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Preocclusion in Manx[1]

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Preocclusion – the insertion of a homorganic stop element before stressed final nasals and laterals – is one of the best-known features of Manx phonology. In written sources the phenomenon is only attested in certain nineteenth-century folksong manuscripts in non-standard orthography, although there is reason to believe it developed significantly earlier. This article examines the phenomenon from synchronic, diachronic and comparative perspectives, evaluates previous hypotheses regarding its origins, and proposes an account which situates preocclusion within wider developments in the liquid consonant inventory and prosody of the modern Gaelic languages. In particular, building on the intuitions of Rhŷs (1894), it is argued that the development of preocclusion in Manx is most plausibly to be linked to the reduction of the fortis-lenis contrast in nasals and liquids and loss of gemination. Synchronically, preocclusion can be seen as one of a number of a developments which increase the weight of syllable codas in Gaelic phonology (Iosad 2016). Accounts involving language contact (McDonald 2021) are superficially attractive given the presence of preocclusion in Scandinavian, but it is more likely this is the result of deeper structural similarities in the phonology of northern European languages, perhaps related to much older language contact in the region (Iosad 2016).

Preocclusion – the insertion of a homorganic stop element before stressed final nasals and laterals (e.g. /ben/ [be^{d}n] *ben* ‘woman’, G. *bean*; /troːm/ [troˑ^{b}m] *trome* ‘heavy’, G. *trom*; /ʃuːl/ [ʃuˑ^{d}l] *shooyl* ‘walk’, G. *siubhal*) – is one of the best-known features of Manx phonology, distinguishing the language from other Gaelic varieties where this phenomenon has not been noted. Manx preocclusion has attracted a certain amount of scholarly attention, although there has been no consensus on its characteristics or origins. In written sources,

the phenomenon is only attested in certain nineteenth-century folksong manuscripts in idiosyncratic orthographies, although there is reason to believe it developed significantly earlier. This article examines the phenomenon from synchronic, diachronic and comparative perspectives, evaluates previous hypotheses regarding its origins, and proposes an account which situates preocclusion within wider developments in the sonorant consonant inventory and prosody of the modern Gaelic languages. In particular, building on the intuitions of Rhŷs (1894), the first scholar to describe the phenomenon in detail, it is argued that the development of preocclusion in Manx is most plausibly to be linked to the reduction of the fortis-lenis contrast in nasals and liquids and loss of gemination.

Synchronically, preocclusion can be seen as one of a number of a developments which increase the weight of syllable codas and reinforcing a tendency towards a 'bimoraic norm' (Iosad 2016) in Gaelic phonology. Accounts appealing to language contact (McDonald 2021) are superficially attractive given the occurrence of preocclusion in Scandinavian (Icelandic, Faroese and certain Norwegian dialects) and the presence of West Norse in the Isle of Man during the Middle Ages, but it is more likely the commonality is a reflex of deeper structural similarities in the phonology of northern European languages, perhaps related to much older language contact in the region (Iosad 2016; 2021; in preparation). Unlike preocclusion in other northern European languages where the inserted stops have entered the segmental phonology, 'Manx preocclusion appears to never have undergone further stabilization, and remained at the phonetic rule stage' (Iosad: in preparation).

Phonetic characteristics

In the speech of the terminal speakers as represented for example in the Irish Folklore Commission recordings (Manx National Heritage 2003), preocclusion is very frequent with some speakers, especially with final /n/, /nʲ/, and rare and/or very weak in other speakers. Even in speakers who often exhibit the phenomenon, preocclusion is usually quite weak and often difficult to hear, and frequently absent entirely. It seems to be particularly prone to absence under weak phrasal or sentence stress and in rapid speech. Preocclusion appears to vary freely with lengthening of the sonorant (often with a shortened vowel), lengthening of the vowel (with the sonorant being

short) and occasionally ‘postocclusion’ (with /l/). All of these phenomena can be seen as strategies to enhance syllable weight, as discussed below.

Some examples are given in the spectrograms below (Figures 1–7), which were generated in Praat (Boersma and Weenink 2015). The numbers refer to the disc and track in Manx National Heritage (2003), also available on YouTube.

Figure 1. [ʃe^{d}n] *shen* ‘that’ (G. *sin*) with preocclusion, HB (1:14)

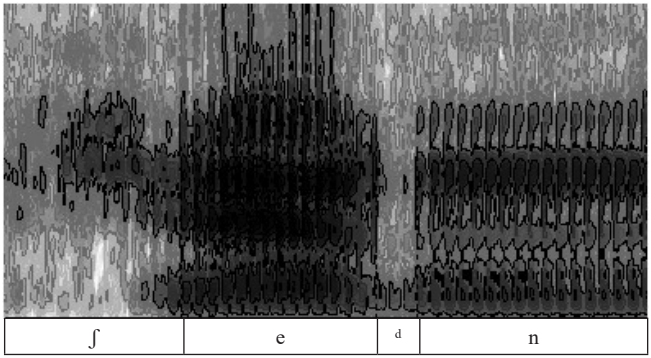


Figure 2. [g^{j}eːb$^{}$mː] *geam* ‘calling’ (G. *éigheamh*) with preocclusion, HB (1:14)

