

REVIEW ARTICLES

Resonance elements in phonology: a study in Munster Irish. Eugeniusz Cyran. PASE Studies and Monographs 3, Wydawnictwo Folium, Lublin, 1997. 232 pp.

Element interactions in phonology: a study in Connemara Irish. Anna Bloch-Rozmej. Redakcja Wydawnictw Katolickiego Uniwersytetu Lubelskiego, Lublin, 1998. 281 pp.

Both of the books discussed in this review are analyses of Irish dialects couched within a theory of phonology known as Government Phonology.¹ In some respects, Bloch-Rozmej (henceforth BR) seems almost to be a sequel to Cyran (henceforth C), as BR takes the analyses of C and applies them to data from a different dialect, using facts of Cois Fhairge Irish to test the hypotheses C made on the basis of Munster Irish data, and expanding and adapting those hypotheses on the basis of the enlarged data set provided by Cois Fhairge.² Both books are published versions of the authors' respective doctoral dissertations from the Catholic University of Lublin.

Background: Government Phonology

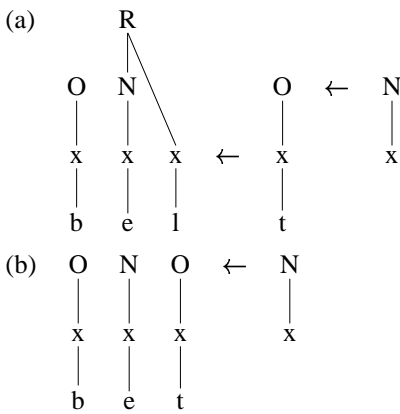
Government Phonology (GP), the theoretical basis for both dissertations, was first proposed in Kaye, Lowenstamm and Vergnaud (1985) and has been further advocated in Harris (1990, 1994); Kaye (1990); Kaye, Lowenstamm and Vergnaud (1990); Charette (1991); Gussmann (1992) and other works. In the interest of full disclosure I must reveal that I am not a practitioner of Government Phonology myself.

I will briefly outline the basic principles of GP as described in C and BR, as this will be necessary to a complete understanding of the discussion which follows. Segments (consonants and vowels) are incorporated into Onsets (in the case of consonants) and Nuclei (in the case of vowels). Onsets and Nuclei systematically alternate, with every onset being followed by a nucleus and every nucleus being preceded by an onset. Both Onsets and Nuclei may optionally be binarily branching, resulting

¹My thanks to Máire Ní Chiosáin for her comments and to Próinséas Ní Chatháin, Ailín Ní Chonchúir, Aoife Ní Chonchúir, Meidhbhín Ní Úrdail and Roibeárd Ó hÚrdail for providing additional data from Munster Irish for this review.

²In this review I have cited Irish words from a variety of sources. For the sake of uniformity, I have silently altered phonetic transcriptions to conform to the system used by Cyran and Bloch-Rozmej. BR is using the name 'Connemara' in the broad sense, to include the region of Cois Fhairge, as her primary sources are de Bhaldraithe (1945) and (1953) and Ó Siadhail (1988).

in complex onsets like *br*, *gl*, etc., or in long vowels or diphthongs in the case of branching nuclei. Both Onsets and Nuclei may also optionally be empty, so that, for example, vowel-initial words are viewed as beginning with an empty onset, and consonant-final words are viewed as ending with an empty nucleus. Under certain circumstances, the Nucleus may be part of a branching Rhyme, in which case the Nucleus is followed by a consonant conventionally called the coda (although GP does not acknowledge Coda as a constituent *per se*; in the GP tradition such a consonant is said to be in the ‘rhymal complement position’). For example, C (p. 19) gives the following as the structures of the English words *belt* and *bet*:

(1) *belt/bet*

(←) licensing/governing relation

The various parts of these structures — the segments, the Onsets and the Nuclei — stand in a complicated system of government and licensing, two terms which, unfortunately, neither author ever satisfactorily defines. Both authors assume that their readers are already familiar with the concepts of government and licensing, and so while they give plenty of examples of both, the precise definitions of the two terms (and for that matter, the precise difference between them) is never explicitly stated. There is, further, a stronger kind of government known as proper government, which C (p. 17) defines thus:

(2) Proper government (definition)

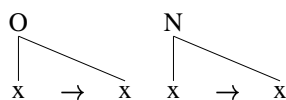
- α properly governs β if
- α and β are adjacent on the relevant projection
- α is not itself licensed
- no governing domain separates α and β

But without a definition of what it means for α to be licensed; without a definition of ‘governing domain’; and without an explanation of why the third proviso is not redundant (after all, if α and β are adjacent on

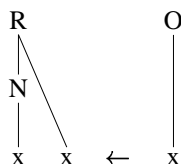
the ‘relevant projection’, how could a governing domain, whatever that may be, separate them anyway?), this ‘definition’ of proper government is quite useless. (As we see below, the definition becomes meaningful once examples are given, but one cannot be blamed for wishing it could have stood on its own.)

Whatever the precise definition of the terms is, the end result is this: certain segments govern their immediate neighbours. By theorem, government within a constituent is left to right, while government between constituents is right to left. The heads (i.e. the elements that do the governing) are underlined in the representation below:

(3) (a) Constituent Government



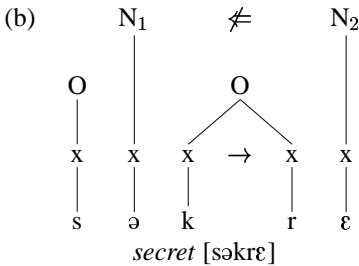
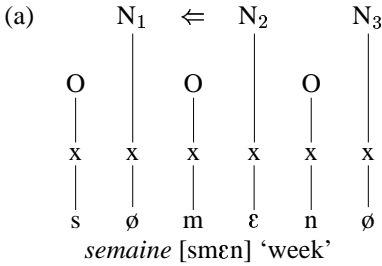
(b) Interconstituent Government



Licensing appears to be a special kind of government. In general, Nuclei license preceding Onsets while Onsets license preceding rhymal complements (e.g. in (1), the *t* licenses the *l* in *belt*). By theorem, one position within a domain remains unlicensed, namely the head; nuclei are heads of their domains and therefore remain unlicensed.

