The vowel /ə:/ *ao* in Gaelic dialects

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Abstract

This paper examines the development of the Old Irish diphthongs */ai/, */oi/, */ui/ in later varieties of the Gaelic languages. These are generally accepted to have merged as a single phoneme by the end of the Old Irish period (c. 900). In all modern varieties the regular reflex of this phoneme is a long monophthong, represented orthographically as <ao>. There are three main developments: (a) in southern Irish <ao> has merged with /e:/ and/or /i:/; (b) in southern Scottish and Manx varieties <ao> remains a mid-central vowel, may be fairly fronted and may perhaps have weak rounding; and there is merger between /ə:/ representing <ao> and reflexes of earlier */aɣ/; (c) in northern Scottish and northern Irish varieties <ao> is realized as a high back unrounded vowel /ɯ:/, which is contrastive with mid back unrounded /ɤ:/ representing earlier */aɣ/ (these may merge with /i:/ and /e:/ in Ulster). Building on suggestions of earlier scholars, it is argued that it is the developments of */ə:/ are explained by its anomalous position in the phonological system of earlier varieties of Gaelic, and its interactions with the palatalization contrast of the consonant system.

1   Introduction

This paper examines the development of the Old Irish diphthongs */ai/, */oi/, */ui/ in later varieties of the Gaelic languages. These are thought to have merged as a single phoneme by the end of the Old Irish period (c. 900; Greene 1976: 40). In all modern varieties the reflex of this phoneme is a long monophthong. It is generally assumed that the old diphthong was monophthongized to a central long vowel something like */ə:/ in the Middle Irish period (c. 900–1200) (O'Rahilly 1932: 31, Shaw 1971, Breatnach 1994: 233, McCone 1994: 92, 1996, Ó Maolalaigh 1997: 191), later (from the fifteenth century and in the contemporary Irish and Scottish orthographies) represented orthographically as <ao> (McManus 1994: 349), and <aoi> before palatalized consonants.

We shall also look at reflexes of Old Irish short vowel + fricative sequences */að/, */aɣ/, which in some varieties also become a long central or back vowel[1] which interacts with, and may merge with, the reflexes of {ao}. From now on we shall refer to the sets containing these units by their modern Irish and Scottish orthographic representations {ao} and {agh} (the latter understood to include {adh}). It should be noted that the latter can also include reflexes of historical */eð, eɣ, oð, oɣ/, possibly via /aɣ/ (Ó Maolalaigh 1997: 340), but this detail will not be discussed further here.

In modern varieties three main developments of {ao} and {agh} can be discerned:

(a) In southern Irish (Connacht and Munster) varieties {ao} has merged with /eː/ and/or /iː/, while {agh} is usually a diphthong /əi/.

(b) In southern Scottish dialects and Manx {ao} remains a mid central vowel, may be fairly fronted and may perhaps have weak rounding. Mergers with /eː/ and/or /iː/ are reported from certain speakers in Arran and Kintyre, and there is a tendency towards similar mergers in Late Manx. {agh} is also realized as /ə:/ and thus merges with {ao}.

(c) In Ulster and northern Scottish varieties {ao} is realized as a high back unrounded vowel /ɯː/, which is contrastive with mid back unrounded /ɤː/ representing {agh}. In Ulster both these have tended to front and merge with /iː/ and /eː/ respectively, apparently fairly recently, but in northern Scotland they generally remain robustly distinct.

In this paper, the following principal claims are made:

(a) The loss of a distinct phoneme */ə:/ in southern Irish varieties is related to the phonemicization of a palatalization contrast in onset consonants, since the phonemic contrast between the vowels /C[ʲ]eː : Cə:/ could in most positions be reanalysed as a phonemic contrast between preceding consonants /Cʲeː : Ceː/

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[1] Specifically, in stressed preconsonantal environments only in Scottish Gaelic, e.g. *adhradh* 'worship' /ɤːrəɣ/, and also in stressed prevocalic position in Ulster Irish, e.g. *adharc* 'horn' /ɤːrk/, Scottish /ɤ.ərk/. Elsewhere in Scottish Gaelic */aɣ/ may become short /ɤ/ followed by hiatus, as in the latter example, or retain the fricative as in /ɤɣ/ as in *lagh* 'law' /lˠɤɣ/, or in unstressed position /əɣ/ as in the second syllable of /ɤːrəɣ/.

(b) The maintenance of /əː/ in northern dialects may be related to the less advanced development of this palatalization contrast in Scottish and Manx varieties.

(c) The earlier monophthongization of */əi/ to /əː/ around the end of the Old Irish period may also be related to the consonant system, if the second element of the diphthong was reanalysed as part of the transition to the following palatalized or non-palatalized / velarized consonant.

(d) The raising of /əː/ to /ɯː/ in northern Scotland and Ulster is related to the development of the vowel-consonant sequence /aɣ/ > [ɤɣ] to a back unrounded vowel /ɤː/, which would have introduced a typologically disfavoured three-way backness contrast /eː əː ɤː/.

(e) This is resolved by raising to /ɯː/ in northern Scotland and Ulster and by merger of historical /əː/ and the reflex of /aɣ/ in southern Scotland and the Isle of Man.

(f) A claim for a similar relationship between {ao} and {agh} in southern Irish dialects is considered and rejected.