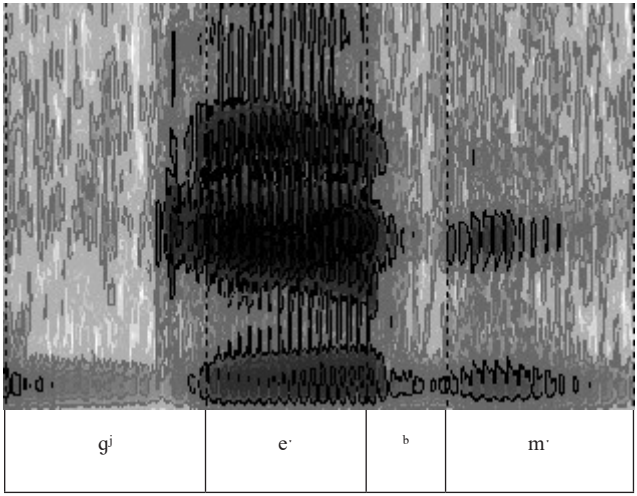


Figure 3. [xi^{d}n] *keayn* 'sea' (G. *cuan*) with preocclusion, NM (2:9)

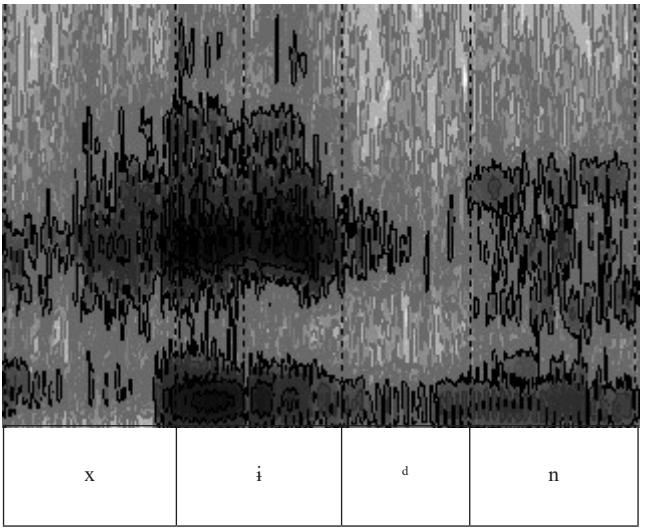


Figure 4. [ve^{d}n] *ben* 'wife' (G. *bean*) with preocclusion, NM (2:10)

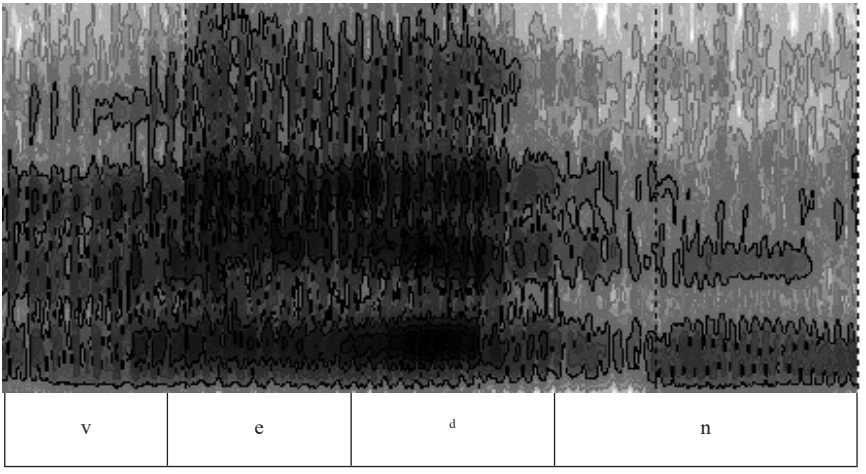


Figure 5. [ʃuˑlːᵈ] *shooyl* 'walk' (G. *siubhal*) with "postocclusion", NM (2:10)

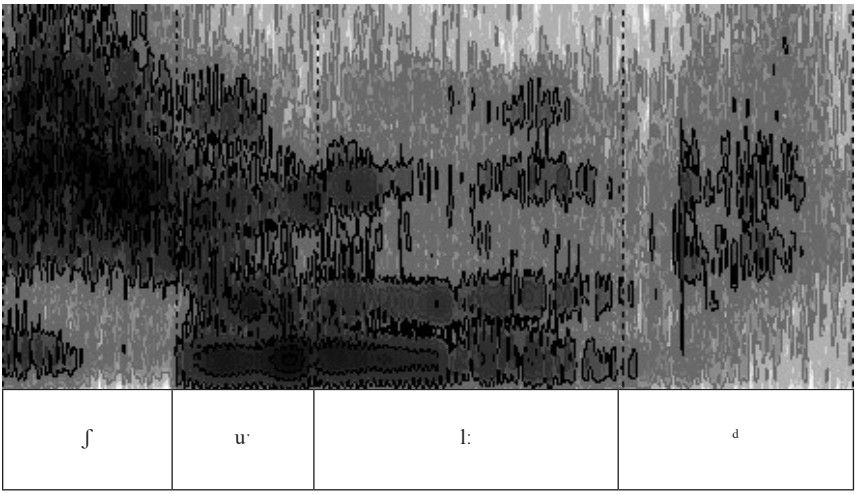


Figure 6. [eʳsuˑ⁽ᵈ⁾lː] *ersooyl* 'away' (G. *ar siubhal*) with shortening of vowel and lengthening of sonorant, NM (2:19). The presence of preocclusion is doubtful.