In spite of the inadequate definition of proper government given above, examination of the examples given by the authors allows us to draw the following conclusion: a Nucleus position may be empty if the next Nucleus to the right contains phonetic material, and if the onset intervening between the two does not branch. Now the definition of proper government given in (2) makes sense: the nucleus to the right is the head of its domain, therefore it is not licensed (granted, licensing still has not been defined, but at least we are now in a position to recognise it when we see it), a branching onset is a governing domain (because the first consonant governs the second one), and N_1 and N_2 are adjacent on the tier of Nuclei even though they are separated at the segmental level by an intervening Onset. Under these circumstances, the first (empty) nucleus is said to be properly governed by the second nucleus. BR (p. 25) takes the following French example from Charette (1990). In (4) (a), N_1 is properly governed by N_2 , so that N_1 can remain empty. In (4) (b), on the other hand, a branching onset intervenes between N_1 and N_2 , blocking proper government, with the result that N_1 must contain phonetic content.

(4) Proper government (illustration)



(⇐) Proper government

(≠) No proper government

(→) Government (making a governing domain)

The other major aspect of Government Phonology is the theory that segments are made up not of distinctive features (as championed by Chomsky and Halle (1968) and the majority of phonologists ever since) but rather by phonological elements which correspond to various phonetic articulations. For example, the three vocalic elements are A (which correlates with pharyngeality and lowness), I (which correlates with palatality) and U (which correlates with labiality). Taken by themselves, these elements represent the corner vowels [a], [i] and [u] respectively. They may also combine to form other vowels; thus, (A.I) stands for [e] and (A.U) stands for [o]. When a vowel contains more than one element, the elements are not assumed to be equal; rather, one is marked as the head and the other(s) as the operator(s). For example, the structure of [e] is (A.I) (with I as head and A as operator), while the structure of [æ] is (A.I) (with A as head and I as operator). The head element exerts greater influence, thus I-headed [e] is more front and less low than A-headed [æ]. Languages that permit U and I to occur together have front rounded vowels: [i̞] is (U.I) and [ö] is (A.U.I) (it is not clear to me which element is the head in these constructions). Languages that lack front rounded vowels, such as English and Irish, do not allow U and I to co-occur. As for consonants, they involve at least the following elements:

(5) Consonant Elements

Element	Property
R	coronal gesture
ʔ	occlusion (constriction)
h	noise
N	nasality
H	stiff vocal cords (high tone; voicelessness)
L	slack vocal cords (low tone; voicing)

The vowel features A, I and U can also be found in consonants: A is present in coronal consonants, I in palatal consonants and U in labial consonants. In addition, there may be an element @ that marks velar-ity. Used by itself, @ corresponds to the vowel [ə]; it is also found in velar consonants. BR argues in favour of @, while C argues against it, saying that segments otherwise assumed to be headed by @ are in fact unheaded. (For example, while BR would give lax [ɪ] as (I.@), C would give it as (I._), where I is an operator and there is no head. C also assumes that velar consonants have no element indicating their place of articulation.) Both authors further assume that in Irish, I is the element associated with palatalised ('slender') consonants and U is associated with velarised ('broad') consonants. In my opinion, the latter claim is untenable.

As mentioned above, the element U is associated with labiality — lip rounding or a labial gesture. Both C and BR justify their use of U to identify Irish velarised consonants by claiming that such consonants are labialised: C says 'Velarised consonants show heavy labialisation when they occur before front vowels' (p. 29), and BR says 'it should be borne in mind that velarised consonants are characterised by a labial off-glide, which by itself suggests the presence of the element U' (p. 58). These statements are, however, untrue. According to the phonetic descriptions of the dialects in question (de Bhaldraithe (1945) for Cois Fhairrge, Sjoestedt (1931) and Ó Cuív (1944) for Munster), as well as the phonetic study of Sutton (1993) and discussions I have had with native speakers, only the velarised *labials* are labialised (i.e. have lip rounding) before front vowels, thus I have heard from native speakers *buí* [b^wi:] 'yellow', *faoileann* [f^wi:l'ən] 'seagull', etc. The velarised coronals and dorsals have an *unrounded* velar off-glide before front vowels, thus *tú* [t^ui:] 'thatch, straw'; *daoine* [d^ui:n'ə] 'people'; *caoin* [k^ui:n'] 'smooth'; *gú* [g^ui:] 'prayer'. In other words, the velar off-glide becomes labialised after labial consonants, but not otherwise.³

³C may have been misled by Sjoestedt's practice of transcribing the broad velars as [k^w g^w] before front vowels (e.g. [k^wid'] *cuid* 'part'; [g^we:h] *gaoth* 'wind', etc.). Apparently this transcription was used only because the symbol [ɪ] representing an unrounded velar glide had not been invented yet in the 1930s. In her discussion of the broad velars, Sjoestedt (1931: 19) says, 'Il faut cependant noter que les lèvres ne sont pas arrondies, et que le *glide* que nous notons *w* est de caractère purement vélaire, non labial. Les gutturales vélaire du parler ne sont à aucun degré des labio-vélaire.'

Another problem with using U to mark velarisation is that since [o] is found in velarised contexts, the labialising element U must be present in that vowel. This is not a difficulty for C, as [o] is (at least slightly) rounded in Munster, but de Bhaldraithe (1945: 14) describes the [o] of Cois Fhairrge as having neutral lip position. Therefore BR must assume the presence of U in what is, in fact, an unrounded vowel. Furthermore, low vowels found in the environment of broad consonants ([ɑ] and [ɑ:] in West Munster, [ɑ:] and [ɑ:] in Cois Fhairrge) are not rounded.⁴

Without @, GP has no element that correlates with unrounded backness; that is to say, it has no element which on its own represents the high back unrounded vowel [ɯ]. (In fact, I do not see how any combination of the elements A, I and U can give the back unrounded vowels [ɯ] and [ɤ] at all.) Perhaps a compromise between the pro-@ and the anti-@ camps could be struck by allowing @ to stand for [ɯ] rather than [ə]. @ could then also be present in velar consonants, which would eliminate some of the problems that result from the anti-@ camp's assertion that velar consonants get their place of articulation by default rather than by the presence of a velar element. (More on this below.) The anti-@ camp's arguments that lax vowels like [ɪ ɛ ʊ ə] are headless and that [ə] has no elemental content could remain intact under the new approach. Thus, the tense mid back unrounded vowel [ɤ] could be represented as (@.A) and its lax counterpart [ʌ] as (@.A._). And using @ rather than U to mark velarised consonants in Irish would eliminate the incorrect prediction that velarised consonants and the vowels in contact with them are always rounded. All this must remain speculation on my part, however, as I do not have space to explore this issue in depth. Instead, I turn now to the two works being reviewed and discuss some of the major problems I found in each individually.

