of the same sentence parallel one another; and indeed there are circumstances in which the expected parallelism is undisturbed and emerges intact. More often, however, it is distorted by the factors that we alluded to above. In particular, phonological phrasing differs from syntactic phrasing in being optimized to meet certain purely phonological requirements or desiderata. For example, MATCH WORD in (28) states that lexical items (words in the purely syntactic sense) should correspond to phonological words. But this ideal will often not be met. This is because certain lexical items are phonologically deficient (the definite article *an* in Irish, for instance, or the subordinating particle *go*) and do not correspond to free-standing or independent phonological words. But phonology requires that dependent elements must have hosts to lean on, and so phonological processes of cliticization and incorporation will give rise to structures in which a single phonological word corresponds to a sequence of independent lexical items in the syntactic representation: *is ceart*, say, in Irish, *I'll* in English, or *qu'il* in French. All of these elements are clearly words in the phonological sense; *I'll* in English is as much a word, phonologically, as *aisle* is. It is just as clear, however, that viewed from the perspective of syntax it is a sequence of two independent entities—a subject pronoun followed by a future auxiliary.

Optimizations such as these, driven by the priorities of phonology, may force mismatches of a kind which would be unanticipated given the simple Correspondence Principles of (28), and the mismatches in question may involve both matters of hierarchical organization and matters of linear order. Such 'optimizing distortions' will be at the heart of our proposal about Pronoun Postposing.

## 6. PHONOLOGICAL PHRASING IN IRISH

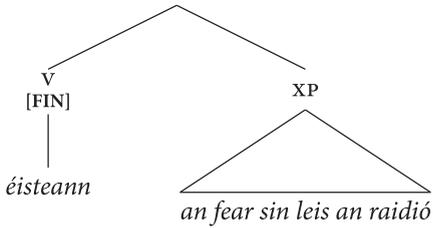
To see how all of this will work, we must now apply these general ideas to Irish and assess their plausibility. That much done, we can present and assess our proposal about Pronoun Postposing.

If we are to consider syntax-phonology correspondences in Irish, we must have a syntactic foundation to work from. We begin then by laying out a certain view of the syntax of simple finite clauses in Irish. There has been a great deal of very close work on this topic since the middle 1980s

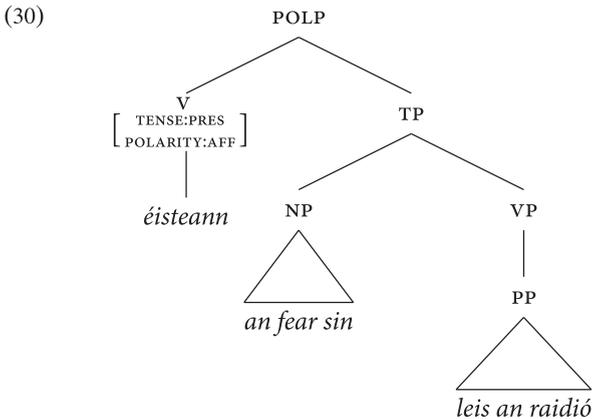
and one of the clearest results to have emerged from that work is that a clause like (29a) has the schematic structure given in (29b):

- (29) a. Éisteann an fear sin leis an raidió.  
 listen [PRES] the man DEMON with the radio  
 ‘That man listens to the radio.’

b.



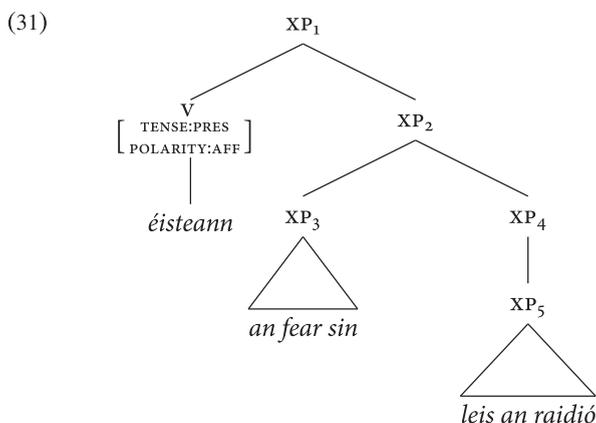
The crucial property of (29b) is that there is a major constituency break immediately following the finite verb, and that all of the post-verbal material forms a syntactic constituent to the exclusion of that verb. Every way that we know of to detect constituency in Irish suggests the reality of this large post-verbal constituent (see McCloskey (2011c) for an overview of that evidence). An important question is what are the structure-building and other operations which have (29b) as their outcome?<sup>12</sup> Fortunately, this is not a question that we need go into here, since for our discussion of syntax–phonology relations the only conclusion needed is that something like (29b) is in fact what those operations ultimately yield. We should, though, flesh out (29b) in ways that are relevant to our concerns. To that end, a more articulated and more accurate version of (29b) is presented in (30)<sup>13</sup>:



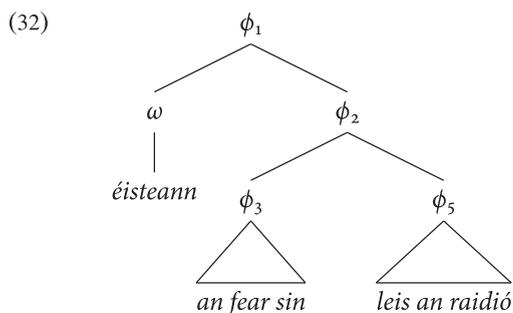
<sup>12</sup> On these questions, see Chung and McCloskey (1987), McCloskey (1991, 1996a,b, 2001, 2005, 2011b,c, 2012), Duffield (1995), Carnie (1995), Guilfoyle (1990, 2000), Noonan (1992), Ernst (1992), Cottell (1995), Bobaljik and Carnie (1996) and references cited there.

<sup>13</sup> We will occasionally use triangles to abbreviate the internal structure of some constituent, when the details of its internal structure are not immediately relevant.

The labels on syntactic constituents in (30) (POLP, TP, VP and so on) are crucially important for syntactic analysis and theory. But not for our present concerns. This is because one of the stranger properties of the relation between the syntactic hierarchy and the phonological hierarchy is that the correspondence principles do not care about, and make no reference to, such labels. Syntactic phrases of all types correspond in an indifferent way only to phonological phrases ( $\phi$ -phrases). That being so, we may re-present (30), with no loss of relevant information, in the simpler form shown in (31), which indicates only what is a phrase (XP) and what is not (namely, everything else):



Given this much, the Correspondence Principles of (28) lead us to expect the phonological structure in (32) for our example:<sup>14</sup>



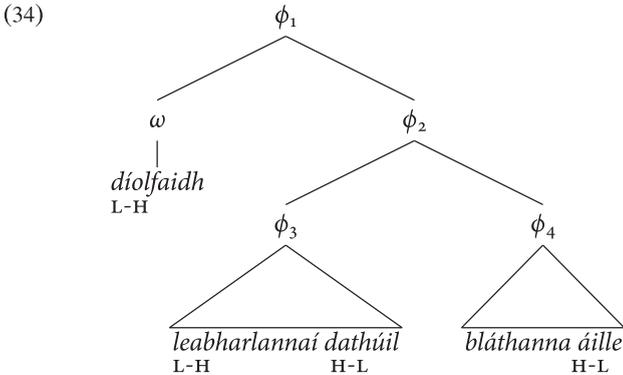
<sup>14</sup> When the clause is a root clause, and in certain other circumstances in which it is imbued with illocutionary force, there will be an intonational phrase ( $\iota$ -phrase), which in addition dominates structures such as (32). For simplicity of exposition we will ignore this topmost layer of structure except when it is directly relevant to our discussion. See Dalton and Ní Chasaide (2003, 2005, 2007) for a discussion of final nuclear accents in various dialects of Irish, which may well be among the markers of  $\iota$ -phrase-boundaries in the language.

In (32), the inflected verb forms a phonological word and phrases by itself; there are then  $\phi$ -phrases corresponding to the subject, to the complement and also to the constituent which includes the sequence of subject and complement.<sup>15</sup> The initial prediction of our system to date, then, is that (32) should be a possible phonological phrasing for the example in (29).

(32) is in fact an attested pattern, as confirmed both by controlled production studies and by more informal observation. On the basis of a suite of production studies involving speakers of Connemara Irish, Elfner (2012, 2013) identifies two pitch accents in Connemara dialects of Irish—one rising (L-H) and one falling (H-L). She shows that both accents are boundary markers for  $\phi$ -phrases, arguing specifically that the H-L accent appears at the right edge of all  $\phi$ -phrases, while the L-H accent marks the left edge of certain  $\phi$ -phrases. In a simple transitive structure like (33):

- (33) Díolfaidh leabharlannaí dathúil bláthanna áille.  
 sell [FUT] librarian attractive flowers beautiful  
 ‘An attractive librarian will sell beautiful flowers.’

there are L-H accents on the first stressed syllable of the verb and the first stressed syllable of the subject DP. There is also an H-L accent on the final syllable of the object DP. How can we understand this distribution? Given the proposals developed so far, we are dealing with the phonological structure in (34):



<sup>15</sup> A phrase which introduces no distinct phonological material (such as *vp* of (30), which is  $xp_4$  of (31)) is assumed not to match a  $\phi$ -phrase in the syntax–phonology translation. As a consequence, the phonological representation in (32) is simpler and flatter than the more articulated syntactic representations of (30) and (31). It contains one fewer level of hierarchical structure in not representing  $xp_4$ . This is one of the ways in which phonological representations are ‘flatter’ and less finely articulated than syntactic representations.