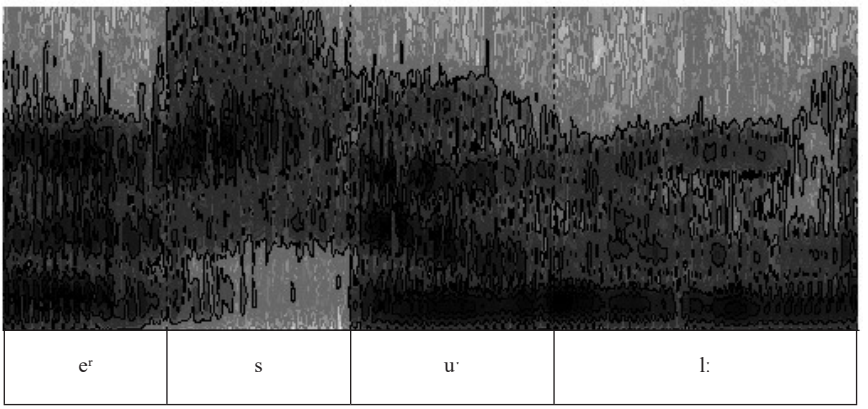
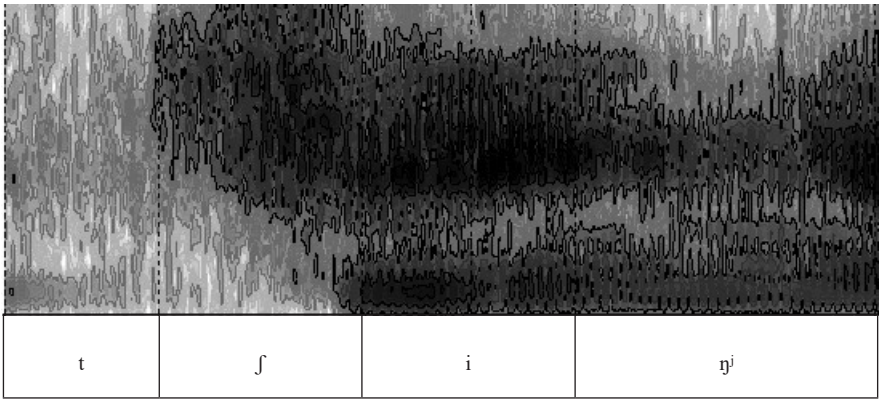


Figure 7. [tʃiŋʲː] *ching* 'sick' (G. *tinn*), NM with lengthened sonorant but no audible preocclusion, NM (2:9)



Cross-linguistic typology

Cross-linguistically, preocclusion or pre-stopping is especially characteristic of a number of geographically widely dispersed language families. It is found within northern Europe in North Germanic (Icelandic, Faroese, certain Norwegian dialects) (Sandøy 2005, Røsstad 2011), Sámi (Sammallahti 1998) and Cornish (Chaudhri 2007). The distribution, realization and phonological function of preocclusion in these languages differ significantly, but they all seem to develop from historical long or geminate sonorants and/or sonorant clusters. This and other features have been argued to provide evidence for a northern European *sprachbund* (e.g. Wagner 1964), and McDonald (2021) suggests language contact with Scandinavian as an explanation for Manx preocclusion. However, the parallel is probably better seen as reflecting underlying structural similarities between the languages, as discussed below.

Outside northern Europe, pre-stopping (as it is conventionally known in this context) is particularly prevalent in Australian Aboriginal languages (Ladefoged and Maddieson 1996: 128–9; Loakes et al. 2008) and Austronesian languages (Jardine et al. 2015). The origin of Australian pre-stopping seems to be different to the northern European phenomena, and has been argued to be a strategy to preserve place of articulation distinctions in languages which typically have an unusually large number of places and few manners

of articulation (Butcher and Loakes 2008; Loakes et al. 2008: 90). In certain South American languages, preocclusion is one of a number of 'shielding' phenomena which serve to enhance contrasts between oral and nasal vowels (Stanton 2018).

Phonetic descriptions

Jenner (1876)

In Henry Jenner's brief overview of the situation of Manx based on a visit and survey carried out in 1874, the existence of preocclusion is noted, albeit only in one word, and the similarity to Late Cornish is pointed out:

> I noticed a tendency in colloquial Manx to another change common also in later Cornish, but I have never seen it written, and only met with it in the case of one word (though in the mouths of several people), so that it cannot be included as a rule. This was the insertion of a *d* before the *n* in the case of the word *shen* (that), making it *shedn* (Cornish *pedn* for *pen, ladn* for *lan,* etc.) (Jenner 1876: 174)

Since the occurrence of preocclusion in other lexical items and with other final sonorants is well documented in later descriptions and in the written sources discussed below, this comment is probably to be taken to reflect the relative lack of salience of the feature, as well as the frequency of the word *shen* 'that' (G. *sin*), and Jenner's limited contact with spoken Manx.