Cyran

C is divided into four chapters. Chapter 1, 'Issues in Government Phonology', is an introduction to the basics of GP, as discussed above. Chapter 2, 'Short vowels: consonant-vowel interaction', deals with the well-known phenomenon in Irish that the front or back quality of short vowels in Irish is dependent on the palatalised or velarised quality of adjacent consonants (cf. Ó Siadhail and Wigger 1975: 80 ff., Ó Siadhail 1989: 35 ff., Ní Chiosáin 1991, 1994). Chapter 3, 'Long vowels: diagnostic contexts for phonological structures', discusses the structure of long vowels (and diphthongs) within the GP framework, paying particular attention to the difference between long vowels and diphthongs that alternate with short vowels (e.g. [gaun/gan'ə] *gann/gainne* 'scarce/gen. sg.:',⁵ [ba:r/barə] *barr/barra* 'top/pl.')

⁴According to Breatnach (1947: 12) the long [ɑ:] of County Waterford (East Munster) is rounded, but this is not a dialect analysed by C.

⁵This is from C p. 110. According to Ó Cuív (1947: 103), however, the form is [gin'ə].

‘smooth/pl.’; [b̥a:n/b̥a:nə] *bán/bána* ‘white/pl.’). Finally, chapter 4, ‘Consonants: resonance element interaction’, deals with the internal structure of consonants, particularly [s] and [r], which pose interesting problems to the element-based approach to segmental phonology. In the comments that follow, I focus on a couple of points from chapters 2 and 4.

Chapter 2 deals with short vowels and under what circumstances they surface as front [i e a] or back [u o ɑ]. C correctly points out (p. 35) that only the back vowels may appear between two velarised consonants, e.g. [muk] *muc* ‘pig’, [sop] *sop* ‘wisp’, [kat] *cat* ‘cat’. He also points out (loc. cit.) that only front vowels may appear between two palatalised consonants, e.g. [f’ir’] *fir* ‘men’, [t’ep’] *teip* ‘fail’, but he incorrectly states, in the table on p. 38 and again on pp. 60–61, that [a] is prohibited between two palatalised consonants. Sjoestedt (1931: 75) lists a number of words with [a] in precisely this environment: [k’af’t’] *ceaist* ‘block of rock’, [g’at’ər’ə] *geaitire* ‘bundle of firewood’, [g’ar’əd’] *geairid* ‘near’, [f’ar’i:n’] *feairín* ‘man (dim.)’; [b’an’i:n’] *beainín* ‘woman (dim.)’. Ó Cuív (1944: 17) adds [b’ag’in’it’] *beaignit* ‘bayonet’ and [m’ag’] *meaig* ‘magpie’ to the list. This oversight is particularly unfortunate in view of C’s later analysis of the [a ~ e] alternation in words like [sp’al/sp’el’ə] *speal/speile* ‘scythe/gen. sg.’, where he says, on pp. 60–61, that the [e] quality is simply a phonetic effect of the vowel [a] finding itself between two palatalised consonants. It is true that there are no words with [a] before a velarised consonant that retain [a] when the following consonant is palatalised by inflectional morphology: [a] is always raised either to [e] (as in *speile*) or to [i] (as in [f’ar/f’ir’] *fear/fir* ‘man/pl.’). But [a] can be retained before a consonant palatalised by the diminutive suffix *-ín*, which is derivational, e.g. [k’ark/k’ar’k’i:n’] *cearc/ceaircín* ‘hen/dim.’; [f’ar/f’ar’i:n’] *fear/feairín* ‘man/dim.’; [b’an/b’an’i:n’] *bean/beainín* ‘woman/dim.’ (Doyle 1992: 118).

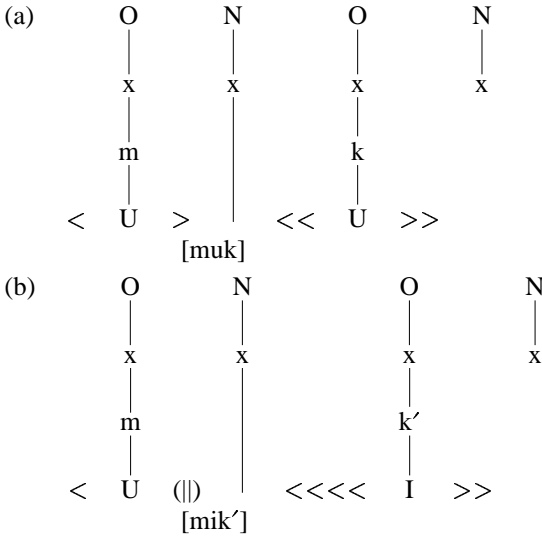
As for short vowels between consonants of different qualities, C indicates, in the table on p. 38, a prohibition on [e], [a] and [u] in the environment C_C’ and a prohibition on [e] and [a] in the environment C’_C. These prohibitions are true only of the low vowels, however: [u] occurs in free variation with [i] before a palatalised consonant in [kud’ ~ kid’] *cuid* ‘portion’ and [kuk’ ~ kik’] *cuic* ‘goffering iron’ (Ó Cuív 1944: 103). Furthermore, [e] occurs in C_C’ in [sev’ir’] *saibhír* ‘rich’, [sehəg’] *soithigh* ‘vessel’ (gen.) and [rev’] *raibh* ‘was (dep.)’ (Sjoestedt 1931: 74; Ó Cuív 1944: 17) and stands in free variation with [o] in [krek’ən ~ krok’ən] *croiceann* ‘skin’ and [deŋ’əs ~ doŋ’əs] *doimhneas* ‘depth’ (Ó Cuív 1944: 103). [e] also occurs in C’_C in the future and conditional tenses of the verb ‘to be’, e.g. [b’ed] *bead* ‘I will be’, [b’em] *beam* ‘we will be’, [v’ex] *bheadh* ‘would be’, etc. (Sjoestedt 1931: 74; Ó Cuív 1944: 101). Indeed, the near-minimal pair [v’ex]

bheadh: [v'og] *bheag* 'small' (lenited form) casts doubt on any analysis that assumes short [e] and [o] are in fully complementary distribution.