Simplifying a little for expository purposes, the L-H-accent on the verb marks the left edge of the most inclusive phrase ( $\phi_1$ ), the L-H-accent on the first syllable of the subject marks the left edge of  $\phi_2$  and the H-L-accents mark the right edges of  $\phi_3$  and  $\phi_4$ , all consistent with the phrasing suggested in (34).<sup>16</sup>

The phrasing in (33) is also signalled by the presence of sometimes quite long pauses separating the finite verb from the subject, as for instance in (35), with its associated sound-file:

- (35) Ach deireadh an cailín léi go raibh sí sásta.  
 but say [PAST-HABIT] the girl with-her COMP was she content  
 ‘But the girl would say to her that she was content.’ (DIALECT: KERRY)

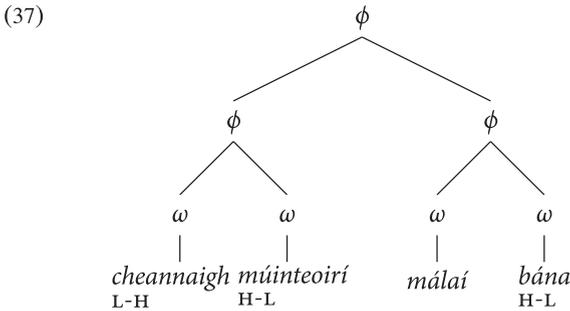
The phonological phrasing in cases like these mirrors the corresponding syntactic representation closely. Two other factors distinguish examples such as (33). One factor is that the verb is disyllabic, with long vowels in both syllables. It is a substantial element in phonological terms. The second factor is that the subject is also phonologically substantial. Under conditions different from these, different outcomes emerge. We will discuss two such outcomes here, before moving on to our primary concerns. What the two kinds of cases have in common is that, though by diverse routes, both lead to an outcome in which the verb and the subject form a phrase together. There are, to begin with, cases like (36):

- (36) Cheannaigh múinteoirí málaí bána.  
 buy [PAST] teachers bags white  
 ‘Teachers bought white bags.’

In such cases (discussed in detail in Elfner (2012: Chapter 4)) the subject consists only of a single prosodic word. The mapping principles of (28) will match this NP with a  $\phi$ -phrase—one which has as its only immediate constituent a single prosodic word. But such a structure will stand in violation of a well-established and much investigated principle governing phonological representations, according to which an optimal prosodic constituent  $O$  consists of exactly two sub-parts, each being one level lower on the hierarchy than  $O$  itself—a so-called ‘binarity’ requirement or desideratum.

<sup>16</sup> A question arises about the absence of an L-H-accent at the beginning of the object NP. It is with respect to this observation that the discussion here is simplified. For a fuller treatment, addressing this issue, see Elfner (2012) and Bennett *et al.* (2013).

To overcome this departure from what is phonologically optimal, an adjustment is made, and the subject is grouped with the verb, producing a structure like (37):



As a consequence of the adjustment which yields (37), we have a structure in which both lower  $\phi$ -phrases are optimal in terms of their internal structure: each consists of exactly two phonological words. The structure is therefore well-balanced and rhythmically pleasing.<sup>17</sup>

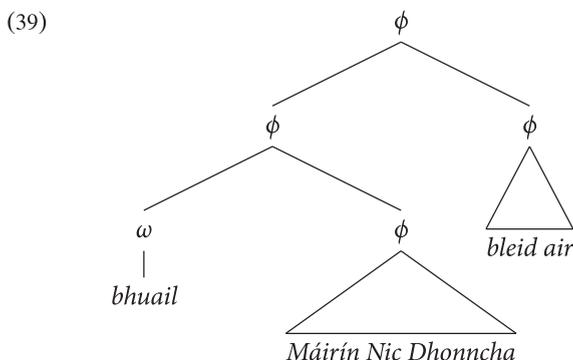
The structure in (37) is intuitively accurate and, more importantly, it leads us to expect the correct distribution of pitch accents in (36)—L-H on the initial verb because it is at the left edge of a  $\phi$ -phrase; H-L on the (stressed syllable of the) single word subject because it is at the right edge of a  $\phi$ -phrase; and H-L on the rightmost word of the object because it too is at the right edge of a  $\phi$ -phrase.

The second set of circumstances in which the verb and the subject phrase together are cases in which the verb is relatively light and the subject relatively substantial. Since past tense verbs are uninflected and therefore often monosyllabic, such cases are very common. Some instances (with associated sound-files) are presented in (38). The initial verbs here are monosyllabic and have short vowels (/s'k'əb/, /wəl' and /xəɾ' respectively) and the subjects (with the exception of (38a)) consist of at least two prosodic words.

- (38) a. Sciob an cat an t-eireaball den luch.  
cut the cat the tail off-the mouse  
'The cat cut the tail off the mouse.' (DIALECT: KERRY)
- b. Bhuail Máire Nic Dhonncha bleid air.  
struck accosting on-him  
'Máire Nic Dhonncha went to talk to him.' (DIALECT: GALWAY)
- c. chuir an Gadaí Dubh ceist ar an chaiftín ...  
put the Thief Black question on the captain ...  
'the Black Thief asked the captain ...' (DIALECT: DONEGAL)

<sup>17</sup> On the status of binarity requirements, see especially Mester (1994), Selkirk (2000), Itô and Mester (2006).

For these cases too, if the mapping principles in (28) were to apply with no further adjustment, we would expect a structure like (32), with a rising accent on the initial verb. What actually seems to emerge, however, as should be clear from the sound-files associated with (38), is a binary branching structure in which there is first a  $\phi$ -phrase which includes the verb and the subject DP, followed by a  $\phi$ -phrase consisting of the complement sequence. This pattern, we assume, arises by way of reduction of the prosodic word corresponding to the verb and adjunction to the  $\phi$ -phrase corresponding to the subject.<sup>18</sup> This leads to the phrasing in (39) for (38b):



It must be recognized that for the analysis in (39), we are relying on the evidence of our ears, rather than on measurement. A careful follow-up study is now called for, to do the measurements which would confirm or disconfirm the proposal just made.

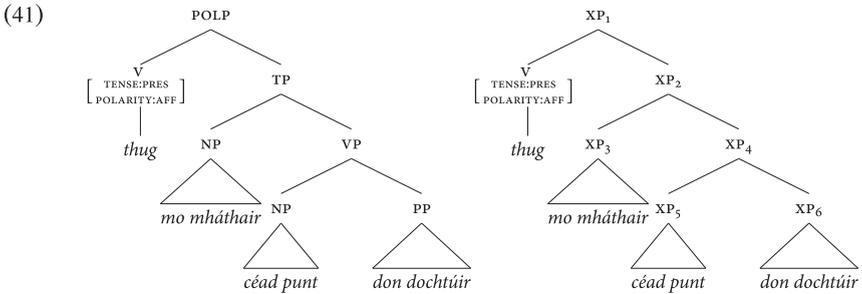
However such research might turn out, the discussion here provides a good illustration of the logic of the approach. The correspondence principles of (28) guarantee that syntactic and phonological representations are never in a completely arbitrary relation one to another, but if the hierarchical representations that result are not optimal in phonological terms, then adjustments may be needed and the effect of those adjustments will be to yield a correspondence between syntactic and phonological phrasings which is imperfect. The phrasings constructed, however, will be optimized for use by the phonological and phonetic systems. This whole system then represents one stage in the long translationary journey that we alluded to at the opening of our paper—from the world of propositions and concepts to the world of articulatory gestures. But we should consider now whether or not this framework can help us better understand Pronoun Postposing.

<sup>18</sup> The verb *bhuail* of (38b) has an underlying diphthong /uə/, but note that in its phonetic realization here, that diphthong has been radically shortened and reduced. It may well be that high-frequency light verbs like *chuir* or *buail* are reduced to the point of being less than phonological words (in effect they are proclitics) and that in such cases the realignment in (39) is forced rather than optional. Note also the sometimes dramatically long pauses following the verb-subject sequence in such patterns.

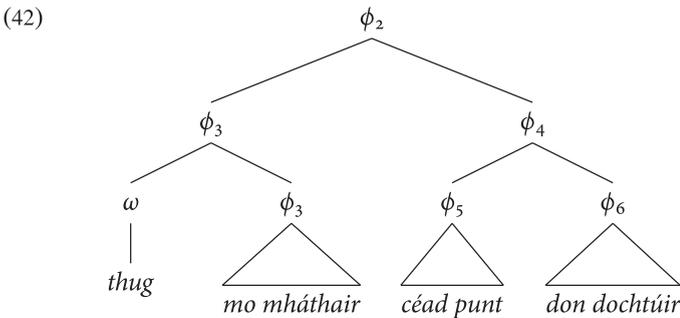
## 7. POSTPOSING AS PHONOLOGICAL REPAIR

It is an inescapable consequence of the proposals developed so far that objects in finite clauses must always appear at the left edge of at least one  $\phi$ -phrase—that corresponding to the Verb Phrase.<sup>19</sup> To see why this must be so, consider (40), whose final syntactic structure will be as in (41), in its fully labelled and unlabelled versions:

- (40) Thug mo mháthair céad punt don dochtúir.  
 gave my mother hundred pound to-the doctor  
 ‘My mother gave a hundred pounds to the doctor.’



Following our earlier reasoning closely, this will now yield the phonological phrasing in (42), by way of the Correspondence Principles of (28) and the kinds of adjustments to the phrasing of the verb and the subject that we discussed in the previous section:



Incorporation of the verb *thug* into the  $\phi$ -phrase corresponding to the subject yields an initial  $\phi$ -phrase which meets binarity requirements in

<sup>19</sup> This is true except for the case, like (32) above, in which the Verb Phrase contains only (the verb and) a single complement. This is in fact a good consequence, since postposing is never triggered in this circumstance.

consisting of two phonological words (*mo* is a proclitic and therefore less than a phonological word). We now expect the example in its normal production to have an initial phrase *thug mo mháthair* followed by a phrase corresponding to the complement sequence *céad punt don dochtúir*; further, it should be detectable that this phrase in turn contains two phrases (*céad punt* and *don dochtúir*). This result seems reasonable in a general way.

The deductive path just followed is completely general and will yield the same conclusion whether the direct object is a full Noun Phrase or a pronoun. Direct objects come first in the sequence of complements and will therefore always be initial in the Verb Phrase after the verb itself fronts to clause-initial position. It follows, in turn, that direct objects in finite clauses will always be exposed at the left edge of the phonological phrase corresponding to the Verb Phrase.

This is an important conclusion to have reached, because the left edge of a  $\phi$ -phrase is a position of prosodic strength, inhospitable to weak elements. This typological observation has been given recent prominence in discussions by Selkirk and others (see especially Selkirk (2001)). Selkirk names the phonological condition in question STRONG START, and we will understand it here as formulated in (43)—as an injunction that phonological phrases should begin with an appropriately strong element, where by ‘strong’ we mean: appropriately high on the prosodic hierarchy.

- (43) STRONG START: for a phonological constituent  $K_n$ , its leftmost element cannot be of level  $K_{n-2}$  or less.