Rhŷs (1894)

A more detailed description of Manx preocclusion is that of Rhŷs (1894: 143–4):[2]

> I must mention a phenomenon of considerable importance in the present pronunciation of Manx. It consists in prefixing to a final nasal the corresponding voiced mute. Thus […] *trome* 'heavy' (Med[ieval] Ir. *tromm*, Mod[ern] Ir. and ScG. *trom* […]) is pronounced in a way which sometimes strikes one as being ***trŏ̆um*** [t̪roum] and sometimes ***trn̥̆bm*** [t̪roᵇm] or ***trŭbm*** [t̪ruᵇm]

> with a sort of precarious *b*; and similarly with other words such as […] *kione* 'head' (Goi[delic] *ceann*) which becomes ***kịõuv*** [kʲõuɲ̟] or ***kịõ̃ðn*** [kʲõːˠn], while the plural […] *king*, is pronounced sometimes ***kĭsŋ*** [kiᵍʲŋʲ]; *bleïn* 'a year', becomes ***blĭdñ*** [bliᵈnʲ] and […] *lhong* 'a ship', becomes ***λŏgŋ*** [l̪oᵍŋ] or ***λŭgŋ*** [l̪uᵍŋ]. The same thing happened now and then with ***rv*** [rɲ̟] as in […] *oarn* 'barley,' pronounced ***ordv*** [orᵈɲ̟] […] (Goi. *eórna*); and with ***rn*** [*leg.* ***rñ***] [rnʲ], pronounced ***ṛdñ*** [rᵈnʲ], as in *cuirn* or *keirn* 'the rowan or mountain ash' ([…] Mod. Ir. *caorthainn* […]). This modification began before the orthography of Phillips' translation had been fixed upon, as one would otherwise have expected *tromm*, for example, or *trom*, rather than *troum*, *tróym*, or *trúm*. In all the cases mentioned the vowel was short and the nasal consonant as in *tromm* was long, so to say, so that metrically speaking ***u̯m*** or ***bm*** is an equivalent for ***mm***. So it is needless to say that the neatest cases of this phenomenon happen to be all accented final syllables, and those which have been here enumerated ended, etymologically speaking, in a mixed equivalent for ***mm***, ***vv***, ***nn***, ***ŋŋ***, or ***ηη***. But (2) the same thing has happened, probably later, where the nasal consonant was short but preceded by a long vowel, and here the reinforcement of the consonantal element took place, metrically speaking, at the expense of the vowel: at any rate this may be supposed to be the tendency. Thus though […] *thallooin* 'earth's' ([…] Med. Ir. *talam*, genitive *talman*) retains the length of the vowel of its final syllable after that syllable is modified, so that the word sounds ***ταλũ̃dñ*** [t̪aˈl̪ũːᵈnʲ] with the stress on the last syllable, and […] *bane* 'white' (Goi *bán*) is also pronounced with its *a* not perceptibly shortened in the South, but in the northern half of the Island the pronunciation in ***bў̆dv*** [bəᵈɲ̟] with the vowel as short as may be. […] it should be remarked that the less distinctly one hears the parasitic consonant the less is the quantity of the vowel tampered with (Rhŷs 1894: 142–3)

Rhŷs (1894: 143) appears to suggest that preocclusion may be lexically conditioned, claiming that preocclusion occurs more often in *Jelhein* 'Monday'

(G. *Dé Luain*) and *Jardain* 'Thursday' (G. *Déardaoin*) than in *Jecrean* 'Wednesday' (G. *Dé Céadaoin*). However, preocclusion in *Jecrean* is solidly attested in Rhŷs's fieldwork notebooks preserved in the National Library of Wales (Rhŷs 1886–93; Broderick 2019; Lewin 2019): in a comparative table of items three out of four speakers have **dñ** [ᵈnʲ] (Rhŷs 1886–93, notebook 6: 152).

Rhŷs's discussion of the topic is notable for his suggestion as to the origins of Manx preocclusion and comments on its synchronic behaviour as an active prosodic or metrical phenomenon, and for evidence of variation between idiolects, dialects and possibly lexical items. He notes preocclusion in most of the environments it occurs, including before labial, coronal and velar nasals and in rhotic-nasal clusters, and shows an intuitive understanding of the relationship between preocclusion and vowel and sonorant length. However, it is notable that he does not mention preocclusion with laterals, although there is evidence of this in his fieldnotes:

> [John Stephen, Ballaugh, 1807–97][3] pronounced *ooyl* 'apple' mostly **ūδλ** [uːᵈl̪] sometimes **ū́λδ** [uːl̪ᵈ], but in that case the **δ** was fainter: the pronunciation **ūδλ** I have heard of before as the habitual pron[unciation] of an old man in the neighbourhood of Ramsey (Rhŷs 1886–93, notebook 7: 196)

Rhŷs's notes also contain some comments on idiolectal variation in preocclusion:

> this man [James Samuel] Brew [Lonan / Bride, 1817–95] had a constant tendency to pronounce every final ***n*** as ***dn*** (Rhŷs 1886–93, notebook 6: 73)

Strachan (1897)

In his transcription of the Manx folksong *Ec ny fiddleryn* (cf. Broderick 1984b) collected from the fisherman Thomas Kermode (1825–1901), Strachan (1897: 55) notes preocclusion only before *n*, '[s]ometimes […] quite distinct, sometimes barely audible', and records that he 'seemed sometimes to hear the same sound when English was spoken, e.g. ***agädn*** for *again*'.

Marstrander (1932)

Marstrander (1932: 58) describes preocclusion before both nasals and laterals, and also notices it in Manx English in **stūdl** 'stool', **spūdn** 'spoon', **stībm** 'steam'. He notes that preocclusion occurs irrespective of sonorant quantity, although it is unclear whether this is a synchronic or a diachronic observation:

> Utviklingen synes ikke å ha noe med konsonantens kvantitet å gjøre. Den forklares heller ikke ved en forsinket åpning av ganeseilet, da den jo også foreligger ved *l*.
>
> [The development seems not to have to do with the consonant quantity. Nor is it explained by a delayed opening of the velum, since it also occurs with *l*.] (Marstrander 1932: 58, my translation)

Jackson (1955)

Jackson (1955: 113–4) finds preocclusion in nasals only; he refers to Rhŷs's and Marstrander's descriptions but states he did not encounter preocclusion with laterals or rhotic-lateral clusters himself. He notes preocclusion in Manx English with final /n/ only, as in '*seen* = **si^{d}n** and the like'.