C's analysis of the vowel alternations seen in pairs like [muk/mik'] *muc/muic* 'pig/dat.', [sop/sip'] *sop/soip* 'wisp/gen. sg.', [f'ar/f'ir'] *fear/fir* 'man/gen. sg.', [obir'/eb'ir'ə] *obair/oibre* 'work/gen. sg.', [d'as/d'ejə] *deas/deise* 'nice/gen. sg. fem.' is basically this: in the derived forms, the element I spreads from the palatalised consonant onto the preceding vowel, with concomitant suppression of the elements U or A, or both. Sometimes, there is no spreading of I to the nucleus and therefore no vowel change, e.g. [kos/koj] *cos/cois* 'leg/dat.', [kat/kat'] *cat/cait* 'cat/gen.'.

A straightforward case of element spreading is illustrated by the forms *muc* and *muic* in (6) (taken from C p. 50). Here, the element I spreads from the [k'] of *muic* onto the preceding vowel, blocking the U that is present on the [m].

(6) *muc/muic*



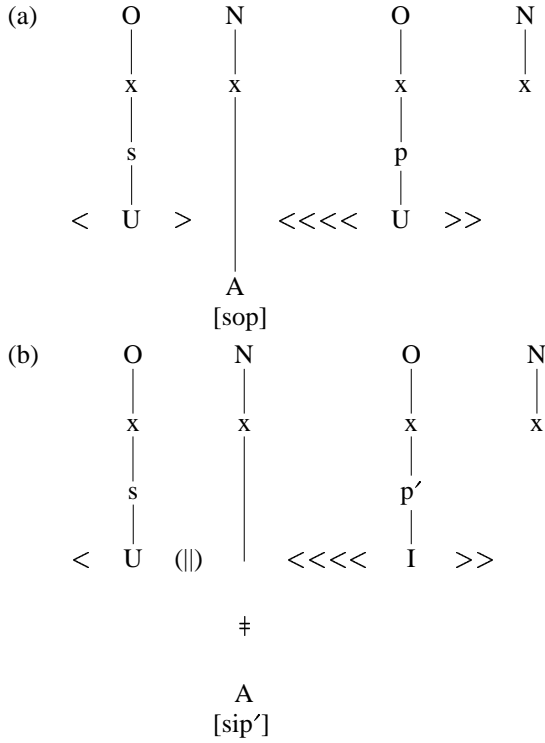
(<< >>) Non-directional sharing of an element

(<<) Spreading of an element

(||) Buffer (blocks spreading)

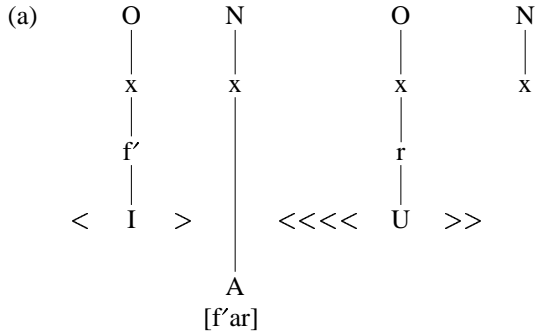
In cases where there is a height alternation as well, as in *sop/soip* and *fear/fir*, spreading of I from the last consonant induces deletion of the A element from the nucleus, as shown in (7)–(8).

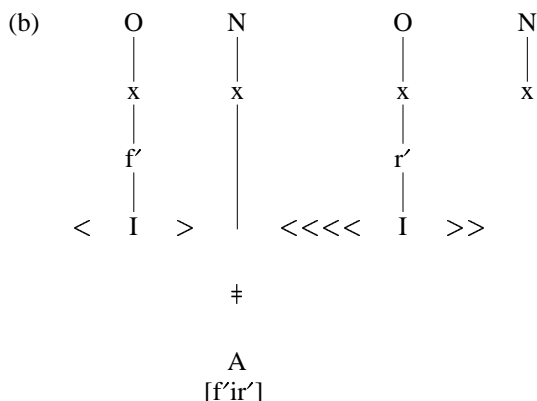
(7) *sop/soip*



(+) Element suppression

(8) *fear/fir*

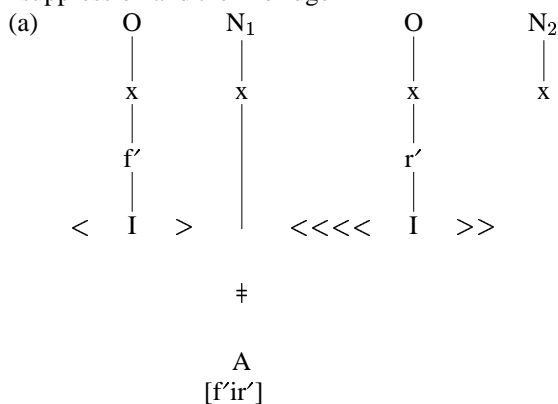


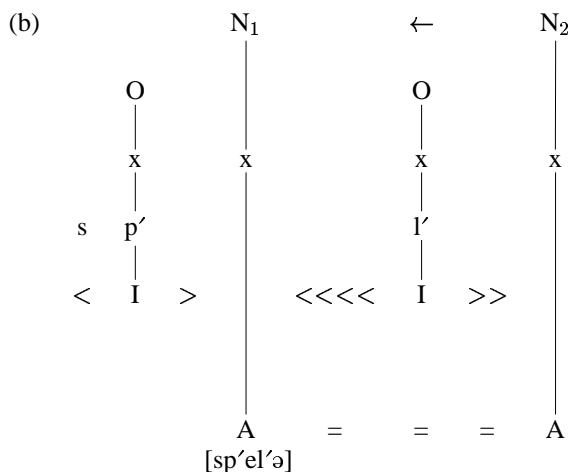


Up to this point, C's analysis works all right as far as it goes, although the argumentation seems to me to be weakly motivated, and the analysis of the difference between those [o]'s and [a]'s that alternate in Irish (*sop/soip*, *fear/fir*) and those that do not (*cos/cois*, *cat/cait*) (namely, the non-alternating ones are headed by A while the alternating ones contain A only as an operator) does not satisfactorily explain why alternating and non-alternating [o] are phonetically identical, or why only [a] after a palatalised consonant alternates with [e] or [i], while [a] after a velarised consonant does not alternate.