(g) Various factors, including dialect contact and the existence of a palatalization contrast in onset labials in Ulster Irish (but not Manx or Scottish Gaelic), are suggested to explain the (fairly recent) mergers /ɯː/ > /iː/ and /ɤː/ > /eː/.

(h) The disputed question of the existence of front rounded vowels in southern Scottish varieties is considered, and it is argued that if such rounding exists, it may be a sporadic optional modification to avoid merger with /iː/ or /eː/.

(i) It is claimed that the above considerations offer a more plausible explanation of the developments of {ao} than a supposition that the merger of Old Irish /ai/, /oi/, /ui/ produced different proximate results in different dialects.

It should be noted that only changes in the long vowel system are considered in detail here, although Scottish dialects also show the development of parallel short back unrounded vowels via processes which may or may not be related to the long vowel developments. Short vowels in Gaelic have been observed to be more diachronically unstable and prone to assimilation to the consonantal environment (Ó Maolalaigh 1997: 2–3),

and thus behave quite differently to the long vowels. The long vowels tend to be more stable, although as we shall see, the development of /ə:/ does appear to be closely related to developments in the consonant system.

2   Old and Middle Irish

It is generally accepted that Classical Old Irish had a system of five long vowels (Thurneysen 1946: 35, McCone 1994: 91, Ó Maolalaigh 1997: 23); see fig. 1. Apart from the {ao} and {agh} vowels discussed here, this system is mostly retained today, although in Scotland there is the addition of a mid-high / mid-low contrast in both the front and the back vowels.[2]

iː   uː
eː   oː
        aː

Figure 1: Classical Old Irish long vowel inventory

Monophthongization of the Old Irish diphthongs */ai, oi, ui/, via a merger as *?/əi/, would lead to the addition of a sixth vowel, /ə:/ (fig. 2).

iː   uː
eː   əː   oː
        aː

Figure 2: Late Old Irish / Middle Irish long vowel inventory

The exact quality of this vowel is uncertain, but it seems likely that it was front central, given that it tends to merge with /eː/ or /iː/ but not the back vowels,[3] and that in the conservative area of southern Scotland where the system survives, this vowel apparently has a tendency to be fronted.

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[2] Early Old Irish also had a mid-high / mid-low contrast (McCone 1994: 85–91, 1996: 124, 134), but this is apparently unrelated to the later Scottish system. Early Old Irish /e:/ gives Classical Old Irish /ia/; Early Old Irish /o:/ gives Classical Old Irish /ua/. Early Old Irish /ɛː, ɔː/, which arise originally from compensatory lengthening in e. g. *cét* /kɛːd/, Scottish Gaelic *céad* 'hundred', survive, symbolized as /eː, oː/ in fig. 1; this new /eː/ in turn frequently breaks to /ia/ in Munster Irish, northern Scottish Gaelic and Manx.
[3] Note also the interchange of *é* and *ao* in initial position and after initial *f*, *t*, *s*, which is found generally in Scottish Gaelic (and apparently Manx) in certain items (Ó Maolalaigh 1997: 226), and must date from a period when /eː/ and /ə:/ were phonetically similar.

3 Southern Irish developments and height variation

The merger of /əː/ with /eː/ or /iː/ in southern Irish seems to be long-established, going back to Middle Irish (900–1200) on the basis of orthographic evidence (O'Rahilly 1932: 31–35, Breatnach 1994: 233, McCone 1996: 142).[4] There is also internal evidence that the merger occurred before the loss of word-internal voiced velar fricative /ɣ/ (Ó Murchú 1989) in items such as *saoghal > saol* 'lifetime, world', which does not participate in the vowel alternation we are about to examine (giving nominative /seːl/, genitive /seːlʲ/).

In Munster /eː/ is regularly found before non-palatalized consonants and /iː/ before palatalized ones (Ua Súilleabháin 1994: 483), giving rise to morphological alternations such as:

(1)   a.   *caol*   /keːl/   'narrow' (nominative)

      b.   *caoil*   /kiːlʲ/   'narrow' (genitive)

This suggests earlier allophonic variation between realizations of /əː/. The central vowel would have been unconstrained by neighbours in the height dimension, but merged into the two separate phonemes /iː/ and /eː/.

(2)   a.   OIr *cáel*, ModIr *caol* /kail/ > /kəːl/ > /k[əː]l/ > /keːl/

      b.   OIr *caíl*, ModIr *caoil* /kailʲ/ > /kəːlʲ/> /k[ə̣ː]lʲ/ > /kiːlʲ/

Where there are similar mergers in Arran and Kintyre in south-west Scotland, earlier allophonic variation in height also results in merger with /iː/ or /eː/ (O'Rahilly 1932: 33), although here adjacent nasality seems to be the conditioning factor, as in the items *naomh* 'saint', *maoth* 'tender', *maoin* 'wealth', *naoi* 'nine'. A wide range of height variation is attested for the {ao} and {agh} vowel in the Argyll dialect of Colonsay:

> This phoneme [/ʏ/] is characterised by being fronted and rounded… it is the only rounded front vowel phoneme found in the Colonsay dialect. In the S[cottish] G[aelic] D[ialect] S[urvey] results, its articulation on the 'vertical' scale varies quite widely over the range represented by the phonetic symbols [y ʏ ø], with several modified forms… Allophones are difficult to establish: despite the very wide range covered by this phoneme, it is hard to pin down precise phonetic

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[4] Breatnach (1994: 233) and McCone (1996: 142) note Middle Irish spellings such as *ébind* for *oíbinn* 'pleasant', modern *aoibhinn*, *fēbair* for *fáebair* 'sharp edges', modern *faobhar*.

environments in which one form is preferred over another. In fact there seems to be a surprisingly large amount of free variation in the realisation of this phoneme.