In (43), the subscripts refer to various levels of the prosodic hierarchy. Optimal prosodic representations, then, are those in which each prosodic constituent has as its leftmost immediate constituent either a phrase of the same prosodic rank, or a phrase which is just one step lower in prosodic rank. Intonational Phrases, for example, will have either intonational phrases or phonological phrases as their leftmost constituent, and phonological phrases will have either phonological phrases or phonological words as their leftmost constituents.<sup>20</sup>

STRONG START is satisfied in (42), of course, since each  $\phi$ -phrase has as its leftmost sub-part either another  $\phi$ -phrase or else a phonological word.<sup>21</sup> In particular, the  $\phi$ -phrase corresponding to the Verb Phrase ( $\phi_4$  of (42)) satisfies STRONG START by virtue of the fact that its leftmost element is the  $\phi$ -phrase *céad punt*. But what if the object were not a full Noun Phrase, but rather a pronoun, as in (44)?

<sup>20</sup> STRONG START is clearly active in the phonological grammar of Irish. See Elfner (2012: Chapters 3 and 4) for extensive discussion of the role of STRONG START in shaping other aspects of prosodic constituency in Connemara Irish. See also Kandibowicz (2009, 2010) for an analysis of Nupe, in which the constraint plays a central role.

<sup>21</sup> For the phrase *don dochtúir* in (42), the leftmost element is the phonological word *don dochtúir*, since *don* is itself proclitic and incorporates into the lexical word *dochtúir*.

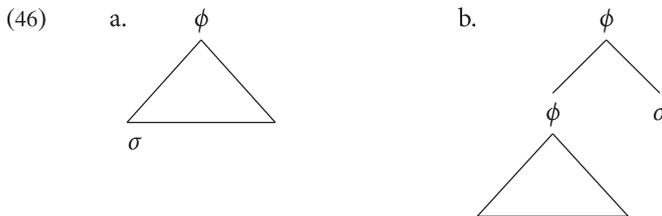
- (44) Thug mo mháthair é don dochtúir.  
 gave my mother it to-the doctor  
 ‘My mother gave it to the doctor.’

The same logic as before will lead us to the conclusion that the object pronoun *é* will always be the leftmost immediate constituent of the phonological phrase corresponding to the Verb Phrase. Will STRONG START still be satisfied in a case such as (44)? That depends on whether the pronoun appears in its strong form or in its weak form. Strong forms of pronouns may bear an accent and are clearly free-standing phonological words (as is shown, for instance, by the fact that they may themselves act as hosts for proclitic elements like the copula, as in *is é mo laoch*). Therefore if the pronoun appears in its strong form, STRONG START as formulated in (43) will be satisfied.

Equally clearly, however, if the pronoun should appear in its weak form, then we will have a violation of STRONG START as defined in (43). Weak forms of pronouns are, by definition, accentless and dependent, less than a phonological word. Let's assume that they are mere syllables ( $\sigma$ ). If the direct object in a finite clause, then, is realized as a pronoun in its weak form, the result will inevitably be a flawed phonological object—one in which a dependent and accentless element occupies a position reserved for the prosodically strong. Our core proposal is that Pronoun Postposing is a repair for that prosodic imperfection, and furthermore that it is just one among a range of available repairs. In the context we have now developed, Pronoun Postposing can be understood as in (45):

- (45) Adjoin a weak pronoun to the right edge of a containing phonological phrase.

That is, given a flawed phonological structure like (46a) (with its violation of STRONG START), the system responds by producing (46b), in which the offending element (a weak pronoun) is placed at the right edge rather than at the left edge of the  $\phi$ -phrase:



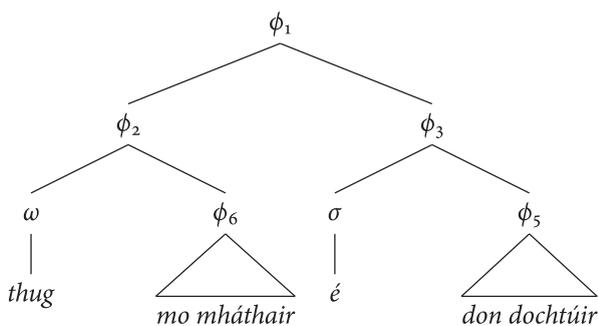
The transition from (46a) to (46b) is Pronoun Postposing. With the adjustment in (46b) in place, the potential violation of STRONG START is removed (there is no injunction against the appearance of weak elements at the right edge of phrases) and the structure is phonologically optimal.

We view (45)/(46) as one subroutine in the readjustment process that translates the output of the syntactic component into the kind of representation that the phonological and phonetic systems favour and can easily handle. It is thus on a par with the binarity-driven re-bracketings that we discussed in the previous section.

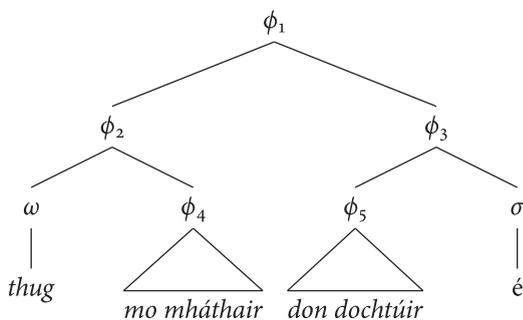
In the case of our example (44), we will of course have the output (47), as can be seen diagrammatically in (48).

- (47) Thug mo mháthair don dochtúir é.  
 gave my mother to-the doctor it  
 'My mother gave it to the doctor.'

(48) a.



b.



(48a) is the unadjusted structure, incurring a violation of STRONG START because of the presence of the weak pronoun *é* at the left edge of  $\phi_3$ . The status of the pronoun as weak is indicated in (48a) by designating it as a syllable ( $\sigma$ ), rather than as a phonological word ( $\omega$ ). (48b) is the adjusted structure, with the violation of STRONG START repaired by way of attachment of the pronoun to the right edge of a containing phonological phrase ( $\phi_3$ ).

At the heart of this proposal is the idea that Pronoun Postposing is part of the readjustment process which translates syntactic into phonological

representations. In particular, postposing is a re-configuring which repairs what would otherwise have been a flawed rhythmic structure. But there can be more than one way to fix such flaws. And in fact for contemporary varieties of Irish, there seem to be at least three distinct ways to avoid violations of STRONG START:

- (49) OPTION A: Postpose the pronoun so that it appears at the right edge rather than at the left edge of a  $\phi$ -phrase: (45)/(46).

OPTION B: Leave the pronoun in its syntactically expected position, but cliticize it to a preceding phrase, thereby removing it from the left edge of its 'original'  $\phi$ -phrase and avoiding a violation of STRONG START. Weak pronouns are enclitic and therefore have the option of attaching to the right edge of a neighbouring phonological phrase, without changing the syntactically expected order of elements.

OPTION C: Leave the pronoun in its syntactically expected position, but choose the strong form as its realization. Strong forms of pronouns are independent phonological words, often accented and articulated without phonological weakening. If the accented version of the pronoun is selected, no violation of strong start as defined in (43) arises; no repair is needed.

In this conception of things, what we have called in our discussion so far the 'optionality' of Pronoun Postposing (an inaccurate term as it now happily turns out) in fact reflects the availability of the three alternative repairs in (49), only one of which involves displacement of the offending pronoun from its expected position. If we return to our original illustrative example (44), we see that the system in fact provides three alternative ways of realizing the underlying syntax, two of which are masked by the failure of the standard orthography to distinguish strong from weak forms of pronouns:

- (50) a. Thug mo mháthair don dochtúir é.  
gave my mother to-the doctor it  
'My mother gave it to the doctor.'
- b. Thug mo mháthair é don dochtúir.  
gave my mother it to-the doctor  
'My mother gave it to the doctor.'

(50a) exploits OPTION A; (50b) exploits OPTION B or OPTION C, depending on whether the pronoun is articulated in its accented form (this represents OPTION C) or in its weak form, as an enclitic dependent on the subject Noun Phrase (this is OPTION B).<sup>22</sup> All three options are in fact available, it seems,

<sup>22</sup> OPTION C, with the strong form of the pronoun, is probably the least preferred option in this case, absent considerations of focus or emphasis. This is because it must involve a phonological phrase (that corresponding to the object Noun Phrase) which consists only of a single accented phonological word (the pronoun *é*). This substructure is sub-optimal because the phonological phrase contains just one sub-constituent rather than the desired two.

and the dual possibility represented by the single orthographic form in (50b) corresponds to what we have so far been calling the ‘optionality’ of Pronoun Postposing. This way of understanding the available options, we claim, makes possible a more nuanced and more accurate account of the relevant observations.

It also solves another of the core puzzles—the very curious pattern discussed at (22)–(25) above. What we showed there was that there is a range of syntactic positions from which Pronoun Postposing is impossible and in which only the strong version of the pronoun may occur:

- (51) a. É de leithscéal aici go raibh sé ródhéanach.  
 b. Agus É as baile.  
 c. Níl iontas ar bith É mac mínádúrtha a thógáil.  
 d. Níor mhaith liom É a ghortú.

What is so puzzling about such cases in the first place is that in general the choice between strong and weak exponents of a pronoun is free; why not here? The second aspect of the puzzle is why that choice should be unavailable in just the range of contexts in which postposing is impossible. But now we understand this puzzling state of affairs. The pronouns in question are all at the left edges of phonological phrases (because in syntactic terms they are all initial in some maximal phrase). They are therefore at risk of triggering violations of STRONG START if they appear in their weak forms. Therefore, weak forms of pronouns may not occupy that range of positions. But we know independently that postposing (OPTION A) is unavailable here. The only remaining option then is C—choose the strong form of the pronoun so as to avoid a violation of STRONG START.<sup>23</sup>

We thus come to understand one of the most curious of the puzzles we have been concerned with—why the option of deploying a strong form of the pronoun is unexpectedly forced in the contexts of (22)–(25). All other ways of repairing the rhythmic flaw are excluded. Of course the account is incomplete until we can provide an understanding of why postposing is not an available option in cases like (22)–(25). But that is an independent problem. What the logic of our proposal does allow (and this is important) is an understanding of why the distribution of strong forms of the pronouns would be linked with postposing possibilities.

At this point we have presented the core of our proposal. The single most important thing about it is that it provides a reason for the existence of Pronoun Postposing. Viewed in the way we argue for, postposing is not an isolated or arbitrary ordering statement listed somewhere in the grammar of Irish; rather, it is one aspect of a larger system, a system which organizes the rhythmic structure of expressions of the language. And

<sup>23</sup> OPTION B of (49) is also unavailable here, for different reasons in different cases. See Bennett *et al.* (2013) for more detailed discussion of why OPTION B is unavailable in these circumstances and of why postposing is impossible.