Furthermore, C's section (pp. 56–62) on the difference between [a/e] alternation of the type found in *speal/speile* and [a/i] alternation of the type found in *fear/fir* is marred by serious oversights in the data. Briefly, his analysis is this: where the second nucleus (N₂) of the word is empty, the A in the first nucleus (N₁) is suppressed, but where N₂ contains phonetic material (which C assumes to be A in spite of the fact that the vowel is [ə] rather than [a]), the A of N₂ forms a 'bridge' with the A of N₁, allowing the latter to remain. A-suppression in [f'ir'] is illustrated in (9), and the A bridge in [sp'el'ə] is illustrated in (9).

(9) A-suppression and the A bridge





(←) Governing relation

(= = =) Bridge

(<< >>) Sharing

C is aware of one exception to this generalisation, namely [k'ir'k'ə] *circe* 'hen' (gen. sg.), where the A of N₁ is delinked in spite of the [ə] in N₂. C attributes this to the governing domain [r'k'] which blocks the construction of the A bridge (cf. the blocking of proper government by a governing domain seen above in (4)).

There are two major problems with this analysis. First of all, the [e] vowel in (9) (b) must be headed by A rather than I, because of the A bridge, in spite of the fact that [e] is conventionally treated as I-headed in GP, the A-headed vowel (A,I) being a low front [æ] or [a]. C (pp. 60–61) approaches this problem by calling [e] a phonetic effect of having an A-headed vowel between two palatalised consonants; he supports this view with the observation that [a] does not occur between palatalised consonants. But, as we have seen above, [a] does in fact occur between palatalised consonants in words like *ceaist*, *geaitire*, *geairid*, *feairín*, *beainín*, *beaignit*, *meaig* and *ceaircín*.

The second major problem with the analysis is that it is simply not true that every [a] (orthographic *ea*) becomes [i] upon palatalisation of the following consonant when there is no vowel after that consonant, or that every [a] becomes [e] when there is a vowel after the consonant. In other words, the data set C uses to base his arguments on is incomplete. That data set is listed in (10) (taken from C p. 56; I have excluded the [o/i] alternations).

(10) [a/e] and [a/i] alternations

- | | | | |
|-----|------------------|---------------------|----------------------|
| (a) | [sp'al/sp'el'ə] | <i>speal/speile</i> | 'scythe/gen. sg.' |
| | [d'as/d'e]ə] | <i>deas/deise</i> | 'nice/cpv.' |
| | [l'ak/l'ek'ə] | <i>leac/leice</i> | 'flagstone/gen. sg.' |
| | [n'ad/n'ed'ə] | <i>nead/neide</i> | 'nest/gen. sg.' |
| (b) | [f'ar/f'ir'] | <i>fear/fir</i> | 'man/gen. sg.' |
| | [k'ark/k'ir'k'ə] | <i>cearc/circe</i> | 'hen/gen. sg.' |

C gets these data from Ó Siadhail (1989: 38). On the very same page, however, Ó Siadhail points out that in Munster, *dise*, *lice* and *nide* are used, rather than *deise*, *leice* and *neide*. Other similar examples include [g'al/g'il'ə] *geal/gile* 'bright/cpv.', [m'ar/m'ir'ə] *mear/mire* 'quick/cpv.', [s'an/s'in'ə] *sean/sine* 'old/cpv.'. Thus [a] can alternate with [i] when [ə] is added even when there is no governing domain intervening. Nor does the presence of a governing domain always imply alternation of [a] with [i] rather than [e]: [g'alt/g'el't'ə] *gealt/geilte* 'lunatic/gen.', [t'ark/t'er'k'ə] *tearc/teirce* 'scarce/cpv.'. Finally, there are cases where [a] alternates with [e] even in monosyllabic forms, mostly involving the (now obsolescent) dative case of feminine *ā*-stems: [b'r'ab/b'r'eb'] *breab/breib* 'bribe/dat.', [p'r'ab/p'r'eb'] *preab/preib* 'bounce/dat.', [d'as/d'e] *deas/deis* 'right/dat. sg. fem.', *gealt/geilt* [g'alt/g'el't'] 'lunatic/dat.', *speal/speil* [sp'al/sp'el'] 'scythe/dat.'. Further data that must be considered are [ʃaləg/ʃel'əg'ə/ʃel'əg'] *sealg/seilge/seilg* 'hunt/gen./dat.' and [f'arəg/f'er'əg'ə/f'er'əg'] *fearg/feirge/feirg* 'anger/gen./dat.' (Sjoestedt-Jonval 1938: 29). Here, the underlying /lg/ and /rg/ clusters are broken up with an epenthetic vowel. It is not clear whether C would consider these sequences to be governing domains or not, since he does not discuss epenthesis sites in Irish but, either way, his analysis falsely predicts the datives to be **silg* and **firg*. (See below for a discussion of epenthesis in both books.) If the /lg/ and /rg/ sequences are governing domains, his analysis also falsely predicts the genitives to be **silge* and **firge*.

In the light of all of these counterexamples it is difficult to believe that C's analysis is on the right track. It seems far more likely to me that vowel alternations of the type discussed here are determined morphologically, not phonologically, a possibility C does not explore. In other words, alternations like [n'ad/n'id'ə] *nead/nide* 'nest/gen.' beside [f'ad/f'ed'ə] *fead/feide* 'whistle/gen.' are phonologically just as unpredictable as alternations like English *sing/sang* and *swim/swam* beside *swing/swung* (rather than **swang* in the past tense), and so should probably be accounted for in the same way: the information concerning vowel alternation is recorded lexically with the root rather than being derivable by phonological process.

Chapter 4 deals with the internal structure of consonants. As mentioned above, C falls into the anti-@ camp of Government Phonologists

and thus views velar consonants as being headless, while consonants at other places of articulation are headed by one of the elements A, I or U, as illustrated in (11) (taken from C pp. 191, 193; note that C uses [χ] to stand for a velar, rather than a uvular, fricative).