(Scouller 2017: 107, 110)

4   Interaction with the phonologization of onset palatalization

It should be noted that the development /əː/ > /eː, iː/ in southern Irish does not necessarily represent much of a phonetic change, as /kiːl/ or /keːl/ is still produced with a retracted vowel with on- and off-glides (cf. Ní Chiosáin & Padgett 2012). Rather, there has been a phonological reanalysis, probably motivated by the consonant system of Gaelic which has the result that /əː/ could rarely contrast with /iː/ and /eː/, especially in Irish, i.e. historical /əː/ can only be preceded by a non-palatalized consonant and historical /iː/ and /eː/ only by palatalized consonants. This would have the result that the contrast could be interpreted as consonantal only, with differing vowel qualities taken to be allophonic.

Palatalization of initial consonants was originally allophonic, until certain vowel changes[5] from the Middle Irish period onwards led to transphonologization of the palatalization contrast in this position (McCone 1994: 86, 1996: 140–141, Ó Maolalaigh 1997: 66).[6] It is likely, therefore, that the seemingly early loss of phonemic /əː/ in southern Irish can be dated to this period. Only in vowel initial position could the potentially contrast be maintained, e.g. *aois* : *éisc* : *íseal*, but even here there are frequent proclitics such as the definite article which vary in palatalization

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[5] For example, /e/ (Old Irish *e*, modern Irish and Scottish Gaelic *ea*) in the environment /C_C/ was raised to /a/ (almost universally in Irish, and in many lexical items in Scottish Gaelic and Manx) (Ó Maolalaigh 1997: 242–258, 277–283), producing contrasts between /CʲaC/ and /CaC/, the latter representing historical Old Irish *a*. There is some orthographic evidence for this and other similar vowel changes in Middle Irish texts (McCone 1996: 141).

[6] This does suppose a period where phonemic palatalization was found in codas but not in onsets, which violates the cross-linguistic observation that palatalization is preferred in onsets, and is predicted only to appear in other positions if it is found in onsets (Kochetov 2002, Ní Chiosáin & Padgett 2012: 174–175). Another possible counterexample is modern Romanian, which has contrastive palatalization in codas only encoding among other things a plural morpheme (cf. Gaelic *cat* 'cat', *cait* 'cats' etc.). The typological observation should perhaps be interpreted as a weaker generalization that once a language has contrastive palatalization, it is more likely to neutralize it in codas than in onsets, but development of palatalization in codas prior to extension to onsets is not excluded. Indeed, given that apocope is more likely to be implicated in the phonologization of such contrasts than changes at the left edge of the word, this may be usual diachronically.

according to the following etymological vowel in the same way as initial consonants:

(3) a. *an aois* */ənˠ əːʃ/   'the age' (nominative)

   b. *an éisc* */əɲ eːʃkʲ/   'the fish' (genitive)

This is less the case in Scottish and Manx Gaelic, where the majority view is that there is no synchronic palatalization in labials (Jackson 1955: 66, Ó Maolalaigh 1997: 43, Ternes 2006: 27–31). According to Ó Maolalaigh (1997: 64–71), this may be a conservative feature, i. e. palatalization never developed on labials, at least in initial position, rather than having disappeared as previously assumed. The result is that there is a greater number of potential contrasts where vowel quality alone can distinguish lexical items:

(4) Southern[7] Scottish Gaelic

   a. *maoth* /məː/ 'gentle'

   b. *mèath*, *méith* /mɛː/ or /meː/ 'plump'

   c. *mì* /miː/ 'I, me' (stressed)

5 Monophthongization of Late Old Irish /əi/ > /əː/

The earlier monophthongization of Old Irish */ai, oi/ to */əː/ can also be explained with reference to palatalization: */əi/ could be reanalysed as */əː/ plus a glide associated with a following palatalized or velarized consonant.

(5) OIr *caíl*, ModIr *caoil* /kailʲ/ > /kəilʲ/ > [kəːi̯lʲ] > /kəːlʲ/ (> /kiːlʲ/)

The only position in which the original diphthongal realization could be retained was in a handful of items with absolute final /oi/, /ui/ in Old

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[7] Southern Scottish Gaelic examples are given because the realization of *ao* in these dialects is believed to be closer to the situation from which mergers have taken place in southern Irish, and because in northern varieties *mèath* would be realized with diphthongization /mia/ (cf. the spelling *miath* attested eighteen times in the online corpus *Corpas na Gàidhlig*, <http://dasg.ac.uk/corpus/>). Note also that vowel nasalization is ignored in these examples, and that *th* (Old Irish /θ/, modern Gaelic /h/) is silent after long vowels in word-final position in Scottish Gaelic.

Irish, which retain the final glide in present-day Scottish Gaelic, as in *naoi* 'nine' /nˠɯj/, Old Irish *noí*; *saoi* 'sage' /sɯj/, Old Irish *suí*; *draoi* 'druid' /drɯj/, Old Irish *druí*. Reanalysis of this final glide as consonantal rather than part of a diphthong is shown by variant spellings such as *naoidh* etc.