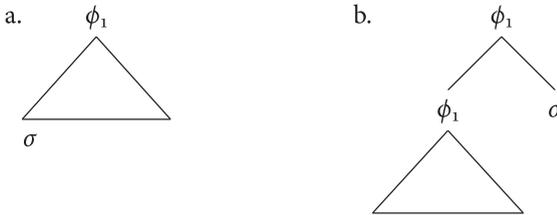
that is all that it is about. From this perspective, prosodic factors are not extraneous or ‘added on.’ They are the heart of the matter; and it is inevitable, rather than surprising, that positioning of the pronoun would exhibit a rich set of correlations with prosodic factors. It is also expected, rather than surprising, that postposing would be insensitive to properties of meaning and properties of discourse, since it is driven only by what we might call the mechanical challenges of building optimal phonological structures.

## 8. CHALLENGES AND EXTENSIONS

The analysis developed in the previous section is simple in its essentials—striking as much for what it does not say as for what it does. Parsimony is a merit in any analysis, but in this section we would like to show that, simple or not, the proposal successfully meets a series of empirical challenges which go beyond the basic cases. Some of these challenges have to do with fundamental properties of postposing; others have to do with how it applies in syntactic contexts that are more elaborate than those we have considered so far.

Let us begin by reminding ourselves what the proposal is. Pronoun Postposing is the transition from the prosodic structure in (52a) to that in (52b). The adjustment is needed because (52a) incurs a violation of STRONG START: the phonological phrase has as its leftmost constituent an element which is too weak (a syllable rather than a word). The adjusted structure in (52b) incurs no such penalty because the offending element appears, harmlessly, at the right edge of the containing phrase.<sup>24</sup>

### (52) PRONOUN POSTPOSING



(52) differs from many informal descriptions of Pronoun Postposing in making no mention of clause-final position. If a postposed pronoun appears in clause-final position, that, according to (52), reflects only the accident that the  $\phi$ -phrase to whose right edge the pronoun attaches may sometimes happen to be the final one in the clause. We believe that this aspect of the understanding offered by (52) is in fact correct. To see this, consider the data in Appendix B. Of the 114 examples gathered there,

<sup>24</sup> Technically, then, postposing is an instance of prosodic adjunction; the postposed element right-adjoins to the containing phrase. See Inkelas (1990), Itô and Mester (2009, 2011) on the centrality of adjunction in prosodic structures. We indicate adjunction structures by assigning the same numerical index to the two segments which constitute the host category.

84 involved postposing of one kind or another. Of those 84, just 10 have the pronoun in final position; the remaining 74 have it in shifted but non-final position. What this means is that, when we can tell the difference between moving a short distance to the right and moving to clause-final position, postposing all the way to clause-final position is in fact relatively rare. This interpretation is supported by the observation that of the 10 examples in Appendix B which involve displacement to clause-final position, 7 are of the form shown in (53), in which, even though the pronoun is in clause-final position, its journey to that position has been short, crossing just one other phrase.

- (53) a. V XP PRONOUN  
 b. Cuirfear thall é.  
 bury [FUT-IMPERS] over-there him  
 ‘He will be buried abroad.’

This interpretation of the facts is in harmony with that offered by Aidan Doyle (1998: 45), who comments as follows:

If we attempt to extract some kind of generalization from these facts, the most one can say is that the pronoun is less likely to move to the end of long sentences. In such an event, it either remains in its original position ... or else ‘stops off’ between constituents ...

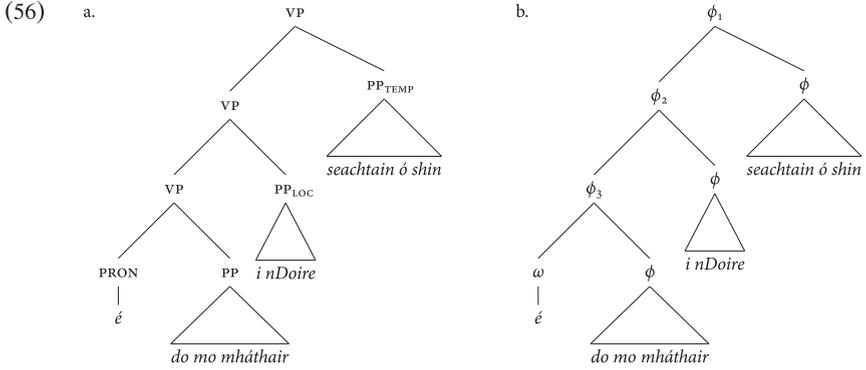
Given that interpretation, the empirical challenge we face is double-edged. The primary task is to understand why pronouns may postpose to a range of possible landing-sites; the secondary task is to understand why the option of postposing over long distances is deployed only sparingly by speakers. In facing into the first challenge, we can take (54) as a starting point:

- (54) Thaispeán siad é do mo mháthair i nDoire seachtain ó shin.  
 show [PAST] they it to my mother in Derry week ago  
 ‘They showed it to my mother in Derry a week ago.’

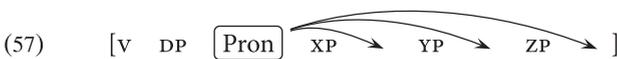
(54) is well-formed under conditions which should by now be familiar—the object pronoun can cliticize to the subject, or it can be articulated in its strong form in the syntactically expected position. This much, we already understand. But of course postposing is also an option, and in fact the postposed pronoun may appear after any of the major clausal constituents which follow the verb:

- (55) a. Thaispeán siad do mo mháthair [é] i nDoire seachtain ó shin.  
 b. Thaispeán siad do mo mháthair i nDoire [é] seachtain ó shin.  
 c. Thaispeán siad do mo mháthair i nDoire seachtain ó shin [é].

The analysis in (52) in fact leads us to expect this range of possibilities, as we now show. The Verb Phrase of (54) will have the labelled syntactic structure in (56a), which will in turn be interpreted as the phonological phrasing in (56b):



(56b) represents the variant of (54) in which the object pronoun has its strong exponent. It will emerge as the version of the sentence in which the pronoun is pronounced in the syntactically expected position and is accented (this is OPTION C of (49) yielding (54) above). If, however, the pronoun should appear in its weak form, we would have a violation of STRONG START and a repair is called for. One option is to apply the adjustment allowed by (52) (that is, use OPTION A of (49)). In a context such as (56b), though, a range of options is available as to how exactly the readjustment described in (52) can be implemented. This is because the offending pronoun happens to be contained within three phonological phrases— $\phi_1$ ,  $\phi_2$ , and  $\phi_3$ . There are, as a consequence, three different ways in which the pronoun might attach to the right edge of a containing  $\phi$ -phrase; it can appear at the right edge of any of  $\phi_1$ ,  $\phi_2$ , or  $\phi_3$ . It is the availability of this range of options that licenses the three legal variants seen in (55) (and in many similar cases). If the pronoun adjoins to  $\phi_3$ , we get (55a); if it adjoins to  $\phi_2$ , we get (55b); if it adjoins to  $\phi_1$ , the result is (55c). All are permitted and expected, given (52). It is worth stressing that we would have had to complicate our proposal (by adding extra conditions, say) if we wanted to limit the range of possible outcomes here. It is the simplicity of (52), in other words, that underpins the understanding it makes possible of why all of the outcomes in (57) are in fact possible.



The first challenge, then, can be met in a fairly natural way. What remains is to understand why the ‘longest’ option in (57)—in which the pronoun

moves all the way past ZP—is used relatively rarely by speakers. Here we can offer only speculation. It is well-established in the research literature on human sentence comprehension that structures involving rightward movement induce processing difficulties (see, for instance, Staub *et al.* (2006)). This is because sentence comprehension is highly predictive. Upon encountering a verb, the parser comes under great and constant pressure to semantically integrate the verb’s complements as quickly as possible. If a direct object is shifted away from its expected position, that expectation is hard to satisfy and temporary mis-parses often result, mis-parses which must be revised when the ‘real’ object is ultimately encountered. Much less is known about sentence production (it is intrinsically more difficult to study), but one influential current idea is that it is driven in part by an instinctive preference for communicative efficiency (see, among many others, Qian and Jaeger (2012)), with the consequence that speakers will avoid producing structures likely to induce processing difficulty for listeners. If processing difficulty in rightward displacements increases as the distance between the base position and the displaced element increases (which seems likely), then we expect that speakers will, all else being equal, resort to such ‘long’ displacements only rarely. The data in Appendix B support this speculation in that the vast majority of postposings (67 out of 84) are of the type in (58), in which the pronoun crosses just one of the major clausal constituents:<sup>25</sup>

(58) a. V XP PRONOUN YP

- b. Cuirfear amárach é i ndiaidh aifreann a haon dhéag i dteach pobail  
 bury [FUT-IMPERS] tomorrow him after mass eleven in church  
 Ghleann Colm Cille.  
 Glencolmcille  
 ‘He will be buried tomorrow after eleven o’ clock mass in Glencolmcille church.’ RNG  
 22-1-2012

Note once more that this account depends crucially on the distinction between linguistic competence (a theory of what options the grammar makes available in principle) and linguistic performance (a theory of how speakers choose to deploy those options at a given time and in a given place). More important for our present purposes: if this speculation can be fleshed out and supported, then we may have met both the primary and the secondary empirical challenges regarding the pattern in (57).

<sup>25</sup> See also Ó Siadhail (1989: 209), who observes that postposing over a single long constituent is not preferred, though it is not impossible. This observation can be understood in exactly the same way as is suggested in the text for the rarity of postposing over many constituents.

There is another thing that remains unsaid in (52). In that formulation the term ‘pronoun’ does not appear. If (52) is on the right track, then, there is no reason to think that postposing should be characteristic of pronouns alone. Postposing should be available as an option any time we have an inappropriately weak element at the left edge of a  $\phi$ -phrase. This is in fact a necessary property of the analysis. (52) defines a legal adjustment that can be made to a phonological structure. The units out of which such representations are constructed are therefore necessarily phonological (the syllable, the foot, the phonological word, the phonological phrase, the Intonational Phrase and so on). But the term ‘pronoun’ is a syntactic term, and representations such as those given in (52) are incapable of distinguishing between pronouns and other syntactic categories. In particular, distinct syntactic categories which map to identical phonological categories cannot be distinguished. This too, we believe, is a good feature of the proposal. Although our discussion has focused on pronouns, all descriptions of the phenomenon make clear that an exactly analogous reordering applies to certain kinds of prepositional phrases (see for instance Stenson (1981: 42–7), Ó Siadhail (1989: 207–10, especially 207)). Mícheál Ó Siadhail (1989: 208) cites the doublet in (59), for example, and we can add the examples in (60) from our own observation:

- (59) a. Bhí an sagart ag mo mháthair inné.  
 was the priest at my mother yesterday  
 ‘The priest attended my mother yesterday.’  
 b. Bhí an sagart inné aici.  
 was the priest yesterday at-her  
 ‘The priest attended her yesterday.’
- (60) a. Labharfaidh mé leis ar an Chlochán Liath amárach.  
 speak [FUT] I with-him on Dunloe tomorrow  
 ‘I’ll speak to him tomorrow in Dunloe.’  
 b. Labharfaidh mé ar an Chlochán Liath amárach leis.  
 speak [FUT] I on Dunloe tomorrow with-him  
 ‘I’ll speak to him tomorrow in Dunloe.’