(11) Headlessness of Velars

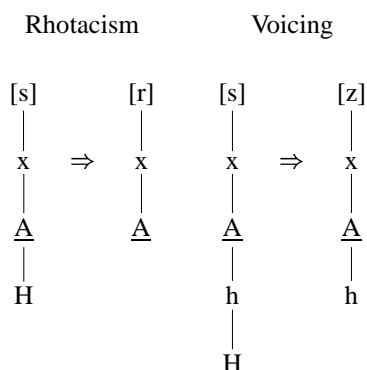
[f]	[s]	[ʃ]	[χ]	[p]	[t]	[k]
x	x	x	x	x	x	x
<u>U</u>	<u>A</u>	<u>I</u>		<u>U</u>	<u>A</u>	
H	H	H	H	?	?	?
				H	H	H

This proposal would seem to imply that velars are less marked than labials or coronals; this is an unlikely conclusion given the mass of evidence implicating coronal as the least marked place of articulation (cf. for example the articles collected in Paradis and Prunet 1991). Furthermore, it is a principle of GP that branching onsets consist of a more complex segment (i.e. one that contains more elements) followed by a simpler segment (i.e. one that contains fewer elements). Since liquids contain fewer elements than obstruents — they lack the ? which is characteristic of stops, the h usually associated with fricatives (but absent from the fricatives in (11): see below) and the voicing elements H (voiceless) and L (voiced) — it follows that branching onsets generally consist of an obstruent followed by a liquid. However, if velars are also simpler than labials and coronals, as implied by the structures in (11), we should expect to see branching onsets like [fχ- ʃχ- pk- tk-], which is patently not the case in Irish, or indeed in most languages that otherwise tolerate branching onsets. In fact, in the cross-linguistically rare event of an onset consisting of two obstruents⁶, the second is usually coronal, not velar (e.g. Attic Greek onset clusters [pt- kt- ps- ks-]: Steriade 1982: 214 ff.). This problem does not arise in the version of GP that includes the element @. Another proposal that C makes in chapter 4 is that fricatives in Irish do not include the element h (which correlates with ‘noise’), the element usually used in languages to contrast fricatives with approximants. As C points out (pp. 150, 190), the glides [w] and [j] in Irish are not separate phonemes from the fricatives [v] and [j], and both broad [r] and slender [r′] have fricative allophones in Munster (C. p. 181; Sommerfelt 1927: 214; Sjoestedt 1931: 44–6; Ó Cuív 1944: 49–50). For this reason, C proposes that h is not necessary in Irish. He discusses two consequences of this proposal, neither of which seems valid to me.

⁶I abstract away from *s* + stop clusters which are not regarded as branching onsets in GP (cf. Kaye 1996).

First of all, if [s] is regarded as containing h, then loss of H (high tone, i.e. voicelessness) will result in [z], whereas if [s] does not contain h, then loss of H will result in [r]. This is illustrated in (12) (from C p. 192).

(12) Loss of H from [s]



Now, it is certainly true that a number of languages exhibit rhotacism of [s] to [r], e.g. Latin. But C's claim (p. 192) that 'Clearly, Irish, which has no 'h' in the representation of [s] potentially belongs to a group of languages where rhotacism would be expected, should the process of 'H'-deletion be operative in this language' is untenable. Irish *does* have a process of H-deletion, namely the initial consonant mutation eclipsis, which changes [p] to [b], [t] to [d], [k] to [g], and [f] to [v]. (Eclipsis also adds nasality to vowels and voiced stops, but that is irrelevant here.) Now, in most dialects of Irish [s] does not undergo any change in eclipsis environments. But in a few dialects, it does, and when it does, it becomes [z], not [r] (Ó Siadhail 1989: 114). This would seem to indicate that h is in fact a necessary component of [s] at least in those dialects (including that of Clear Island, a Munster dialect) that have eclipsis of [s] to [z]. Furthermore, in West Muskerry, a phoneme /z/ is marginally present in the loan words [po:zi:] *pósaí* 'posey' and [ro:z] *rós* 'rose' (the latter having the plural [ro:ʒ]); [z] is also found in [mu:z'gri:] *Músgrai* 'Muskerry', where it is probably due to voicing assimilation (Ó Cuív 1944: 41–2).

A second consequence of the absence of h from Irish is the supposed lack of affricates in the language. According to traditional GP assumptions, stops include the occlusion element ʔ, fricatives include the noise element h, and affricates include both. Obviously, a language that does not employ h will not have affricates, and C claims (p. 196) that this is true of Irish. It is not. Even if we abstract away from the loan words and expressive words in Irish that have [tʃ] and [dʒ] (e.g. [batʃil'e:r] *baitsiléar* 'bachelor', [g'a:tʃi:] *geáitsí* 'antics', [sta:tʃə] *stáitse* 'stage' from Ó Cuív 1944: 45; [dʒo:k] 'joke', [dʒʌdʒ] 'judge', [dʒam] 'jam',

[sa:sedʒ] ‘sausage’, [matʃ] ‘match’, [spˈrˠo:tʃa:lʲ] *spreoitseáil* ‘hacking, chopping’, [alfratʃ] *alfraits* ‘scoundrel’ from Sjoestedt 1931: 50), the fact remains that in some dialects of Irish slender [tʲ] and [dʲ] are often affricated to [tʃ dʒ]. Mostly the dialects in question are northern ones (e.g. Counties Mayo and Donegal, cf. Wagner 1959, Mhac an Fhailigh 1968, de Búrca 1970, Stockman 1974), but Holmer (1962: 34–5) reports affrication also in Clare, which is a Munster dialect. So, if h is necessary anyway for affrication in northern dialects and Clare, and throughout Munster for loan words, and in the one variety of Munster that shows eclipsis of [s] to [z], it seems likely that h is generally present in all varieties of Irish. BR also argues against C’s analysis of Irish as h-less in her chapter 5 (p. 209).