> Before *-n* or *-nn* of either quality when final in stressed monosyllables there has very commonly developed in Manx a kind of fugitive unexploded *d*. What seems to happen is that in producing the *n* the occlusion begins just before the velum is lowered, so that the sound is denasalized at the beginning. I write **^{d}n** for this. It is most certainly not a glottal stop, as it has been called (Jackson 1955: 113)

Jackson notes a number of examples where he only heard preoccluded nasals, such as **bɛ^{d}n** *ben* 'woman' (G. *bean*), **fi**:^{d}**n** 'wine' (G. *fíon*), **dri**:^{b}**m** *dreeym* 'back' (G. *druim*), **ɔ**:^{d}**n** *oarn* 'barley' (G. *eórna*). However, he also notes some items for which he heard both preoccluded and non-preoccluded forms, e.g. **t^{h}rɒ^{b}m**, **t^{h}ro**:^{b}**m**, **t^{h}ro**:**m** *trome* 'heavy' (G. *trom*), *eeym* 'butter' (G. *im*), and an item with only non-preoccluded forms: 'in *ching* "sick", […] with original *-nn*, I heard only **ŋ′**' (Jackson 1955: 115).

Wagner (1956, 1964)

Wagner comments briefly on Manx preocclusion, noting similar developments 'in Cornish, West Norse, Lapp, as well as in some Siberian languages' (Wagner 1956: 109) and suggesting this is evidence of 'a certain North Eurasian "Sprachlandschaft"'; he also notes preocclusion in Dublin English, which he attributes to 'West Nordic' influence. According to Wagner, preocclusion is restricted to southern Manx:

> Im modernen Manx scheinen diese Formen auf die südlichen Dialekte beschränkt zu sein, während das Nord-Manxische Formen aufweist, die mit entsprechenden schott[isch]-gäl[ischen] Formen verwandt sind. Karte 89 meines LASI, welche die Manx-Formen für ir. *gann* „scarce" illustriert, gibt eine Form **gauə̯n** für den nördlichen Dialekt und eine Form **go**:**dn** für den südlichen.
>
> [In Modern Manx these forms seem to be restricted to the southern dialects, while Northern Manx shows forms which are related to the corresponding Scottish Gaelic forms. Map 89 of my *LASID*, which illustrates the Manx forms for Irish *gann* 'scarce', gives a form ***gauə̯n*** for the northern dialect and a form **go**:**dn** for the southern one.] (Wagner 1964: 293, my translation)

Notwithstanding this claim, plentiful evidence is found of preocclusion in the north in the other accounts discussed here. Indeed, in Wagner's northern form **gauə̯n**, the otherwise suspicious [ə] may well represent weak preocclusion. However, it was noted above that two of Wagner's three northern informants (Broderick 1999: 71), JK and JJK, mostly have very weak or absent preocclusion, which may explain Wagner's claim. Unlike Jackson, Wagner (1956: 109) does note preocclusion with laterals, giving the example of ***ʃuːdl*** *shooyl* 'walking' (G. *siubhal*).

Broderick (1984–86)

Broderick (*HLSM* III: 28–9) introduces preocclusion as follows:

> In L[ate] S[poken] M[anx] there can occur usually in stressed monosyllables (but also in stressed final syllables of disyllables

> and stressed medial syllables followed by a short monosyllabic unstressed suffix — whether the stressed syllable be long or short) ending in a nasal or lateral a development known as preocclusion. That is to say, that just prior to the articulation of the nasal or lateral the corresponding (voiced) stop is realized, but with nasal or lateral release, i.e. [b^{N}] before /m/, [d^{N}] before /n/, [g^{N}] before /ŋ/, [d^{L}] before /l/ (*HLSM* III: 28–9)

Broderick's is the only primary description to note preocclusion in medial positions. He provides two examples of this in his account of Manx phonology (*HLSM* III: 29):

> *brynnagh* 'flattering' /**bre[d′^{N}]n′ax**/
> *lieenyn* 'nets' /**l′i[d^{N}]nən**/ (*HLSM* III: 29)

According to *HLSM* (II: 49, 277) the realization **brẹd′n′ạx** *brynnagh* 'flattering, comely' is from the speaker JW, found alongside **brẹn′ərạx** *brynneragh* 'act of flattering' (ScG. *brionnal*, *brionnalachd*), while **l′i^{d}nən** *lieenyn* 'nets' (G. *líon*) is from NM, who has **l′i^{d}n′**, **l′i.^{d}n**, **l′iː^{d}n** in the singular. A further instance is **d′ʒɔ^{d}nạx** *joanagh* 'dusty' (G. *deann*) (JW), cf. *joan* 'dust' **d′ʒɔ^{d}n** (JW) (*HLSM* II: 238).