The elements that postpose in cases like these are Prepositional Phrases which consist only of a preposition inflected for the person, number and gender features of its (silent) object.<sup>26</sup> They are mostly monosyllabic and they are all unaccented, at least as an option. In cases such as (59) and (60), then, we will also have inappropriately light elements at the left

<sup>26</sup> For the syntactic analysis of such items, see McCloskey and Hale (1984), McCloskey (2011a) and references cited therein, especially Brennan (2008).

edge of the  $\phi$ -phrase corresponding to VP, threatening a violation of STRONG START. It is unsurprising, then, given (52), that postposing should be available as an option here as well; the outcome, correctly predicted, is (59b) and (60b).<sup>27</sup>

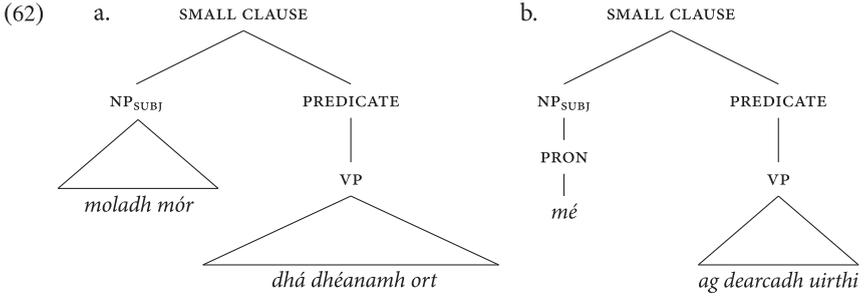
Consider now two more complex kinds of cases, one of a kind that we have dealt with before, the other new. Both involve ‘small clauses’—tenseless predicational units which serve as complements to a broad range of predicates and predicate-types in Irish, including perception verbs (as in (61a) and (61b)) and expressions of frequency and temporal length (as in (61c)).

- (61) a. chualaidh mé moladh mór dhá dhéanamh ort  
 heard I praise great PROG.PASS do.VN on-you  
 ‘I heard you being greatly praised.’ AM 262
- b. nuair a chonaic sé a iníon imithe  
 when COMP saw he his daughter gone  
 ‘when he saw (that) his daughter (was) gone’ MS 10
- c. ba mhinic mé ag dearcadh uirthi  
 COP[PAST] often me look [PROG] on-her  
 ‘I was often looking at her.’ MS 141

We have had occasion to discuss these structures before, in arguing that syntactic treatments of Pronoun Postposing are not believable (see Section 3 at pp 28–33 above). Here, we try to establish that the proposal in (52) deals with them without further elaboration. Crucial in this demonstration will be our larger theme—that syntactic phrasing and phonological phrasing, though related, are distinct from one another, and that postposing is sensitive to the units of phonological phrasing, not to the units of syntactic phrasing. This is the fundamental reason, in our view, for the failure of syntactic treatments of postposing. We will argue in what follows that once we establish a reasonable (and independently grounded) view of how phonological phrasing works in examples like (61), then the proposal in (52) will lead us to expect the patterns of postposing actually found.

For the purposes of this discussion we will again assume the simple syntactic structure for small clauses from our earlier discussion. We show it again in (62), for two of the examples in (61). For the purposes of this discussion we need not be concerned with the larger structures which contain those in (61).

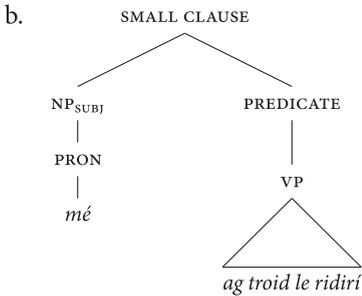
<sup>27</sup> See McCloskey (1999) for additional discussion and for an argument that these cases and those in which a pronoun is postposed do in fact reflect the same phenomenon. One might wonder why other phonologically dependent elements (subordinating particles, articles and so on) would not also be able to exploit (49) and undergo postposing. Such elements, however, are proclitics which adjoin to the phonological word which immediately follows them. For more detailed discussion see, Bennett *et al.* (2013).



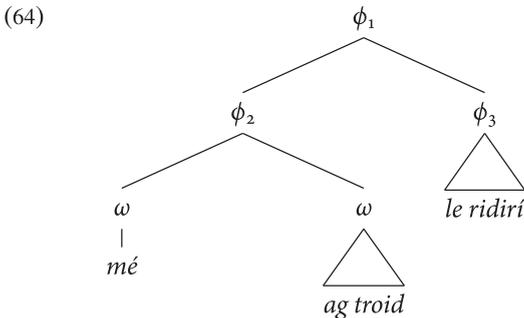
Consider now the kind of example which we argued earlier posed such difficulties for syntactic treatments of postposing. (63a), which is repeated from (16) above, is representative. It will have the syntactic structure in (63b).

- (63) a. má chionn tú \_ ag troid mé le ridirí  
 if see [PRES] you fight [PROG] me with knights  
 'If you see me fighting with knights ...'

DC 59

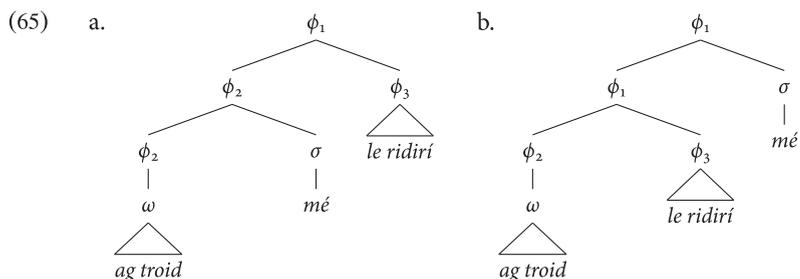


If we follow faithfully our earlier discussion of the mapping from syntactic to phonological phrasing (see Section 6, pp 35–41 above), we will have the initial phonological structure in (64):



There is a crucial mismatch between syntax and phonology in (64), in that the string *mé ag troid* constitutes its own  $\phi$ -phrase, despite the fact that it does not correspond to any syntactic constituent. This failure of isomorphism arises by way of familiar mechanisms. If no such readjustment were made, the  $\phi$ -phrase corresponding to the subject of the small clause would contain a single prosodic word (*mé*), so violating the same powerful constraint on phonological representations (namely binarity) that we appealed to in our analysis of simple finite clauses. Re-bracketing the prosodic word *ag troid* ('fighting') with the subject yields a constituent ( $\phi_2$ ) which is optimal with respect to the binarity requirement in consisting of exactly two prosodic words. It is important to stress that the reasoning just used is exactly the reasoning that we appealed to in our analysis of another important mismatch between syntactic and phonological phrasing, namely the existence of a phonological (but not a syntactic) constituent which includes the verb and the subject of a finite vso clause. In both cases, the fundamental phonological requirement of binarity outweighs the imperative (built into the simple mapping principles of (28)) to have a direct and shape-preserving relationship between syntax and phonology.

It is exactly this forced mismatch between syntactic and phonological constituency that allows a natural understanding of the kind of postposing seen in (63a), a pattern, as we have seen, which is deeply unnatural in syntactic terms. Let us step through the mechanics to see why this is so. In (64), we show the pronoun in its strong form as a full prosodic word and so no further adjustment is required. If, however, the weak form of the pronoun were to be chosen (a syllable rather than a word), then we would have a violation of STRONG START, since the pronoun *mé* is initial in  $\phi_2$ . A repair is thus required. As there are two distinct  $\phi$ -phrases which contain the pronoun and can therefore serve as hosts for adjunction, given (52), two outcomes are possible, as shown in (65):



We therefore expect two possible well-formed outcomes—(66), as well as (63a). This is correct, it seems.

- (66) má chionn tú – ag troid le ridirí [mé].

Notice that the logic here is exactly that which we appealed to in dealing with ‘partial postposing’ examples like those in (56). In both sets of cases, the crucial property is that  $\phi$ -phrases may contain other  $\phi$ -phrases and that this possibility leads to configurations in which the repair (52) may be applied in more than one way. The other small clause examples presented as problematic for syntactic understandings of postposing in Section 3 yield to exactly the same kind of analysis. We invite the interested or sceptical reader to work through those examples to confirm that this is so.

We have so far considered cases in which postposing succeeds, and in which that success is unexpected and unnatural from a syntactic point of view. Our argument has been that these cases do not seem so strange or unexpected if postposing is viewed in the light of phonological phrasing. But there are also cases of the mirror-image kind—cases in which postposing fails, but in which that failure is hard to understand in syntactic terms. We will consider two such failures, argue that they are hard to explain in syntactic terms and then argue that the failures make sense, once again, when postposing is viewed as an operation whose purview is the phonological, rather than the syntactic, organization of phrases.

We will begin with a very basic case, and then move on to one in which the issues are more complex, but correspondingly more interesting.

Consider the subject position of a finite clause. Postposing fails from this position:

- (67) a. \*Chuir mo lámh ’mo phóca mé.  
           put my hand in-my pocket I  
           ‘I put my hand in my pocket.’  
       b. Chuir mé mo lámh ’mo phóca.

