

WORD-LEVEL PHONOLOGICAL CONDITIONS ON LINEARIZATION*

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1. INTRODUCTION

It is an incontrovertible fact that phonological operations can make reference to syntactic structures. Phenomena such as nuclear stress, intonation, sandhi phenomena have all been shown to be sensitive to constituency, both surface and underlying (Selkirk 1984, 1986 and many others). What is more controversial are phenomena, such as heavy NP shift or focus movement (Szendrői 2003), where it appears as if the syntactic rule is referencing phonological information. Most putative instances have semantic or pragmatic correlates, so the directionality of the causation between syntax and phonology is unclear. Pullum and Zwicky (1988) proposed the principle of Phonology-Free Syntax, which drew the line in the sand against syntactic rules directly referencing the phonological properties of the clause.

In this short paper, I present some evidence from Scottish Gaelic of a phenomenon that seems to directly reference word level phonological properties of the words themselves: the phenomenon of weak pronoun postposing. David Adger (1997, 2007b) has written extensively on this topic, and shown that the phenomenon operates in the PF component. He has shown that the positioning of weak pronouns is sensitive to where the nuclear stress of the phrase is. His evidence (presented below) clearly demonstrates the existence of a syntactic phenomenon sensitive to prosody. However, his approach is open to an alternative syntactocentric view, whereby the pronoun post-posting is sensitive to precisely the syntactic configurations that give rise to nuclear stress, rather than to nuclear stress itself. In this paper, I add to the mix the fact that pronoun postposing Gaelic seems to be sensitive to not only syntactically derived nuclear stress, but to the syntax-blind and word-internal stress patterns of individual lexemes as well. This in turn points towards a principle of linearization that is truly phonologically dependent.

2. PRONOUN POST POSING IN SCOTTISH GAELIC

All the members of the Goidelic group have a productive pattern, where light object pronouns of a particular grade (taking the forms *e*, *i* and *'ad* in Scottish Gaelic, *é*, *í* and *(i)ad* in Irish, and *eh*, *ee* and *ad* in Manx), shift away from their base positions towards the end of the sentence. Full object NPs cannot do this (as seen in examples 1a-b), but it is the preferred order for pronominal objects (as in examples 1c-d).

1. a. Chuir Muriel *am ball* air a' bhòrd. **V S O PP**
Put.past Muriel the ball on the table
“Muriel put the ball on the table”

* The work here would have been impossible without the help of Muriel Fisher, a native speaker of Scottish Gaelic from Skye who has been working with me for the past year to develop a database of Scottish Gaelic sentence types. Mòran taing, a Mhuriel. Thanks also to David Adger and Heidi Harley for helpful discussion. This work has been supported by a grant from the US National Science Foundation (grant number BCS0639059).

b. *Chuir Muriel air a' bhòrd *am ball* *V S PP O

c. ?Chuir Muriel *e* air a' bhòrd. ?V S e PP
 Put.PAST Muriel 3SM on the table
 "Muriel put it on the table"

d. Chuir Muriel air a' bhòrd *e*. V S PP e

There have been a variety of theoretical approaches to this phenomenon. Chung and McCloskey (1989) propose that it is a rightward movement rule similar to Heavy NP shift. Duffield (1997) adopts an approach where the pronoun moves to a Wackernaglian second position clitic position, and then the clausal remnant shifts around it into a topic position. Adger (1997) provides extensive critique of these syntactic accounts, so I won't discuss them in detail here. But Duffield's account, in particular, suffers from the fact that pronouns don't postpose after embedded clauses, as would be expected with a remnant approach.

Adger (2007b) convincingly shows that the phenomenon -- in Gaelic -- at least is post-syntactic. It appears to have no semantic or pragmatic effects (however, cf. Mulkern 2011, who demonstrates real information structure effects in the cognate Irish construction). His argument works as follows: He claims that VP ellipsis is VP deletion in the PF component. Elements syntactically extracted from the VP survive ellipsis. It then follows that if pronoun postposing is syntactic, then the postposing pronoun should survive ellipsis. It does not (2), so postposing must also be postsyntactic.

2. a. Smaoinich mi gun do dh'fhàg [_{VP} mi mo leabhar] agus dh'fhàg [_{VP} mi e] aig an sgoil.
 Think.PAST 1s that past leave.PAST 1s 1s.POSS book and leave.PAST at the school
 'I thought I left my book and I had left it at school.' (Adger 2007) ... V [_{VP} S O] PP

b. *Smaoinich mi gun do dh'fhàg mi mo leabhar agus dh'fhàg [_{VP} mi t_i] aig an sgoil e_i.
 Think.PAST 1s that past leave.PAST 1s 1s.poss book and leave.past at the school 3sm
 'I thought I left my book and I had left it at school.' (Adger 2007) *... V [_{VP} S t_i] PP e_i

Adger (1997) bases his analysis of pronoun postposing on the placement of Nuclear Stress Rule:

3. Nuclear Stress in SG falls:

- a. on the main stress last word of the object DP, unless it is a pronoun
- b. if there is no object, then on the main stress of the final non-function word in the VP [Temporal adverbs like *today*, *yesterday*, *Monday* etc. behave as if they are VP internal for these purposes]

There is a technical implementation of this which references merge-based constituent structures, but that need not concern us here, except to note that nuclear stress is determined by referring to syntactic structure. The pronoun-postposing rule (again slightly paraphrased) that Adger proposes is given in (4)

4. Encliticize e-grade pronouns to the non-verb, non-subject word bearing

- i. Focal stress *or*
- ii. Nuclear stress

Variation in placement of the pronoun comes down to whether the pronoun is attached to the nuclear stressed item (5) or some focal-stressed item (6).