Broderick suggests that the preoccluded sonorants are probably to be analysed as allophones in free variation with their non-preoccluded equivalents:

> It is my view that […] though in a given set of circumstances preocclusion can take place, nevertheless reflexes containing no preocclusion (in most cases) also occur, thus indicating that preocclusion plays no role whatever in the context of meaning and import. That is to say, that the preocclusive forms [bm], [dn], [gŋ], [dl] are special realizations of the corresponding phonemes (/m/, /n/ /N/, /l/), and in this regard I would view preocclusion in LSM as having allophonic rather than phonemic status (*HLSM* III: 31)

Williams (1994: 714) comes to the same conclusion regarding allophony. However, Broderick also claims there is some evidence of incipient

separation, including syllabification, and thus phonologization of the preocclusive stop:

> it may be noticed that in his phonetic corpus of LSM Marstrander sometimes renders the preocclusive dental as a spirant, viz. /[ð]n/, which suggests that it was becoming separated from its homorganic nasal and the whole unit was developing into [**ðən**], as in [**bẹːðən**] 'boats' [*baatyn*, ScG. *bàtaichean*]. Indeed he sometimes writes as if the unit had already developed a centralized vowel, e.g. (without spirantization of the dental) [**ʃedən**] 'that', usu. [**ʃen**] [*shen*, G. *sin*]. That is to say, that the dental was now being released orally instead of nasally, i.e. as a separate segment. In other words a process of phonemicization was taking (or had taken) place (*HLSM* III: 31–2)

Broderick (*HLSM* III: 32–4) uses a comparison with English syllabic nasals in e.g. 'button' [bʌtn̩] and evidence from verse to argue that a monosyllable containing preocclusion can be considered disyllabic, although it is not clear why it cannot be considered one long syllable in the terms employed.

> The vowel in [**ʃedn̩**] is short, and bearing in mind that in Manx a long syllable has the value of two short syllables, the short syllable here is, therefore, made up by the preocclusive element plus the nasal plosion. We can see the same in [**dʹʒidn̩**] 'eager' […] which occupies a position of stress and therefore (in metrical terms) can have a long or two short syllables. In this instance the vowel is short, indicating that two short syllables are required to make up the quantity. The short vowel contributes to the first short syllable; the second is therefore made up by the preocclusive element plus the nasal plosive. That is to say, that (in Manx verse terms at any rate) preocclusion renders an additional syllable to the word (here a stressed monosyllable) so affected. […] It is my view that the same applies in ordinary speech, i.e. that preocclusion renders a (stressed) monosyllabe [*sic*] disyllabic, and a disyllable trisyllabic (*HLSM* III: 33–4)

This argument does not seem to stand up to scrutiny. Even if some kind of exaggerated articulation were found in verse which could be interpreted, perceptually at least, as suggestive of an additional syllable (for which Broderick does not present evidence, although see the written data below), there is no reason to think this would be relevant to 'ordinary speech' where preocclusion seems in fact to have been fairly faint on the whole, and often absent or only barely perceptible. The English syllabic sonorants do not seem pertinent to the discussion, given the optional presence of a vowel [ə] as Broderick himself notes (*HLSM* III: 32), and the fact that words such as 'button' are categorically disyllabic in all circumstances. Broderick (*HLSM* I: 162–3) also comments on dialect differences in preocclusion:

> An intrusive ***d*** can also appear before final *-l*, and a ***g*** before final *-ng*. These features seem to be peculiar to the South (*HLSM* I: 162)[4]
>
> The intrusive *b* [before *m*] is common to both areas, but from the limited evidence available it seems to be more absent in the South (*HLSM* I: 163)

Summary

It has been noticed that there is significant variation and disagreement between the descriptions of Manx preocclusion in previous scholarship. The following claims have been made, and shown here to be inaccurate or incomplete:

- Some descriptions do not note preocclusion with laterals (Rhŷs, Strachan, Jackson).
- Preocclusion is claimed to be restricted to certain dialects (Wagner).
- Preocclusion is claimed to be syllabic (Broderick).

In part at least these discrepancies between descriptions likely reflect the relative lack of salience of non-contrastive preocclusion, which has been noted in a cross-linguistic context:

> Butcher and Loakes (2008) note that non-contrastive pre-stopped realizations are difficult to perceive auditorily, even by field researchers experienced in working with the languages in question. Our research anecdotally supports this observation. Members of our research team found non-contrastive lateral pre-stopping in Kaytetye difficult to perceive, but perceiving contrastive nasal pre-stopping was unproblematic (Harvey et al. 2015: 246)

It is likely that Manx preocclusion has always been non-contrastive insomuch as even when it was restricted to stressed final fortis sonorants, it would not have been the only, nor necessarily the primary, cue for the contrasts, which also involved differences of place and manner of articulation, and length.

Written evidence

A notable feature of Manx preocclusion is the lack of written evidence for it. Even though it was certainly prevalent throughout the island by the early nineteenth century at the latest, going on the evidence of Rhŷs and Strachan, and quite possibly centuries earlier than this, it is never represented in either of the two main orthographies (that of Bishop Phillips's MS Prayer Book, *c*.1610, and the Classical Manx orthography codified in the Bible translation completed in 1772). It is also rare in texts in non-standard orthographies, although it is indicated in certain nineteenth-century folksong manuscripts.

Indication of preocclusion is especially prevalent in a song manuscript Manx National Heritage Library (MNHL) MS 08307 (MD 900), edited by Broderick (2015). This manuscript is of uncertain provenance, but was most likely compiled between 1830 and 1840 (Broderick 1984a: 157). Preocclusion is represented in the manuscript as <dn>, <dyn>, <din>, <bm>, <bym>. There are at least[5] 81 instances of indicated preocclusion in the text of MS 08307. There are also many occurrences of eligible items with no indication of preocclusion (e.g. *dhoan*, *dhon*, *wooan*, *woan*, *aun* 'brown', G. *donn*, alongside *odn*, *woadn*, *woadyn*), and there are no cases of representation of preocclusion with the velar nasals or laterals.