The impossibility of (67a) is unexpected in syntactic terms, because rightward syntactic movement from this position is free:

- (68) a. do bhuail amach ar an mbóthar seandúine bocht  
           [PAST] struck out on the road old-man poor  
           ‘There started out on the road an old man.’ S 107  
       b. Ní fhíllfidh choíche chun an chuain seo an duine dearóil sin a  
           NEG return [FUT] ever to the harbour DEMON the person miserable DEMON COMP  
           thug tarcaisne do Chríost ina shearbhónta  
           gave insult to Christ in-his servant  
           ‘That miserable wretch who insulted Christ in the person of his servant will never return  
           to this harbour.’ BCC 94

If the analysis in (52) is on the right track, it should provide an understanding of the impossibility of (67a). But it already does. In

Section 6 above, we laid out (drawing on the detailed discussion in Elfner (2012, 2013)) how in the presence of a phonologically light subject, the finite verb and the subject phrase together. But there is no subject which has less phonological substance than the weak form of a pronoun. For a case like (67), then, we expect a phrasing in which the pronoun forms a  $\phi$ -phrase with the verb. And in fact there is considerable independent evidence that the finite verb and the subject pronoun form a close phonological bond (see Chung and McCloskey (1987), Doherty (1996: 23–5) for a review). But given that much, there will be no violation of STRONG START; the pronoun will appear at the right edge of the phrase, and no repair or adjustment will be needed or justified. Thus, the impossibility of (67a) is expected.

The other instance of syntactically unexpected failure that we would like to discuss is more complex and requires more setting of the scene. However, when we consider these cases carefully, the rewards are substantial, since they touch on some fundamental issues in the syntax-phonology correspondence. Here too we are dealing with subjects; however, the subjects in question are subjects of small clauses rather than subjects of full clauses. The relevant examples are all like (69):

- (69) nach fada \_ ráite é gur áirthaí folmha is mó a  
 NEG-INTERR-COP long said it COMP+COP vessels empty COP most COMP  
 dheineann an torann  
 make the noise  
 Hasn't it long been said that it's the empty vessels that make the most noise' AO 47

In (69) we have an adjective/adverb *fada* which selects a small clause complement. That complement is in turn headed by a (perfective) passive participle which takes a clausal complement. The subject position of the small clause is in turn occupied by an expletive pronoun *é*. Or rather, the expletive pronoun CAN occupy that position; in (69), it has in fact been postposed, so that it follows the passive participle but precedes the subordinate clause. The important observation, though, is that (70) is completely impossible.

- (70) \*nach fada \_ ráite gur áirthaí folmha is mó a dheineann an torann é.

In (70), the pronoun has hopped (so to speak) just one constituent further to the right than it did in (69)—across the complement clause; but that extra hop leads to disaster. Mícheál Ó Siadhail (1989: 209)

makes the same observation and cites the similarly contrasting triplet in (71):

- (71) a. Chuala mé [é] ráite go mbíodh sé ann.  
 heard I it said COMP be[PAST-HABIT] he there  
 ‘I heard it said that he used to be there.’  
 b. Chuala mé \_ ráite [é] go mbíodh sé ann.  
 c. \*Chuala mé \_ ráite go mbíodh sé ann [é].

(71a) shows a now familiar possibility—the (expletive) pronoun is in its syntactically expected position and is in its strong and accented form.<sup>28</sup> (71b) shows partial postposing and is fully well formed. (71c) shows again that postposing around a clausal complement is not possible. This is a very surprising and puzzling observation, at odds with the illustrative schema given first in (6):



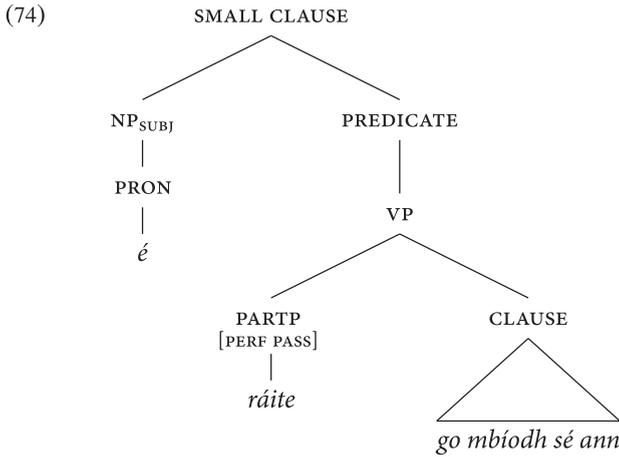
which describes the usual range of postposing possibilities, and which has until this point been an informal but reliable guide to the facts of postposing. Why should the case in which ZP of (72)/(6) is a clause be different from all others? That the status of the complement as a clause is the crucial factor is made clear by the examples in (73):

- (73) a. ní dóigh liom go gcualag \_ ráite [é] faoi aon bheithíoch  
 NEG[PRES] likely with-me COMP I-heard said it about any beast  
 ‘I don’t think that I have heard it said about any beast’ AO 160  
 b. ní dóigh liom go gcualag \_ ráite faoi aon bheithíoch [é].

The pair of examples in (73) differs minimally from the type we are concerned with here. But while full postposing to clause-final position is routine in (73b), it is starkly impossible in (70) and in (71c). The only difference between the successful and the unsuccessful examples seems to be the difference between a Prepositional Phrase complement in (73b) and a clausal complement in (70) and (71c). How might this strange pattern be understood?

Our answer begins, as usual, with the syntactic representation, for which we will again assume (74). The sole difference between these cases and others we have discussed is that here we have a clausal complement in the predicate of the small clause:

<sup>28</sup> Leftwards cliticization (OPTION B of (49)) seems not to be available in (71a). We do not understand why exactly this is so, but the effect seems to have to do with the sequence of two dependent elements (*mé* and *é*), both of which depend on the verb *chuala*. It may also be relevant that *mé* is vowel-final and *é* is vowel-initial.



The question then becomes: why should those complements that happen to be clauses be special in such a way that it would be impossible for pronouns to postpose over them?

As it happens, we have already seen one respect in which clauses are unique among complements; and the characteristic in question has to do with syntax–phonology correspondences. According to the mapping principles laid out in (28), clauses are the only named syntactic category to have a special mapping principle associated with them:

(75) MATCH CLAUSE:

Intonational Phrases in phonology correspond to those clauses which are used to perform speech acts (a clause with assertoric force, for example, which can be used by a speaker to make an assertion, or a clause with interrogative force, which may be used by a speaker to ask a question).

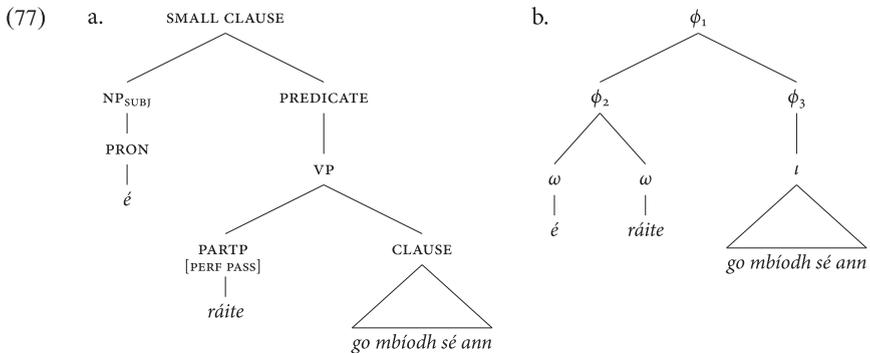
(75) requires that a particular subset of clauses—those which are ‘main clauses’ in one of the senses of that term—should correspond to the most inclusive of all among the hierarchy of phonological domains, the Intonational Phrase. More specifically, (75) requires that those clauses which have illocutionary force (which can be used to make an assertion or ask a question, or issue an order) must correspond to Intonational Phrases in phonology.<sup>29</sup> Main clauses (unsubordinated clauses) are then the canonical Intonational Phrases, since they are routinely used to perform such functions. But certain subordinate clauses also carry illocutionary force. Since Hooper and Thompson (1973) at least, it has

<sup>29</sup> On the status of Intonational Phrases, see especially Selkirk (2005, 2009).

been recognized that certain complement clauses are, to speak metaphorically, honorary main clauses, in that they carry the ‘main assertion’ of a sentence. The English subordinate clauses of (76), for example, are of this type.

- (76) a. She said that [never again would she apply for such a position].  
 b. He believes that [of course people should obey the law].

All that being so, we expect the syntactic structure of the small clause in (74) to be mapped to the phonological phrasing in (77b).



Here—in a manner which is entirely parallel to our earlier discussion of the role of the binarity constraint—we assume that the participle is phrased as a sub-part of the  $\phi$ -phrase corresponding to the subject. As before, this gives rise to a failure of parallelism between syntax and phonology; but that failure of isomorphism guarantees a more valuable prize, in that the first phonological phrase of the small clause satisfies the binarity requirement in consisting of exactly two prosodic words. This much just recapitulates earlier decisions and earlier discussion. What is new here is the complement clause; and by the principle of MATCH CLAUSE in (75), that clause must correspond to an Intonational Phrase, as we see in (77b).

And that is what is fatally wrong with (77b). For the structure in (77b) is, in fact, impossible, and it is impossible for fairly deep reasons. A nearly universal theme in discussions of the relation between syntactic structure and phonological structure is the idea that phonological structures are ‘flatter’ or ‘shallower’ or ‘less recursive’ than syntactic structures. This is an idea that goes back at least to Halliday (1960), and it has been emphasized and explored in particular by Nespor and Vogel (1986), Selkirk (1986) and Truckenbrodt (1999). Syntactic structure is recursive. A clause may contain

a Verb Phrase which in turn has within it another clause (as in (77a)), which in turn may contain a Verb Phrase which has within it a clause, which...and so on. This simple possibility is one of the wellsprings of the expressive power of natural languages, since it has as a consequence that there is no upper bound on the number of subordinate clauses, say, that a main clause may in principle contain.<sup>30</sup> Phonological representations, however, do not share this property. This fundamental difference between the two representational systems is the source of many of the observed mismatches between syntax and phonology (see the preliminary discussion in Section 5 at pp 33–5 above).