5. *Cliticized to nuclear stress*

Chunnaic Mòrag [ann an] Lunnainn [an +dè] *i* **V S PP Adv i**
 saw.past Mòrag [in] London [yesterday] 3sf.
 ‘Mòrag saw her in London yesterday.’ (Adger 1997)

6. *Cliticized to focal stress.*

Q. Càit' am faic Mòrag do mhàthair?
 where wh-C saw.past Morag 2s.poss mother
 ‘Where did Mòrag see your mother?’ (Adger 1997)

A. Chunnaic *i* [ann an] LUNNainn *i* [an dè]. **V S PP i Adv**
 saw.past 3sf [in] London 3sf [yesterday]
 ‘She saw her in London yesterday.’ (Adger 1997)

Elfner (2011) has a related OT analysis of Irish, where an ordering of a weak pronoun at the beginning of a prosodic constituent results in a violation of a prosodic constraint known as STRONGSTART, which is ranked above the LCA (see also López’s (2009) violable LCA), so pronouns prefer to encliticize to the end of final stress bearing prosodic constituents.

Both Elfner and Adger’s analyses are important in providing the central insight that stress bears a critical role in determining the position of these pronouns. However, note that the stress principles in question are all ones that refer to the syntactic structure itself. This lays their analyses open to the possibility that the pronoun shifting principles are actually simply sensitive to the same syntactic configurations that the phonological principles of nuclear stress are dependent upon¹. In the next section, I provide some evidence that Gaelic pronoun post-posing requires more phonological information than can be derived from syntactically determined prosody. In particular, I show that pronoun postposing in Gaelic is also sensitive to both the lexically determined syllable count and segmental structure of the words the pronouns attach to.

3. LEXICAL CONDITIONS ON PRONOUN POSTPOSING

Linguists often suffer from the conceit that they consciously understand the nature of linguistic structures far better than the native speakers they are working with. Even the most experienced fieldworkers, tempered by years of dealing with prescriptive nonsense in their classrooms, are tempted to dismiss analytic insights from their native speaker consultants as folk myths or half-formed naïve generalizations. This is, alas, a mistake I think; linguists who do so, do it at their peril. In the case of pronoun postposing, while working with my native speaker, Muriel Fisher -- a speaker from the village of Glendale on the tip of the Duirinish Peninsula on Skye – I was dismissive of her characterization of the placement of these pronouns. On one occasion she said, “It’s the rhythm of the balance of the sentence that determines how we’re going to say it.” On another, she said, “It’s affected by the particular words you’re using and the way that they sound.” Coming into this with my preconceived

¹ One might object that Adger’s argument from VP ellipsis does not suffer from this complaint, but note that it critically relies on the assumption of PF deletion rather than other common approaches to VP ellipsis, such as LF-copying of the VP.

notions of the organization of the grammar, I was at least inwardly (and possibly outwardly) dismissive of these insights. But I have come to believe that they are correct. The placement of Gaelic pronouns is not only sensitive to principles of nuclear and focal stress as observed by Adger, but also to the internal phonological properties of the host words themselves. If this is true, then the phenomenon can't be covertly syntactic, but must really be determined by the phonology.

All else being equal, the postposing process appears to be optional. Speakers will accept (and generate) both of the sentences in (7). When asked to choose, they'll express a preference for (7b), but most speakers characterize both as "fine".

7. a. Thug Muriel *e* do Phòl. **V S e PP**
 Give.PAST Muriel 3SM to Paul
 "Muriel give it to Paul"
- b. Thug Muriel do Phòl *e* **V S PP e**

However, the phenomenon appears to become obligatory if failure to move would create an iambic structure as in (8):

8. $\begin{matrix} & & & & x \\ & & & (x & x) \\ a. & *Thug & Muriel & e & dha & Dihaoine & & *V S e PP Adv \\ & Give.past & Muriel & 3sm & to3sm & Friday \\ & "Muriel gave it to him on Friday" \end{matrix}$
- b. $\begin{matrix} & & & & x \\ & & & (x & x) \\ b. & Thug & Muriel & dha & e & Dihaoine & & V S PP e Adv \end{matrix}$

The obligatoriness of this shift is surprising under either syntactic accounts or Adger's account, where (8a) would be predicted to be as acceptable as (7a).

The picture becomes more complicated when we look at cases where pronoun postposing is blocked, even when the movement would attach the pronoun to a nuclear or focal stressed host. This happens when, for example, the focalized or nuclear stressed element is an underlying trochee or dactyl. In (9a), we have focal stress on the medial syllable of the word *Dihaoine* "Friday". When the object is changed to a weak pronoun, the preferred position is in situ (9b) rather than in the predicted post-focal stress position in (9c). The only situation in which the postposed pronoun is preferred is when the final vowel of adverb is deleted. The resulting form ends in a trochee, which we will see appears to be the preferred pattern more generally.