Bloch-Rozmej

BR is divided into five chapters. Chapter 1, ‘Theoretical framework’, is an introduction to GP as discussed above. Chapter 2, ‘Element interactions in vocalic expression’, deals with basically the same alternations in short vowels as discussed in chapter 2 of C. Chapter 3, ‘Opaque segments’, examines the segments [r] and [h], which interact anomalously with the elements responsible for palatalisation and velarisation. Chapter 4, ‘Element transmission and long vowels in Irish’, deals with the structure of alternating and non-alternating long vowels, in a way that is similar to chapter 3 of C. Finally, chapter 5, ‘Element licensing in consonant segments’, examines such issues as word-initial empty onsets, the structure of [s] (cf. chapter 4 of C), affricates and ‘nasal lenition’ (i.e. the change of [n] to [r] after stops). In the following remarks I confine myself to a few problems I encountered. Frequently, BR gives lists of Irish words illustrating some point without saying where she got these words from and this makes independent confirmation of the data virtually impossible.

To move on to more specific criticisms: in chapter 3, BR discusses the Irish rhotics at length, but makes some very odd claims about their phonetics. First of all, on p. 74 she states, ‘the word-initial [r] ... is neither palatalised nor velarised’, a suggestion that was made by C (p. 180) as well. But de Bhaldraithe’s (1945: 42) description of the sound seems to indicate unambiguously that word-initial [r] is velarised: ‘It has the resonance of a half-open retracted ə-vowel when it occurs initially before a front vowel, otherwise it has the normal resonance of velars.’ (By ‘velars’ de Bhaldraithe means ‘velarised consonants’, and their normal resonance is that ‘of a vowel in the area of an open u’ (1945: 24).) While ‘the resonance of a half-open retracted ə-vowel’ may not be as high as that of ‘an open u’, it is still back and therefore qualifies as velarisation in my opinion. BR also suggests (p. 76) that ‘the palatalised variant of [r] is pronounced as a spirant, whereas the non-palatalised (mainly velarised) one [is pronounced] as a flap’. As mentioned above, Sommerfelt (1927: 214), Sjoestedt (1931: 44–6) and Ó Cuív (1944: 49–50)

report fricative (= spirant) allophones of both broad [r] and slender [r'] in Munster, but de Bhaldraithe says nothing about [r'] being spirantised in Cois Fhairrge. His description of [r'] is: 'The tip of the tongue makes one tap against the front part of the teeth-ridge. The sound strikes the ear as being somewhat similar to a short voiced palatalised alveolar plosive. When in final position, the contact is released slowly so that very slight affrication is heard' (de Bhaldraithe 1945: 41). Slight affrication in word-final position is not the same thing as spirantisation in all environments, so BR's statement that Cois Fhairrge [r'] is spirantised is unjustified.

In chapter 4, BR discusses long vowels and diphthongs. Her analysis of the long low front vowels [a:] and [æ:] is misguided, however. For example, on p. 121 she attributes the long vowel in [a:səL] *asal* 'donkey' to 'open syllable lengthening'. On p. 122 she attributes the long vowels in [ba:n't] *baint* 'taking, reaping', [ka:n't] *caint* 'talking' and [a:mplə] *ampla* 'hunger' to the same lengthening of vowels before nasal + stop sequences seen in [ku:nde:] *condae* 'county', [ʃi:mpli:] *simplí* 'simple', [u:mpə'r] *iompair* 'carry' and [i:ŋ'g'r'i:] *ingne* 'nails'. On pp. 127–8 she attributes the long vowels in [N'æ:rt] *neart* 'many' and [æ:m'fər] *aimsir* 'weather' to the same lengthening before sonorant + obstruent sequences seen in [i:m'fən't] *insint* 'tell', [baurd] *bord* 'table', [(s)pail'fɛ:r]⁷ *(s)poilséar* 'pilchard' and [b'ɑ:rənə] *bearna* 'gap'. Finally, on p. 136 she quotes Ó Siadhail (1989: 59): 'In Connemara any /a/ which remains after syllable lengthening, irrespective of the context, now becomes long' and adds herself (pp. 136–7), 'Thus, the change of [a] to [a:] is context-independent, which can be interpreted as being in fact phonetic.'

In other words, Cois Fhairrge [a:] (and [æ:]) are long only for phonetic reasons (presumably relating to the high sonority of low vowels; even in English the vowel of *hat* is longer than the vowel of *hit*). Any low vowel which has been lengthened by a phonological process surfaces in Cois Fhairrge as back [ɑ:] (for example, the vowel of [b'ɑ:rənə] mentioned above, or the words cited on BR p. 133, viz. [ɑ:gLəʃ] *eaglais* 'church', [f'r'ɑ:grə] *freagra* 'answer', [mɑ:dri:] *madraí* 'dogs', [pɑ:d'r'i:n] *paidrín* 'rosary'). Therefore, we must conclude that there is no phonological process of 'open syllable lengthening' in Irish: the first vowel of [a:səL] is long purely for phonetic reasons, just as in [k'æ:s] *ceas* 'heaviness after eating' and [ʃæ:xt] *seacht* 'seven' (de Bhaldraithe 1945: 12–13). Likewise, the vowels of [ba:n't], [ka:n't], [a:mplə], [N'æ:rt] and [æ:m'fər] have not been phonologically lengthened at all, and any adequate analysis would have to explain the *lack* of lengthening in these words.

⁷BR's transcription [(s)pail'fɛ:r] is a typographical error. Ó Siadhail (1989: 51) gives [-ɛ:r]

So, BR's book contains many instances where the facts of the phonetics and phonology of the dialect under investigation appear to be misunderstood or misrepresented, and that makes the entire analysis suspect. And, as mentioned above, her failure to consistently cite sources for data is unacceptable.

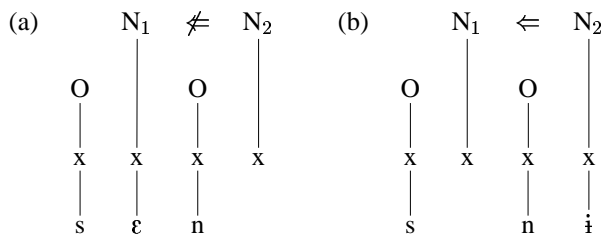
Epenthesis

Above, I briefly alluded to the fact that neither of the books under review discusses epenthesis in Irish. Obviously no single work can tackle every issue in the phonology of a language, but this particular omission is remarkable because of the high profile in the literature of the facts of epenthesis in all dialects of Irish. In my view, the reason why the authors have not dealt with epenthesis is because it cannot be accounted for within the theoretical framework of Government Phonology. Irish epenthesis has been analysed outside GP by Ní Chiosáin (1991, 1999) and Green (1997).