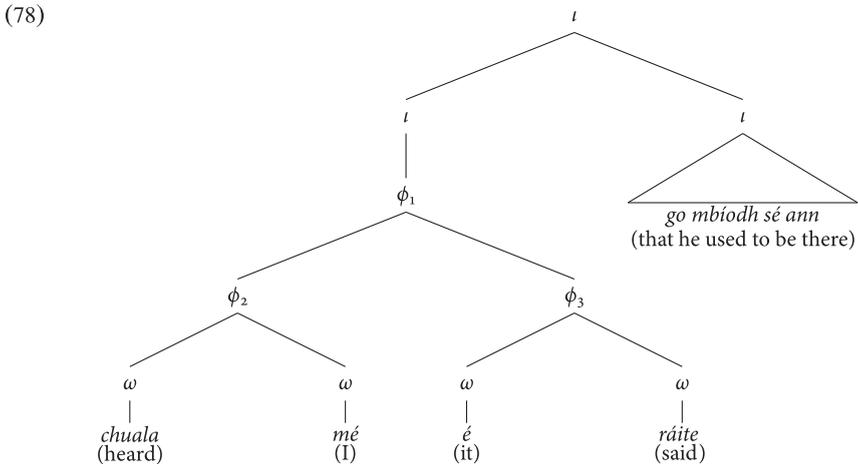
There have been a number of attempts to understand the ‘shallow’ character of phonological representations formally. Here we adopt the position on this issue defended in Ladd’s 2008 survey of the field of intonational phonology (see especially pp 290–9) and adopted also in much recent work by other investigators (Selkirk (2009, 2011), Itô and Mester (2009, 2011)). In this view, what Ladd calls ‘Compound Prosodic Domains’ are permitted. These are phonological structures in which a phrase of type  $x$  may contain another phrase of the same type  $x$  as an immediate sub-part—phrases may contain phrases, words may contain words and Intonational Phrases may contain Intonational Phrases. We have been making appeal to this kind of limited recursion throughout our discussion, and it plays a central role in particular in our analysis of ‘partial postposing’ (see (56) above, for example).

But crucially this is the only kind of recursion which is possible in phonology. What is not possible, in this view, is a kind of structure found routinely in syntax, in which a Verb Phrase (as in (77a)) has a clause as an immediate constituent. To be more specific, we say that it is a characteristic of phonological organization that no phrase of type  $x$  may have a phrase of type  $y$  as a sub-part, where  $y$  is higher (more inclusive) on the prosodic hierarchy than  $x$ . So words may not have phonological phrases as sub-parts nor Intonational Phrases as sub-parts; and phonological phrases may not have Intonational Phrases as sub-parts. This is why the phonological phrasing in (77b) above is illegal; it stands in violation of a fundamental principle of phonological organization, since  $\phi_3$  has an Intonational Phrase as a sub-part.

Like other differences between syntax and phonology that we have dealt with, this one also forces a mismatch between syntactic and phonological representations of the same expression. The adjustment required in this case is that the Intonational Phrase *go mbíodh sé ann* must not be contained within a Phonological Phrase  $\phi$ . There are a number of ways of

<sup>30</sup> Any language which is recursive in this formal sense is guaranteed to yield a set of expressions which is infinitely large (although each expression is itself of finite length).

conceiving of this adjustment; for our purposes here, we will assume that the Intonational Phrase corresponding to the subordinate clause is ‘promoted’ to adjoin to the phrase corresponding to the main clause, yielding the phonological structure in (78):



(78) seems complex, but in fact for the most part it represents only the application of principles that we have already developed and considered. The initial Phonological Phrase ( $\phi_2$ ) is formed in the same way as other verb subject combinations that we discussed in Section 6;  $\phi_3$  is formed in the same way as other small clause constructions that we considered earlier in this section. The only innovation here is the attachment of the Intonational Phrase corresponding to the complement clause to the highest Intonational Phrase, so as to respect the ban on true recursion in phonology. With these adjustments made, (78) respects all of the principles of phonological organization that we have considered here (binarity and the ban on true recursion). What (78) leads us to expect is that the sentence will be perceived as consisting of two sentence-sized phrases, of equal rank and in sequence. At an impressionistic level this seems correct, but these conclusions must be regarded as tentative, until we can check that the distinctive cues for Intonational Phrases in Irish actually identify two distinct such phrases in cases like these.

What of Pronoun Postposing though? Recall that our original intention in engaging in this discussion was to capture the facts repeated in (79)—Ó Siadhail’s observation that postposing to a position to the right of the participle (*ráite* of (78)) is completely well-formed, but that postposing beyond the complement clause is completely impossible:

- (79) a. Chuala mé [é] ráite go mbíodh sé ann.  
 heard I it said COMP be[PAST-HABIT] he there  
 'I heard it said that he used to be there.'
- b. Chuala mé \_ ráite [é] go mbíodh sé ann.
- c. \*Chuala mé \_ ráite go mbíodh sé ann [é].

We now understand this important observation.

The object pronoun in (78) is represented in its strong form (as a full phonological word) and there is therefore no violation of STRONG START on the phrase  $\phi_3$ . This is (79a). But if the pronoun appears in its weak form, there will be a violation, and some repair is called for. How would postposing, as understood in (52), apply in a structural context like (78)? The only possibility, of course, is that the weak pronoun would attach to the right edge of  $\phi_3$  or of  $\phi_1$ , both of which yield the grammatical (79b). Any higher attachment, such as would be needed to give (79c), is impossible, if postposing always involves attachment to the right edge of a  $\phi$ -phrase, as in (52).

There is important confirmation for this general approach to the puzzle represented by (79c) in some observations that we owe to Brian Ó Curnáin. Ó Curnáin observes that, although, as we have seen, postposing may not shift a pronoun across a clause which is a complement, postposing across a relative clause is possible, as seen in (80), an example that we owe to him:

- (80) go dtuga mé \_ i bhfoisceacht dhá chéad slat den phálás a bhfuil  
 until bring[SUBJ] I in proximity two hundred yard-of-the palace COMP is  
 m'athair ina chónaí ann (thú).  
 my-father living in-it you  
 'till I bring you to within two hundred yards of the palace in which my father is living'  
 BP 87

In (80), the second person pronoun *thú* is postposed across a complex locative phrase (a Prepositional Phrase) which happens to contain a restrictive relative clause. This case is superficially similar to that of (79c), then, in that the pronoun postposes across a clause. Yet (80) is well-formed, in contrast to (79c).

The similarity between the two cases, however, while real, masks a crucial and relevant difference. It is uncontroversial that restrictive relative clauses do not carry assertoric force (rather they are complex modifiers of Noun Phrases). It follows then, in turn, that the relative clause in (80) will map to a  $\phi$ -phrase, rather than to an  $\iota$ -phrase. Therefore all the considerations that were at the heart of our discussion of (79c) are irrelevant for (80). The relevant structure for (80) is, in fact, relatively simple, as shown in (81):

- (81) V SUBJ PRON LOCATIVE PHRASE →

The locative Prepositional Phrase of (81) is of course complex in its internal structure. But it contains nothing that would correspond to an Intonational Phrase and therefore its analysis is no different than those with which we opened this section, and the contrast between (80) and examples like (71c) is entirely expected.<sup>31</sup>

Notice, incidentally, that the marked contrast between the ill-formed (79c) or (71c) on the one hand and the well-formed (80) on the other shows that the unacceptability of (79c) is not a simple length effect. There are sixteen syllables between the syntactically expected position of the pronoun and its pronounced position in the well-formed (80); there are eleven syllables in the same span in the ill-formed (79c).

As we said earlier, the real interest of our proposal is that, while it is stated in a simple way, it treats Pronoun Postposing not as an isolated phenomenon but rather as one part of a larger system (the system of syntax–phonology correspondences). What we hope to have shown in this section is that, for all its simplicity, it extends naturally to deal with some quite complex cases. The fact that this is so leaves us optimistic that there may be something right about the approach we take.

## 8. CONCLUSION

We began by saying of Pronoun Postposing that it is a phenomenon ‘under-appreciated in its complexity and intricacy’. And indeed by comparison with our 48 pages here, the authoritative *Graiméar Gaeilge na mBráithre Críostaí* in its 1960 edition devotes barely three lines to our problem:

*Is fiú a thabhairt faoi deara áfach—(a) gur minic gur faide siar cuspóir forainmneach ná cuspóir ainmfhoclach*

(It is worth noting, however—(a) that a pronominal object is often further towards the end than a nominal object.)

§635a, p. 322

If nothing else, we hope to have shown that Pronoun Postposing is a rich and complex phenomenon and that the task of really understanding how it works is a demanding one, requiring a close focus on many aspects of the grammar of Irish—phonological, syntactic, semantic and pragmatic. We also maintain that there is a great deal to learn about language-design in general from a close study of the kind we have tried to undertake here.

<sup>31</sup> See Pak (2008) for a discussion of similar differences between complement and relative clauses. See Elfner (2012: 193–210) for discussion of the prosodic properties of relative clauses in Connemara Irish.

We believe we have made progress, but we also recognize that we have settled nothing definitively and that more than anything else we have opened a research programme. What would it take to really carry such a programme through to completion? It would take the skills of the syntactician and the phonologist, and more than anything else it would take the skills of the instrumental phonetician. If our basic claim here is right, then postposed pronouns always appear at the right edge of a particular kind of phonological domain—the phonological phrase. We have drawn on the production studies and measurements carried out in Elfner (2012, 2013), in the papers leading up to that, and also on the measurements reported in Bennett (2008); but for much of what we have proposed we have relied on deduction, on abstract hypothesis construction and testing and on the elimination of plausible alternatives. If we are on the right track, however, it should be possible, at least in principle, to detect the phonetic cues which mark the right edges of  $\phi$ -phrases in Irish wherever we see a postposed pronoun.<sup>32</sup> That investigation could well evolve into a full-fledged investigation of the phonetics of phrasing in Irish, and it is imaginable that Pronoun Postposing could in the end turn out to be a reliable diagnostic for such phrasing. That would be an important and very welcome development, since very little work has so far been done on phonological organization in vso languages, although they constitute a very important minority type (12% of the world's languages by current estimates).

It would also take the skills of the dialectologist. We have uncovered very little dialectal variation in our work (though see (82) below), but it is very clear that the intonational melodies and other cues which mark phonological phrasing in Irish vary a great deal from variety to variety. Our work to date, though, suggests that the phrasing itself (the organization of the hierarchy of domains) is largely constant. If that should turn out to be true, it would be an interesting discovery about the limits of dialect variation and it would require explanation.

Related to that, there is a whole series of diachronic questions to be asked and answered. How did the contemporary system emerge? We know that something like pronoun postposing was in place relatively early in the Middle Irish period (Ahlqvist (1975/6), Breatnach (1994: 269–70)), but we also know that that system differed in important ways from the one we have described here. Subject pronouns, for instance, postposed freely. And we owe to Liam Breatnach the important observation that there is metrical evidence from the earliest period that postposed

<sup>32</sup> We noted above (in the discussion following (7)) that postposed pronouns show noticeable variation in length. It is very possible that this variation is a reflection of the well-known phenomenon of 'phrasal lengthening'—a temporal lengthening which is characteristic of the region around phrase-edges. See, for instance, Riggs and Byrd (2011) for a recent review and discussion.

pronouns could be accented. Furthermore, we know from scattered examples like (82):

- (82) nuair do chuaigh i dtalamh iad  
 when PAST go into ground them  
 'when they went into the ground'

GOG 12

(from a speaker born in County Clare around 1876), that postposing of subject pronouns is not entirely unknown in modern contexts.<sup>33</sup> It is at least conceivable that what was initially a syntactic displacement to clause-final position was later re-interpreted along the lines we have proposed here for the modern language.