It has been claimed that sporadic monophthongization of /ai/ > /aː/ etc. had occurred in certain items, environments or dialects even before the Old Irish period, as shown by the by-forms surviving in modern dialects *fáilte* 'welcome' and *faoilte* 'relief', *faolchú*, *fálchú* 'wolf-dog' (Marstrander 1916: 349, Sommerfelt 1923: 70), or variants *taoiseach*, *tóiseach* and *túiseach* 'chieftain' (Ó Maolalaigh 2008: 213–214), Old Irish *toísech*.

6   Ulster and northern Scottish development of /ɯː/ and /ɤː/

Jackson (1952: 91, 1955: 47), Ó Maolalaigh (1997: 193) both suggest that the north-south split in the development of {ao} may go back to a differential treatment of the merger between Old Irish /ai/, /oi/, /ui/, i.e. that the northern realization with [ɯː], [əː], ?[yː] etc. represent Old Irish */oi/, either on the basis of backness or roundness or both, whereas the fronted southern realizations represent */ai/. While this cannot be ruled out as a factor, it does not seem to offer a complete explanation, nor does there seem to be much (e.g. orthographic) evidence for it. O'Rahilly (1932: 33), Shaw (1971: 153–154) attribute the raising of */əː/ to /ɯː/ in Scotland to Ulster to raising in the environment of nasal consonants, later generalized to all environments. This also seems at best a partial explanation.

A better account is given by Shaw (1971: 154) and Ó Maolalaigh (1997: 191–192) and is developed here.

> outre l'influence de la nasalisation, le relèvement de la position phonétique de cette voyelle… est le résultat d'une tendance à vocaliser *adh-*, *agh-* du gaélique commun tardif
>
> [apart from the influence of nasalization, the raising of the phonetic position of this vowel… is the result of a tendency to vocalize late Common Gaelic *adh-*, *agh-*]
>
> (Shaw 1971: 154, my translation)
>
> If the Donegal reflexes of //əː//,[8] i.e. /iː/, /ɯː/, derive from /ɯː/, then it is reasonable to assume that //əː// was realised as a back, presumably unrounded vowel in Donegal dialects. This would mean that C[ommon] G[aelic] //əː//

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[8] Double slashes are used in this source to indicate a 'C[ommon] G[aelic] phoneme' (Ó Maolalaigh 1997: vii).

would have been realised as an [ɤː]-like vowel, similar to the older reflex of //að/ɣ// in Donegal. The reduction of [əuə] to [ɤː] could potentially have led to a merger between both word classes {//əː//} and {//að/ɣə//} in Donegal dialects. We claim that CG //əː// was raised so as to avoid merger with the word class {//að/ɣə//}. The development of //əː// and //að/ɣ// sequences provides us with a possible instance of a chain shift in Irish.

(Ó Maolalaigh 1997: 191–192)

This hypothesis can be developed further, and can also explain how these dialects came to have a series of back unrounded vowels, which are unusual for European languages (Ternes 1973: 142), and not all that common more generally cross-linguistically. I give Scottish examples here (taken from Ó Maolalaigh [2006: 49]), but it is assumed the development was similar in Ulster. The phonemes /ɤ/ and /ɤː/ began as a raised allophone of /a/ before the voiced velar fricative. Loss of intervocalic /ɣ/ produced short /ɤ/ with hiatus, as in:

(6)   *tadhal*   */taɣəl/ [tɤɣəl] > /tɤ.əl/ 'visit'

Loss of /ɣ/ before consonants produced /ɤː/ with compensatory lengthening, as in:

(7)   *adhradh*   */aɣrəɣ/ [ɤɣrəɣ] > /ɤːrəɣ/ 'worship'

The allophone [ɤ] would have anticipated the higher position of the back of the tongue in articulating the velar fricative. If /a/ was not already back (it is usually fairly front in present-day Scottish and Ulster dialects), there would also have been a backing effect. The phonemicization of /ɤː/ would have resulted in a long vowel system as follows (fig. 3):

iː   uː
eː   əː   ɤː   oː
ɛː   ɔː
         aː

Figure 3: Earlier northern Scottish Gaelic long vowel inventory after /aɣ/ > /ɤː/

Northern Gaelic would thus have been faced with a three-way contrast between unrounded mid vowels /eː/, /əː/ and /ɤː/. This system is likely to have been unstable, given that cross-linguistically '[t]here are not many examples of a language with three vowels that contrast just by being front, central and back, with all other features remaining the same' (Ladefoged & Maddieson 1996: 290–291).

Ladefoged and Maddieson give a couple of examples of such system, one of them being Norwegian, which has a three-way contrast between front /yː/, central /ʉː/ and back /uː/. It is noteworthy, however, that closely related Swedish seems to have eliminated the central category by contrasting /yː/ and /ʉː/, which are both front, by type of lip rounding (Ladefoged & Maddieson 1996: 292).

The contrast of /oː/ and /ɤː/ also posed the problem of two vowel phonemes distinguished by rounding alone. As noted previously by Shaw (1971: 152–156), roundness had not been phonologically contrastive, and there is no need to posit a roundness feature for Early Gaelic or for modern Connacht and Munster Irish. Thus the development of a back unrounded vowel /ɤː/ implies the addition of a feature [±round] to the phonology of northern Scottish and Ulster dialects.