Table 1. Representation of preocclusion in MNHL MS 08307 (ed. Broderick 2015)

spelling in MS	standard orthography	etymology	English	no. of occurrences
kiodn, kiodyn	kione	ceann	head, end	7
koodn, ?choadyn	coon	cumhang	narrow	2
skoadn	s'goan, s'coan	is gann	hardly	1
creedn	creen	críon	ripe, withered	1
seidn, seidyn	shegin	is éigean	must	5
lhedn, laydn	lane	lán	full, many	2
frowdn	frown		frown	1
dhowdn	dowin	domhain	deep	1
vlowdn	blieaun	bleaghan	milking	1
odn, woadn, woadyn	dhoan, dhone	donn	brown	3
foadn	foyn, foain[6]	fonn	sward, ground	1
voadn	boyn	bonn	heel	1
skidn, skydyn	skynn	scian	knife	1
speidn	spain	ScG. spàin	spoon	1
yoadn	joan	deann	dust	1
Jeleidn, Jeleidyn	Jelhein	Dia Luain	Monday	2
lhoodyn, lodyn, glodyn	glione	gleann	valley, glen	2
keedyn, keadyn, keeadyn, keedyn, keddyn	keayn	cuan	sea	11
peidyn	pian	pian	pain	1
shidyn	sheiltyn, shein	saoiltin	think	1
greedyn	green		green	1
bleadyn, vleadyn	blein	bliadhain	year	4
theidyn, huidin	thoin	tó(i)n	bottom	2
veadyn	mean	meadhón	middle	1
feedyn	feeyn	fíon	wine	2
pleadyn	plain		plain	1
ghloadyn, chlaudyn, chloodyn, chloadyn, cloadyn	cloan	clann	children	5
headyn, peedyn	hene, pene	féin	self	1
lheedyn	lieen	líon	linen	1
voadyn	moain	móin	turf, peat	1
veedyn	?mee(i)n	mín	tender	1

(continued)

spelling in MS	standard orthography	etymology	English	no. of occurrences
vowdyn	?bouin	boghainn	waist	1
chodyn	chionn	teann	fast, tight	1
yeeadyn	eayin	uain	lambs	1
streidyn	stroin	sró(i)n	nose	1
roadyn	raun	rón	seal	1
leadyn	?lhean	leathan	wide	1
reidyn	?rheynn	roinn	divide	1
lhedyn	y Lhane	*lán < Norse lón	the Lhen[7]	1
graibm	greme	greim	bite, morsel; grasp, grip	1
dreebm, gheeabm	dreeym	druim	back	2
gaibm	eam	éigheamh	call	1
leabm, leabym	lheim	léim	jump, leap	2
roabym	roym	romham	before me	1

It is noteworthy that almost all instances of indicated preocclusion in this text are in stressed final syllables with a synchronically long[8] vowel or diphthong, e.g. *lane* /lɛːn/ (G. *lán*); *lhean* /lʲeːn/ (G. *leathan*), *blieaun* /blʲaun̪ʲ/ (G. *bleaghan*); *kione* S /kʲoːn/, N /kʲaun̪/ (G. *ceann*). The only possible exceptions to this are *skynn* /skʲin/ 'knife', which seems to have a short vowel in Manx, although it has a diphthong *scian* in other Gaelic varieties (originally disyllabic OIr. *sciän*; cf. ScG. dat. sg. *sgithinn*), and one or two items with original fortis sonorants which are attested with short vowels in Classical and Late Manx (e.g. *chionn* S /tʃon/,[9] N /tʃaun̪/, G. *teann*). There are no cases of indicated preocclusion with a short vowel + historically lenis sonorant, such as *ben* 'woman' (G. *bean*), although this item appears frequently in the manuscript. The implications of this is discussed below.

Preocclusion is also sometimes indicated in songs transcribed by John Clague (1842–1908), and edited by Gilchrist (1925) and Broderick (2018). Examples include *hedyn* for *henn* 'old' (G. *sean*) (Broderick 2018e: 32), *a rowdle* for *er-rouyl* 'mad, keen' (*ar aoibheall*) (ibid: 38), *kiddlyn* for ?*keayn* 'sea' (G. *cuan*) (Gilchrist 1925: 213), *cheady*[*n*] for *keayn* (ibid.: 214), *sheedyn* for *sheean* 'noise' (G. *sian*) (ibid.: 214). Broderick (2018: 32) argues that spellings such as *hedyn* provide evidence for a disyllabic realization of preocclusion:

> Originally monosyllabic, preocclusion developed into a disyllable during the course of the 19th-century. This particular example was seemingly heard by Clague as disyllabic. […] Clague evidently did not know much, or any, Manx at all when he first started collecting material (a point also noted by Gilchrist [1925]: ix), and so took down the text as he heard it (Broderick 2018: 32)

Gilchrist (1925: ix–x) comments explicitly on preocclusion in the Clague collection, and in addition to noting its status as a native development of Manx, remarks on its appearance in the singing of 'old sailors of English nationality':

> One point, however, may be noted. Prof. Strachan [1897: 55] speaks of a 'd' sound sometimes heard before final 'n' of a word, as in 'chea(d)yn'=sea. I am informed that 'b' is sometimes similarly heard before 'm,' as in 'Tho(b)m'=Tom. The same peculiarity used to be found in the singing of old sailors of English nationality. Captain Whall [1913: 43] calls it a 'regulation pronunciation which has quite gone out.' He gives a verse of 'The Female Smuggler' to illustrate it, which begins: 'O come list a-whi*d*le a*d*nd you soo*d*n sha*d*ll hear,' and in this instance of intruded sounds it should be noticed that they are not necessitated by any extra syllabic notes in the tune. W. Clark Russell gives similar examples of this sailor mannerism in singing (Gilchrist 1925: ix–x, original italics)