Behind all these challenging questions lurks the biggest question of all: what is it to be a human language and how do we come to have it? About that question, the apparently innocent phenomenon of Pronoun Postposing has much to teach us.

<sup>33</sup> It would be wonderful to know if the pronoun in (82) was accented.

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## APPENDIX A: SOURCES OF EXAMPLES

The following are the sources from which attested examples have been cited.

AGMTS	<i>Ar Gach Maoilinn Tá Síocháin</i> , Pádraig Ó Cíobháin
AILT	<i>Saothar Sheosaimh Mhic Ghrianna, Cuid a Dó—Ailt</i> , edited by Nollaig Mac Congáil
AM	<i>An Mhiorbhailt</i> , C.B. Kelland, translated by Niall Mac Suibhne
AO	<i>Aistí Ó Chléire</i> , Donnchadh Ó Drisceoil
BCC	<i>Beatha Cholm Cille</i> , Séamas Ó Searcaigh
BP	<i>Bróga Páipéir</i> , Mícheál Breatnach, edited by Pádraic Breatnach
CLENS	<i>Cín Lae Eibhlín Ní Shúilleabháin</i> , edited by Máiréad Ní Loingsigh
CST	<i>An Chaint sa tSráidbhaile</i> , Breandán Ó hEithir
DC	<i>Don Cíochóta</i> , translated by An tAthair Peadar Ó Laoghaire
DD	<i>An Dochartach Duibhlionna</i> , Seosamh Mac Grianna
GAT	<i>Gabhla An tOileán</i> , Máirín Uí Fhearraigh
GOG	<i>Glórtha ón Ghorta: Béaloideas na Gaeilge agus an Gorta Mór</i> , edited by Cathal Póirtéir
LG	<i>Le Gealaigh</i> , Pádraig Ó Cíobháin
M	<i>Mise</i> , Colm Ó Gaora
MS	<i>Machnamh Seanmhná</i> , Peig Sayers
NGTTS	<i>Na Gabh Thar Tí Stiofáin</i> , Máire Uí Fhlatharta
OTA	<i>Ón tSeanam Anall, Scéalta Mhicí Bháin Uí Bheirn</i> , edited by Mícheál Mac Giolla Easbuic
PNG	<i>Pobal na Gaeltachta</i> , edited by Gearóid Ó Tuathaigh, Liam Lillis Ó Laoire and Seán Ua Súilleabháin
RNG	<i>Raidió na Gaeltachta</i>
S	<i>Séadna</i> , An tAthair Peadar Ua Laoghaire
SB	<i>Séidean Bruithne</i> , Joseph Conrad, translated by Seosamh Mac Grianna
SJSJ	<i>Seachrán Jeaic Sheáin Johnny</i> , Mícheál Ó Conghaile
U	<i>Unaga</i> , Ridgwell Cullum, translated by Eoghan Ó Neachtain

## APPENDIX B: DEATH NOTICES

The schemata below represent 114 broadcast announcements of the general form in (83):

- (83) Cuirfear amárach í i reilg Chill Bhriocáin th' éis Aifreann  
 bury [FUT-IMPERS] tomorrow her in churchyard after Mass  
 a haon a chlog.  
 one o'clock  
 'She will be buried tomorrow in Cill Bhriocáin churchyard after one o'clock Mass.'

All were broadcast on Raidió na Gaeltachta as part of their regular local news broadcasts and all are of the same general form; they begin with a verb in the autonomous (impersonal) form, and that is followed by a 3rd person pronominal object and a sequence of locative and temporal expressions (indicated by LOC and TEMP respectively below) in various orders.

The formulae listed below indicate for each such announcement (i) the date of broadcast in day-month-year format (ii) the dialect represented (G = Galway; D = Donegal; K = Kerry) (iii) the skeletal grammatical structure. With respect to the latter, the star \* indicates the position of the pronoun. Thus, the example in (83) would be represented as in (84):

- (84) V TEMP \* LOC TEMP
- |            |                        |            |                        |
|------------|------------------------|------------|------------------------|
| 28-05-99-G | V * TEMP LOC TEMP      | 10-06-99-G | V TEMP * LOC TEMP      |
| 13-05-99D  | V * TEMP TEMP          | 10-06-99-D | V TEMP * LOC           |
| 15-07-02-G | V * LOC TEMP           | 23-05-02-G | V TEMP * LOC TEMP      |
| 29-05-99-D | V * LOC TEMP LOC TEMP  | 14-06-99-G | V TEMP * TEMP LOC      |
| 13-05-99-D | V * TEMP TEMP          | 14-06-99G  | V TEMP * LOC TEMP      |
| 29-06-02-G | V * TEMP TEMP          | 23-05-02-G | V TEMP * LOC TEMP      |
| 28-05-99-D | V * TEMP TEMP LOC      | 26-06-02-D | V TEMP * TEMP LOC      |
| 12-05-99-G | V * LOC TEMP TEMP      | 14-06-99-G | V TEMP * TEMP LOC      |
| 12-05-99-G | V * TEMP TEMP          | 14-06-99-G | V TEMP * TEMP LOC      |
| 13-05-99-D | V * TEMP TEMP          | 14-06-99-G | V TEMP * TEMP LOC      |
| 13-05-99-D | V * TEMP TEMP          | 15-06-99-G | V TEMP * TEMP LOC      |
| 13-05-99-D | V * LOC TEMP           | 15-06-99-G | V TEMP * TEMP LOC      |
| 17-05-99-D | V * TEMP TEMP          | 15-06-99-G | V TEMP * TEMP LOC      |
| 08-05-99-D | V * LOC TEMP TEMP      | 15-06-99-G | V TEMP * TEMP LOC      |
| 08-05-99-D | V * TEMP TEMP          | 15-06-99-G | V TEMP * TEMP LOC      |
| 08-05-99-D | V * TEMP LOC           | 15-06-99-K | V LOC * TEMP TEMP      |
| 09-06-99-D | V * TEMP LOC TEMP      | 17-03-00-D | V TEMP * LOC           |
| 10-06-99-D | V * TEMP * TEMP        | 11-06-01-D | V LOC * TEMP           |
| 15-06-99-G | V * TEMP TEMP LOC      | 11-06-01-D | V LOC * TEMP           |
| 10-06-02-G | V * LOC TEMP TEMP      | 17-03-00-D | V TEMP * LOC TEMP      |
| 08-06-02-K | V * LOC TEMP TEMP      | 23-05-02-K | V TEMP * LOC TEMP TEMP |
| 12-05-99-G | V * LOC TEMP TEMP TEMP | 27-06-02-K | V TEMP * LOC TEMP      |
| 12-05-99-D | V * PP PP              | 27-06-02-K | V TEMP * LOC TEMP      |

17-05-99-D	V * TEMP LOC TEMP	27-06-02-D	V LOC * TEMP TEMP
04-05-99-D	V * LOC TEMP TEMP	27-06-02-D	V TEMP * TEMP LOC
04-06-99-D	V * LOC TEMP LOC TEMP	27-06-02-D	V LOC * TEMP
15-06-99-G	V * LOC TEMP	27-06-02-D	V TEMP * LOC
23-05-02-D	V * TEMP TEMP	15-07-02-D	V TEMP * TEMP LOC
29-06-02-G	V * LOC TEMP TEMP	13-05-99-G	V LOC * TEMP TEMP
28-05-99-D	V * TEMP LOC TEMP	10-06-99-K	V TEMP * LOC TEMP
17-05-99-G	V LOC * TEMP TEMP	19-05-99-G	V TEMP * LOC TEMP
08-05-99-K	V TEMP * LOC TEMP	02-06-99-G	V TEMP * LOC TEMP
04-05-99-G	V TEMP * LOC TEMP	04-05-99-K	V LOC * TEMP LOC
04-06-99-G	V TEMP * LOC TEMP	04-06-99-G	V TEMP * LOC TEMP
30-05-99-G	V TEMP * TEMP LOC	21-05-99-G	V TEMP * LOC TEMP
30-05-99-G	V TEMP * LOC TEMP	13-05-99-G	V TEMP * LOC TEMP
29-05-99-G	V TEMP * LOC TEMP	04-05-99-G	V TEMP * LOC TEMP
29-05-99-G	V TEMP * TEMP LOC	08-05-99-K	V LOC * TEMP TEMP
29-05-99-G	V TEMP * TEMP LOC	04-05-99-G	V TEMP * LOC TEMP
29-05-99-K	V LOC * TEMP TEMP	01-07-02-G	V LOC * TEMP
21-05-99-G	V TEMP * LOC TEMP	30-05-99-G	V TEMP * TEMP LOC
19-05-99-G	V TEMP * LOC TEMP	19-05-99-K	V LOC TEMP * TEMP
19-05-99-K	V LOC * TEMP TEMP	20-05-99-K	V LOC TEMP * TEMP
19-05-99-G	V TEMP * LOC TEMP	08-05-99-K	V LOC LOC * TEMP TEMP
19-05-99-G	V LOC * TEMP TEMP	04-06-99-G	V LOC TEMP * TEMP
19-05-99-K	V LOC * TEMP TEMP	28-05-99-G	V LOC LOC * TEMP TEMP
19-05-99-K	V LOC * TEMP TEMP	17-05-99-K	V LOC TEMP * TEMP
13-05-99-D	V LOC * TEMP	14-06-99-K	V LOC *
13-05-99-G	V TEMP * LOC TEMP	13-12-99-D	V LOC *
13-05-99-K	V LOC * TEMP TEMP	30-05-99-G	V LOC *
13-05-99-K	V LOC * TEMP TEMP	29-05-99-G	V LOC *
12-05-99-G	V TEMP * LOC TEMP	28-05-99-D	V LOC *
12-05-99-G	V TEMP * LOC TEMP	08-05-99-K	V LOC TEMP *
12-05-99-G	V TEMP * LOC TEMP	31-12-99-D	V LOC *
12-05-99-G	V TEMP * TEMP LOC	11-06-01-D	V LOC *
12-05-99-D	V LOC * TEMP	15-07-02-K	V TEMP TEMP LOC *
17-05-99-K	V LOC * TEMP TEMP	15-07-02-K	V LOC TEMP TEMP*