The elimination of the three-way backness contrast */eː ə: ɤː/ would motivate the raising of */ə:/ to a high position, which would be further facilitated if */ə:/ already had high allophones, say in nasal or palatalized environments, as in Argyll. The emergence of a roundness contrast (cf. Shaw 1971: 152–156) in back mid vowels /ɤː oː/ would open a space in the vowel inventory for a high back unrounded vowel, resulting in the following system found in most northern Scottish dialects (fig. 4):[9]

<div align="center">

iː   ɯː   uː

eː   ɤː   oː

ɛː   ɔː

        aː

</div>

Figure 4: Northern Scottish Gaelic long vowel inventory after raising of /ə:/

It should be noted that Scottish dialects are generally described as having also short back unrounded vowels /ɤ/, /ɯ/ arising from various diachronic developments (Ó Maolalaigh 1997: 124–138), and similar vowel systems may occur in some Ulster dialects, although the evidence is not clear (Ó Maolalaigh 1997: 96–107). It is possible that the development

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[9] Dorian (1978: 55–59) describes a system of eight vowels, both short and long, in East Sutherland Gaelic, but it appears that no items from the {agh} set appear in her study. The evidence of the Scottish Gaelic Dialect Survey suggests, based on items such as *aoradh* (=*adhradh*) 'worship' and *teaghlach* 'household', compared with items with historical *ao*, that the contrast did in fact exist in this dialect. Note that Dorian transcribes *laogh* 'calf' as /ɫə:/ but claims (Dorian 1978: 56) that //ə// 'has a positional variant of the shape [ɯ] when long in word final position or before /ɫ/'.

of both long and short back unrounded vowels /ɤ(ː), /ɯ(ː)/ has been mutually reinforcing.

7   Merger avoidance? Southern Irish development of {agh} and {ao}

According to Ó Maolalaigh (1997: 192, 2006: 53) the southern Irish development of {agh} into a diphthong /əi/ also represents a strategy for avoiding merger between {agh} and {ao}, since both otherwise would be likely to give /eː/. There are reasons to be more doubtful about this hypothesis. Ó Maolalaigh's suggestion would involve {agh} vocalizing to a long monophthong close to /eː/ (or /əː/), which would then, in order to avoid merger, break into a diphthong close to what one would expect in any case from /aɣ/ > /aj/, which as Ó Maolalaigh (2006: 53) himself notes is a phonetically natural change. It would seem more economical to posit this change as an unremarkable development unrelated to the structure of the monophthong vowel inventory.

Ó Maolalaigh (2006: 53–54, 62) notes two further facts which undermine his claim regarding merger avoidance: firstly, that the development /aɣ/ > /ai/ is found more extensively in Manx (including in final position, but notably not in the position {aghC} where it falls in with {ao}, e. g. *leodaghey* /ləːdaxə/ 'decrease', Irish *laghdachadh*), and secondly, southern Irish dialects do show merger between {agh} and {ao} when there is a following nasal consonant, e. g. in *Maghnas* 'Magnus' /meːnəs/. This would suggest there is no general reluctance to merge {agh} and {ao}, and the structural consideration operative in the Ulster, Manx and Scottish dialects (the emergence of three vowels distinguished by backness only) is probably not relevant here, since it is likely {ao} had already merged with /eː/ by the time of the vocalization of /ɣ/. The distinction between monophthongal /eː/ in *Maghnas* 'Magnus', *traghnach* 'corncrake', *bladhm* 'flame' etc. and diphthongal /əi/ (or /ai/) in other items may be explained by raising in a nasal environment giving a diphthong */ei/, the two elements of which are more similar to each other and therefore more susceptible to monophthongization to /eː/.[10]

Ó Maolalaigh (1997: 192–193, 2006: 53) claims that the occurence of diphthongs from {agh} in Connacht dialects is evidence that Connacht is a 'mixed dialect' in this respect:

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[10] See Ó Maolalaigh (2006: 62) for discussion of the 'exceptional' development of {agh}, {ogh} preceding nasal consonants in both Irish and Scottish dialects.

The raising of //əː// and the development of *i*-gliding diphthongs (as reflexes of //að/ɣV// sequences) in Connacht do not appear to be structurally related, or at least cannot be explained in structural terms within the phonological system of Connacht. In other words, the reflexes of both word classes {//əː//} and {//að/ɣ//} in Connacht represent fudges or mixed dialect forms from Donegal and Munster respectively. This adds scientific weight and expression to O'Rahilly's (1932: 264) statement about Connacht dialects: 'The Irish of Connacht showed no power of expansion, and lacked the energy of the two other dialects [i.e. Munster and Ulster]…It was apparently waiting passively to be overrun by one or other of its rivals, or to be partitioned between them'

(Ó Maolalaigh 1997: 192–193)

is canúint mheasctha í Gaeilge Chonnacht sa mhéid is go réalaítear *agha* mar /əi/ agus *ao* mar /iː/

[Connacht Irish is a mixed dialect inasmuch as *agha* is realized as /əi/ and *ao* as /iː/]

(Ó Maolalaigh 2006: 53, my translation)

Although spreading of dialect features outside the areas where they developed is certainly possible,[11] O'Rahilly's linguistic Darwinist ideas have little basis (Ó Dochartaigh 1987: 219–231, Lewin 2017: 147–150), and there is no need to attempt to substantiate them, especially if, as proposed here, there is no relationship between {agh} and {ao} in Munster after all. The Connacht raised /iː/ from {ao} can be explained as raising of e. g. *caol* on the analogy of *caoil*. Cf. the similar developments in Ulster Irish, albeit in backness rather than height, described by Ó Searcaigh (1925: 19) and summarized in the next section of this paper.