9. $\begin{matrix} & & & & & & & & x \\ & & & & & & & (x & x) \\ a. & Phòg & Muriel & Pòl & DiHAOIne \\ & Kiss.past & Muriel & Paul & Friday \\ & "Muriel Kissed Paul on Friday" \end{matrix}$
- b. Phòg Muriel *e* Dihaoine **V S e Adv**

- c. *Phòg Muriel Dihaoine e *V S Adv e
 d. ?Phòg Muriel Dihaoin' e ?V S Adv e

In (10 a-c) we see that an unshifted order is preferred to one where postposing would result in attaching the pronoun to an already existing polysyllable, like the adverb *cùramach*. By contrast, the shifted order is preferred when attaching to a stressed monosyllable (11 a-c), like the adverb *tric*. In this circumstance again, we are creating a trochaic foot by postposing. Finally, given the choice between attaching to a polysyllable or a monosyllable, the monosyllable is always preferred, no matter what position it appears in, as seen in (12). In each case it's the word internal phonological structure of the clitic host that determines whether the pronoun can attach or not.

10. a. Leugh Bob an leabhar gu cùramach
 Read.PAST Bob the book ADV careful
 "Bob read the book carefully"
- b. Leugh Bob e gu cùramach V S e Adv
 c. ?Leugh Bob gu cùramach e ?V S Adv e
11. a. Leugh Bob an leabhar gu tric
 Read.PAST Bob the book ADV frequent
 "Bob read the book frequently"
- d. ?Leugh Bob e gu tric ?V S e Adv
 e. Leugh Bob gu tric e V S Adv e
- 12.a. ?Chic Muriel e gu cùramach gu Pòl ?V S e Adv PP
 kick.PAST Muriel 3SM ADV careful to Paul
 "Muriel kicked it to Paul carefully"
- b. Chic Muriel gu cùramach gu Pòl e V S Adv PP e
 c. ?Chic Muriel gu cùramach e gu Pòl (?V S Adv e PP
- d. ?Chic Muriel e gu Pòl gu cùramach ?V S e PP Adv
 Kick.past Muriel 3sm to Paul 3sm adv careful
 "Muriel kicked it to Paul carefully"
- e. Chic Muriel gu Pòl e gu cùramach V S PP e Adv
 f. ?Chic Muriel gu Pòl gu cùramach e ?V S PP Adv e

Stress and syllable count aren't the only phonological constraints that limit the position of postposed pronouns. Scottish Gaelic generally disprefers sequences of identical vowels across morpheme boundaries. When underlying pronominal position creates such sequences, pronoun postposing seems to be obligatory (13). If the movement would create such a sequence, either that order is dispreferred (14), or the final vowel of the host is deleted (see 9d above).

13. a. ?Bhris e e leis. ?V S e PP²
 Break.PAST 3SM 3SM with.3SM
 "he broke it with it"
- b. Bhris e leis e V S PP e
- c. ?Chuir Muriel e air a' bhòrd ?V S e PP
 Put Muriel 3SM on the table
 "Muriel put the ball on the table"
- d. Chuir Muriel air a' bhòrd e V S PP e
14. a. Dh'fhàgar e 'na laighe air an làr V S e AP PP
 past'give.IMPERS 3SM in.3SM.POSS lie.VN on the ground
 "It was left lying on the ground."
- b. *Dh'fhàgar 'na laighe e air an làr *V S AP e PP
- c. Dh'fhàgar 'na laighe air an làr e V S AP PP e

Finally the phonological properties of the pronoun itself determine whether it can be shifted or not. Orthographically there are three pronouns that shift in Scottish Gaelic (e, i, and iad). The last of these is trochaic already (/i.ət/). When it is in this fully footed form, it does not shift. When it postposes, it must take the reduced monosyllabic form 'ad (/ət/).

15. a. Dh'inns i iad do Sheumais
 PAST'say 3SF 3PL to James
 "She said them to James."
- b. Dh'inns i do Sheumais 'ad

4. CONCLUSIONS

What is clear then, is that not only are syntactically determined nuclear and focal stress patterns critical to understanding pronoun postposing but phonological properties of the lexical items themselves play a role. This means that the potential objection to Adger's analysis such that the phenomenon is covertly syntactic falls apart. The phenomenon really has to be phonological in nature and consequently principles of linearization must apply reasonably late in the derivation, and be flexible enough to include phonological conditioning like those described above.

² Note however this similar paradigm where a VV sequence appears to be ok:

- a. Bhris e e leis an ord
 break.PAST 3SM 3SM with the hammer
 "He broke the chair with the hammer"
- b. Bhris e leis an ord e

While the (b) example is preferred to the (a) example here, the (a) example did not receive the negative response that (13a) elicited in my native speaker. This may have to do with the fact that the PP here is a full phrase rather than an inflected preposition. The correct analysis of this subtlety eludes me.

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