Within the GP framework, epenthetic vowels, and vowel/zero alternations in general, are treated in terms of proper government: properly governed nuclei without underlying phonetic content remain empty. If such nuclei are not properly governed, however, they must be pronounced on the surface; the usual pronunciation is a default vowel (traditionally called an epenthetic vowel). We saw one example of this above in (4), where the nucleus between the [s] and [m] of French [smɛn] *semaine* 'week' is empty because it is properly governed by the following [ɛ], while the nucleus between the [s] and the [k] of French [sɔkrɛ] *secret* 'secret' is filled because the governing domain [kr] blocks proper government from the [ɛ].

Another example comes from Polish [sɛn/snɨ] *sen/sny* 'dream/pl.', as discussed by C (p. 17). In [sɛn], N₁ is not properly governed by N₂ because N₂ is empty; therefore N₁ must be filled. In [snɨ], however, N₂ is filled and properly governs N₁, which in turn remains empty. This is illustrated in (13).

(13) Vowel/zero alternation as a result of proper government



(≠) No proper government

(⇐) Proper government

So, how would epenthesis in Irish be accounted for in Government Phonology? First of all, let us review the data. In Irish, an epenthetic

vowel is inserted after a coronal sonorant (*r*, *l*, *n*) before a non-coronal voiced stop, a non-coronal fricative, or a nasal. Some examples (from Ní Chiosáin 1999: 560–561) are listed in (14).

(14) Epenthesis in Irish

[bɔrəb]	<i>borb</i>	‘abrupt’
[d’arəməd]	<i>dearmad</i>	‘mistake’
[ʃaləv]	<i>sealbh</i>	‘possession’
[tuləχəχ]	<i>tulchach</i>	‘hilly’
[b’in’əb’]	<i>binb</i>	‘venom’
[ʃer’əv’i:]]	<i>seirbhís</i>	‘service’
[donəχə]	<i>Donnchadh</i>	(name)
[m’anəmə]	<i>meanma</i>	‘mind’
[dɔrən]	<i>dorn</i>	‘fist’

There is no epenthesis before a voiceless stop (15), or after a long vowel or diphthong (16):

(15) No epenthesis before a voiceless stop (Ní Chiosáin: 1999: 561)

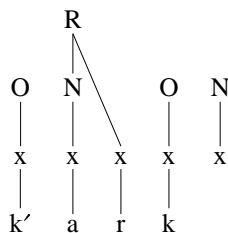
[kir’p’əχ]	<i>coirpeach</i>	‘criminal’
[k’ark]	<i>cearc</i>	‘hen’
[spalp]	<i>spalp</i>	‘burst forth’
[kil’k’ə]	<i>cuilce</i>	‘quilt’

(16) No epenthesis after a long vowel or diphthong (Ní Chiosáin 1999: 565)

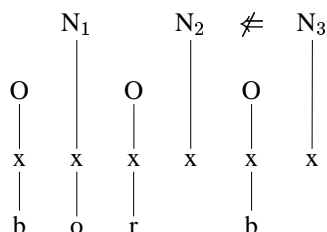
[far’b’r’ə]	<i>fáirbre</i>	‘wrinkle’
[t’e:rmə]	<i>téarma</i>	‘term’
[l’e:rgəs]	<i>léargas</i>	‘insight’
[duəlgəs]	<i>dualgas</i>	‘duty’

The first problem any GP-based analysis will encounter is that sonorant-obstruent sequences are almost invariably analysed with the sonorant as a rhymal complement immediately followed by the obstruent as onset: see the structure of English *belt* above in (1), for example, or the structure of *cearc* ‘hen’ given by C on p. 66:

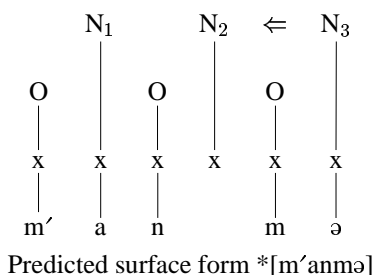
(17) [rk] as rhymal complement + onset



If a word like [borəb] *borb* has the same underlying structure as *cearc*, the epenthesis will have no motivation since there is no empty nucleus between the [r] and the [b]. We could, of course, break with GP tradition and give the underlying structure of *borb* as shown in (18).

(18) *Borb*

In this case, N₃, being empty, will fail to properly govern N₂ (as shown by the symbol ≠), so N₂ will be forced to surface with phonetic content: [borəb] is correctly predicted. Unfortunately for this approach, however, epenthesis happens even when the following nucleus is filled, e.g. in [m'anəmə] *meanma*. In this case, N₃ should properly govern N₂, so that epenthesis is incorrectly predicted to fail.⁸

(19) *Meanma*

Perhaps a dedicated GP practitioner could find a solution to this dilemma but, given the state of the theory as it is presented in C and BR, I do not see how this could be done. The problem of epenthesis in Irish appears intractable within the confines of the Government Phonology framework, which in my opinion reveals a serious, perhaps fatal, flaw in the theory.

To end on a positive note, GP's approach to internal segmental organisation with elements rather than with distinctive features does lead to some positive results. For example, as mentioned above, the vowel

⁸Although the vowel in N₃ is [ə], we know that this vowel is present underlyingly because it surfaces phonetically in word-final position. As both C and BR point out, Irish (by parameter) licenses word-final empty nuclei, allowing words to surface with final consonants. The fact that [m'anəmə] surfaces with a final vowel means that vowel must be underlying.

[e] is interpreted as consisting of the two elements A and I. This view allows for a much clearer account of the [iə ~ e:] alternation in Irish (e.g. [g'ɾ'ian/g'ɾ'en'ə] *grian/gréine* 'sun/gen.') than would an analysis that assumes (following Chomsky and Halle 1968) that [e] contains the features [–high, –low]. Both C (pp. 117 ff.) and BR (pp. 155 ff.) make full use of this advantage of their theoretical framework.

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ANTONY DUBACH GREEN

University of Potsdam