8   Fronting of /ɯː/ and /ɤː/ in Ulster

The situation in Ulster is less clear than that in northern Scotland, largely because mergers /ɯː/ > /iː/ and /ɤː/ > /eː/ seem to have been in progress at the time the twentieth-century dialect studies (Quiggin 1906: 26–31), and are probably largely complete in today's Donegal Irish (Ó Dochartaigh 1987: 120). It is not immediately obvious why the long back unrounded vowels appear to be so stable in most dialects of Scottish Gaelic, but appear to have a much greater propensity to front and merge with the front high and mid vowels in Ulster. A number of explanations present themselves (here concentrating on {ao}):

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[11] Cf. the discussion of 'Munsterisms' in a southern Connacht dialect of Irish by Ó Curnáin (2007: 51–52), and for general discussion of transitions and mixed or fudged lects, see Chambers & Trudgill (1998: 91–94, 104–19).

(a) Ó Dochartaigh (1987: 119) suggests that the fronting in Ulster results from a diffusion of the apparently longstanding Connacht realization of {ao} as /iː/. This seems plausible, given that the fronting seems more advanced in southern Donegal and neighbouring areas of Tyrone and Fermanagh (Ó Dochartaigh 1987: 119).

(b) Even in the most conservative varieties of Ulster Irish, *aoi* shows a fronter realization than *ao* (Ó Dochartaigh 1987: 117), and this may have prompted the later fronting of *ao*. It appears that firstly, *aoi* before independently slender consonants was fronted; later *aoi* in morphological alternations of the type *caol*, *caoil* followed; and finally both *aoi* and *ao* are found fronted and merged with /iː/ (cf. Ó Dochartaigh 1987: 117, Ó Searcaigh 1925: 19).

(c) It is possible that in some dialects at least */a/ before /ɣ/ was raised to [ə] before the loss of /ɣ/, without backing, resulting in a central /əː/ rather than /ɤː/, and causing the raising of older */əː/ < *ao* to /ɨː/ by a chain shift as envisaged by Ó Maolalaigh (1997: 191–192). This would give the system of long vowels with a series of central vowels and no phonological roundness contrast. These central vowels would then more easily front and merge with /iː/ and /eː/.

(d) Like other varieties of Irish, but unlike Scottish Gaelic or Manx, Ulster dialects have palatalized labials, reducing the number of potential minimal pairs involving the contrasts /iː uː/ and /eː ɤː/. Given the survival of /uː/ and /ɤː/ to recent times, one wonders whether this points to a later development of palatalization of initial labials in Ulster (cf. Ó Maolalaigh 1997: 68–69).

9 The merger of {ao} and {agh} in south-western Scottish dialects and Manx

In the Argyll dialects, and also in Manx,[12] the {ao} and {agh} sets appear to be represented by a single phoneme /əː/ (Dilworth 1996: 44, Ó Maolalaigh 1997: 227–228). This is shown by ahistorical Scottish Gaelic spellings

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[12] This claim is mainly on the strength of the item *leodaghey* 'decrease', Gaelic *laghdachadh*, with <eo> as in *eoylley* 'dung' (*aoileadh*), *feoilt* 'generous' (*faoilte*), *meoir* 'moar' (*maor*) ('[i]n the Isle of Man: a bailiff or government officer', OED s. v. *moar*), etc. Other items either do not occur in Manx (*adhradh* 'worship', *ladhran* 'hooves, toes', *teaghlach* 'household', *foghlam* 'learning') or have forms which obscure their earlier development, e. g. *adhbhar* 'cause, reason' > Manx *oyr* /oːr/ (Broderick 1984: vol. 2, p. 344) . For further discussion of the situation in Manx, see Lewin (forthcoming).

such as *aobhar* for *adhbhar* 'reason' and *aoradh* for *adhradh* 'worship'. Owing to the prominence of Argyll in Gaelic writing and literacy in the eighteenth and nineteenth centuries (cf@ Grannd 2000: 17), these were in widespread use until recent spelling reforms restored the etymological spelling as standard (SQA 2009: 5).

This development represents an alternative rationalization of the three-way contrast /eː ə ʏː/, with */ʏː/ or */əː/ deriving from /aɣ/ merging with /əː/ = {ao}, which retains its mid height (fig. 5).

<div align="center">

iː   uː

eː əː oː

ɛː   ɔː

aː

</div>

Figure 5: Southern Scottish Gaelic long vowel inventory

It seems more economical to assume that {agh} merged directly with {ao} upon vocalization of /ɣ/ without any raising of the {ao} vowel, than to assume that a system with a mid / high contrast /ɯː ʏː/ as found in northern dialects existed in southern Argyll, with subsequent merging,[13] as this would involve raising and then an unmotivated lowering back to the earlier position. It is hence likely that front central /əː/, rather than high-back /ɯː/, represents the older reflex in Scotland, and therefore it is unlikely that the high back vowel represents any residue specifically of Old Irish */oi/ rather than a development of earlier universal Gaelic */əː/. The Argyll and Manx central or front central mid vowel phoneme /əː/ thus represents the most conservative reflex of {ao} in the Gaelic speech area more generally (Shaw 1971: 153).[14]

The structure of the northern Scottish vowel inventory would explain the stability of /ɯː/ and /ʏː/ in northern Scottish dialects, in contrast to southern Scottish dialects, where /əː/ retains the historical situation of

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[13] In contrast, Holmer (1938: 49) and Scouller (2017: 52) both assume merger of /ɯː/, /ʏː/ in Argyll dialects, but without giving an account of this development.
[14] Apart from word final position in a few items noted above, such as *naoi* 'nine' (Old Irish *noí*), in Scottish Gaelic and Manx, and possibly the survival of original diphthongal /əi/ in certain items such as *slaodán* 'cold' in Munster (Ó Maolalaigh 1997: 192), now ahistorically spelled *slaghdán* in the contemporary standard orthography. However, the latter could perhaps be better understood as a reanalysis in unstressed position of the offglide of the preceding velarized consonant as part of a diphthong, i.e. [ˠeː, ˠiː] > [ˠe, ˠi] > [əi] (cf. Holmer 1962: 58–59). It is unclear why the original diphthong of Old Irish *áe*, *óe* should have survived here, especially in unstressed position.

wide variation in the height dimension (Scouller 2017), and vulnerability to merger with the front vowels /iː/ and /eː/ (as in Arran and Kintyre, cf. *SGDS*, Holmer 1957, 1962, O'Rahilly 1932: 33).

10 Rounding of {ao} in south-western Scottish dialects

Rounding of south-western Scottish /əː/ has been reported, although the descriptions are somewhat contradictory and ambiguous, as noted by O'Rahilly (1932: 29) in his survey of early descriptions

> There is no little diversity in the attempts made by different writers to describe this Argyll sound of *ao* (which is possibly, or probably, not entirely uniform throughout the area), and further investigation by experts is obviously desirable. Most writers (cf. McAlpine, Munro, Macbain, Robertson, Dieckhoff) approximate it to one or more of a number of English and French vowel-sounds, viz. those in (1) Eng. *gun*, *must*, but long, (2) Eng. *curl*, *sir* (as pronounced in Scotland?), (3) Fr. *peu* (= rounded close *e*), (4) Fr. *cœur* (= rounded open *e*). J. H. Staples, discussing some Argyll dialect, describes the *ao* of *saor*, *saoghal*, *caomh*, as mid-front-wide-round (with nasalization in the last word), but the *ao* of *laogh* as high-back-narrow (= ʌ̈ː). Henderson describes the Argyll ao as 'low-front-wide-round with mid-rounding'; but his treatment of the subject is confused and inconsistent, and hardly inspires confidence.

Holmer's descriptions of Argyll (Holmer 1938: 48–50), Arran (Holmer 1957: 8–10) and Kintyre (Holmer 1962: 9–11) dialects add little clarity, since he continues the confusion between back unrounded and front rounded vowels:

> The long open *ao*-sound: [öː]… is the same sound as in for instance 'run', but twice as long. In English outside Scotland it is heard in for instance 'bird', 'girl', or still better in French *sœur*, *veuve*… It is exactly the same sound as in Scotch *dui* 'do', *muir* 'moor'.
>
> (Holmer 1938: 48)

Similarly, he fails to distinguish unambiguously between back unrounded [ɯː] (transcribed [ʌ̈ː]) and front rounded [yː] (Holmer 1938: 48–50), claiming that a single phone [yː] is found in both Skye and (in certain items or environments in) Islay. However, he does note (Holmer 1938: 50) (Holmer 1938: 50) that

> '[i]n the north of Skye, it is, especially with the old people, a fairly dark sound: [ʌ̈ː], e.g. [myːl], [mʌ̈ːl] 'polled', 'bald', 'blunt', etc. *maol*, [kyːl] 'love' *gaol*, [tji-'hyːnjə] 'Friday' *di-h-aoine*…' while '[t]he long [yː]… is in Islay a very close sound, most resembling the long *y*-sound in the Scandinavian languages, for instance Swedish. This sound is sometimes heard instead of the ordinary [öː] in contact with a nasal'.

On the same page he describes [ʌ:] as 'the relaxed *u*-sound', which may be found instead of [y:] in Gigha. According to Holmer, *ao* in most environments is a mid vowel [ö:] in Islay and Gigha, but may be high [y:] adjacent to a nasal consonant or after a palatalized consonant. Presumably 'close' means high and front, and *dark* means back, but there is no explicit mention of rounding.

Grant (1987: 56) in his description of Islay Gaelic does not mention any front rounded vowels, noting only /ö/ and /ö:/, which are claimed to be unrounded. The long vowels are not described separately, as the quality of long vowels is stated to be the same as the corresponding short vowel. Short /ö/ is described as follows:

> The vowel phoneme /ö/ in its normal realization lies on a front/back axis between the central vowel /ə/ and the back vowel /o/ and though unrounded is not realized with lips spread, but with lips in a neutral position.
>
> (Grant 1987: 56)

This description of the lack of lip spreading may be significant, as it may be part of the explanation as to why some authors describe rounding and others a lack of rounding. There is no detailed discussion of any allophonic variation, such as the higher realizations noted by Holmer in certain environments, although Grant's mention of 'its normal realization' raises the question of what other realizations might exist. Overall, the phonological section is very brief and the only evidence for the contrasts posited is two lists of minimal pairs, giving only one example of /ö:/ (namely |tö:ɣ| *laogh* contrasting with |töɣ| *lagh*). Moreover, the thesis claims only to be a description of the Gaelic of Portnahaven, and does not deal extensively with the speech of other districts of Islay.

More recent descriptions continue to pain a mixed picture. In the table of phonetic symbols given by Macniven (2015: 36) in his survey of Islay place-names, the vowel [ø(:)], found e. g. in *maol* (Macniven 2015: 322), is claimed to be rounded. However, phonology and phonetics are not the primary focus of this work, and it is not entirely clear how reliable Macniven's phonetic data are. In Jura Gaelic, Jones (2010: 38) finds short [y] as a fronted variant of /ɯ/ in items such as *duine* 'man' and *uisge* 'water', but '[n]o fronted [y:] was found among the long vowels' (Jones 2010: 40). The example of /ʟɤ:ɣ/ *laogh* illustrates the Jura reflex of *ao*. The long vowel is not separately described, but short [ɤ] is described as 'an upper-mid back unrounded vowel' (Jones 2010: 36). Scouller's (2017: 107) description of Colonsay Gaelic, quoted above, is the only recent unequivocal claim of the existence of a long front rounded vowel in an Argyll dialect.

In the Scottish Gaelic Dialect Survey (Ó Dochartaigh 1994: vol. 1, pp. 111–115), symbols representing long front mid rounded vowels [ø:], and in some cases high [ʏ:] or [y:] (usually with diacritics denoting various degrees of retraction), are found in items such as *aoradh* (*adhradh*) 'worship', *aois* 'age', *aon* 'one', *aoradh* and *caol* 'slender' (Ó Dochartaigh 1994: vol. 2, pp.94–99, 294–296) from informants in northern Arran, parts of Kintyre, Cowal, Jura, Islay, Gigha, Colonsay, Easdale, and Appin. There is also a sizeable region of Mid Argyll where an apparently more back rounded vowel [ü:] is recorded, from northern Kintyre to South Lorn.

It is possible that some of the reports arise from confusion between back unrounded and front rounded vowels on the part of researchers. In an experiment, Ladefoged (1967: 133–141) gave eighteen trained phoneticians the task of listening to recordings of a number of Scottish Gaelic words including various stressed monophthongs and plotting them on a cardinal vowel diagram. While the responses were quite accurate for cross-linguistically frequently-occurring vowels such as /i(:)/, /e(:)/ and /u(:)/, the phoneticians' judgments of /ɯ(:)/ and /ɤ(:)/ varied greatly in degree of perceived rounding and backness.[15] It is also possible that the neutral lip position described by Grant (1987: 56) has been variously perceived as rounded and unrounded by different scholars. Nine decades after O'Rahilly's (1932: 29) discussion of the topic, it remains the case that 'further investigation by experts is obviously desirable'.

Such rounding, if present, is probably weak and optional, and serves to accentuate the contrast between /ə:/ and the front vowels /i:/ and /e:/. A stronger degree of rounding may possibly be characteristic of a more restricted dialect area, exemplified by Colonsay. Ó Maolalaigh (1997: 120–121), referring to Arran and Kintyre, suggests that front rounded vowels are a result of contact with Scots. This may be plausible for these dialects, which were already moribund when described in the early twentieth century, and had been in long contact with the Lowlands, but is perhaps less plausible for a dialect such as that of Colonsay, which is more isolated and where Gaelic was sociolinguistically vital much more recently (Scouller 2017: 14, 37–39).

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[15] This may also explain some reports of front rounded vowels in Manx, e. g. [ü] in Rhŷs (1894), [y] in Broderick (1984), which have been called into question by Jackson (1955: 48).

11   Conclusion

Jackson (1952: 91, 1955: 47) and Ó Maolalaigh (1997: 206) are likely correct in positing that different treatment of {ao} in northern and southern varieties of Gaelic is an early dialect division, but it is proposed that the structural considerations presented in this paper provide a better motivation for these developments than the suggestion by these authors that they reflect different treatments of the Old Irish merger between */ai/ and */oi/ in terms of the backness or roundness of the resulting single phoneme.

The loss of /ə:/ in southern Irish dialects is probably associated with the more advanced development of the palatalization and/or velarization contrast in the consonant system of southern dialects.

As suggested by Shaw (1971), Ó Maolalaigh (1997, 2006), the raising of /ə:/ to /ɯ:/ is accounted for by the development /aɣ/ > /ɤ:/. However, this is not simply avoidance of merger. The development of diachronically stable and specifically back unrounded vowels is explained by three additional factors:

- three-way backness contrasts are dispreferred cross-linguistically.

- /ɤ:/ {agh} introduces a phonological roundness contrast.

- */ə:/ {ao} may have already possessed raised allophones, as in southwestern Scottish dialects.

The last two factors have been noted by other scholars, but it is hoped that the present paper gives a clearer and more coherent picture of the likely nature and relationship of these developments than has previously been proposed.

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