Although spellings such as *hedyn*, *kiodyn* etc. in these manuscripts could be taken to suggest a syllabic pronunciation with an intervening schwa, or else a syllabic sonorant as in Broderick's example of English 'button' discussed above, it is also possible that any perception of syllabicity comes from the perspective of English itself. We know that Clague at least was not a native speaker of Manx and may have only had a limited command of the language when he began collecting folksongs. It is unclear who wrote MS 08307, but this collector may have been from a similar background – at any rate the orthography employed might suggest an unfamiliarity with conventional Manx literacy. It should be noted that if preocclusion were indeed fully

syllabified, such that the preocclusive stops were analysed as intervocalic stop segments, we might expect indication in MS 08307 of secondary lenition with originally preocclusive stops. With original intervocalic stops we find e.g. *ovvyr* [ovərʲ, oβərʲ] for *obbyr* 'work' (G. *obair*), *bathyn* [bɛːðən] for *baatyn* 'boats', (ScG. *bàtaichean*). However, we do not find e.g. **leavym* for *leabym* (*lheim* 'jump', G. *léim*). That preocclusion was especially exaggerated in singing for metrical reasons, such that it might be perceived as syllabic, is also possible, but given the complete lack of recordings of Manx traditional singing we can only speculate on this. There certainly seems to be no evidence of this in ordinary speech, and so little basis for Broderick's claims regarding syllabicity.

So far as is known, there are no cases of indication of preocclusion in the often highly non-standard orthographies of the carval manuscripts (Clague 2005) and the writings of Edward Faragher (Broderick 1981–82). This may be evidence that preocclusion was not particularly salient to native Manx speakers.

Origin hypotheses

At least five hypotheses have been proposed by scholars for the origins of Manx preocclusion. Other commentaries are purely synchronically descriptive (see above) and do not deal extensively with questions of diachronic development.

Rhŷs (1894)

Rhŷs (1894: 142–3; see above for full quotation) suggests that preocclusion began as a reflex of geminate sonorants (i.e. [mm] > [u̯m] > [ᵇm]), and later spread to the items with original lenis sonorants. He remarks that it can be understood as a further development of realizations more widespread in Gaelic dialects (Rhŷs 1894: 143–4):

> if one might venture to relegate to a second place the extreme form of the Manx modification [i.e. with preocclusion], treating it as a development of the stage represented by ***trŏu̯m*** [t̪roum], for example, in the case of *trome*, one would find that it ranges itself with a dialectic peculiarity of the Gaelic of the South of

> Ireland. Thus ***trŏm̥m*** is the pronunciation actually current not only in Manx but also in a great part of the South of Ireland (Rhŷs 1894: 143–4)

It is argued below that Rhŷs's analysis is substantially correct.

Chaudhri (2007)

Chaudhri (2007: 39–44) discusses Manx preocclusion as a point of comparison with the analogous development in Cornish. He notes that, unlike in Cornish, Manx preocclusion does not generally occur in medial position, and affects both original short and long sonorants. He suggests that the length contrast in the sonorants had already disappeared by the time of preocclusion in Manx:

> The reason given by Jackson [1955: 113–5] that pre-occlusion in Manx does not occur in non-final stressed syllables is that the affected consonant must be in absolute final position in the word. This may be because Manx, unlike Cornish, did not retain the phonemic oppositions /nn/–/n/, /mm/–/m/ by the time of pre-occlusion (whether or not this had earlier been the case) and the appearance of the long varieties of /n/ [nn] and /m/ [mm] was determined only by final position in a stressed syllable (Chaudhri 2007: 39–40)

> The crucial difference is that Cornish must have retained the long phonemes /nn/ and /mm/ at least until the time of pre-occlusion. It did not therefore rely upon a process of gemination based on position. The parallel of Manx and Cornish pre-occlusion is by no means a direct one (Chaudhri 2007: 44)

Chaudhri thus posits a new gemination in Manx by which all stressed final nasal and lateral sonorants (all at this point short, whether or not they had earlier been geminate or non-geminate) were lengthened (i.e. (re-)geminated), as a precursor to preocclusion. With regard to *eeym* 'butter' (G. *im*) and *kione* 'head' (G. *ceann*), Chaudhri (2007: 40) comments that the relationship between preocclusion and vowel lengthening is not clear:

> It is not clear whether this lengthening of the vowel is associated with pre-occlusion in this word or, if not, which change came first (Chaudhri 2007: 40)
>
> In the case of words containing an original short vowel, it seems most likely that any lengthening of the vowel occurred earlier than pre-occlusion (Chaudhri 2007: 42)

Chaudhri (2007: 43) considers that preocclusion in Manx is determined only by position and has nothing to do with the quality (fortis or lenis; tenseness in Chaudhri's terminology) of the sonorant.

> In any case, pre-occlusion in Manx happened in words containing an original short vowel irrespective of whether the consonant was originally single or double. It happened equally in words containing an original long vowel. Whether or not a long vowel was originally long or short, it seems that there may possibly have been a tendency to shorten long vowels to compensate for the increasing tenseness of the following consonant, as Jackson suggested. Rhŷs considered that pre-occlusion occurred first after short vowels and later spread to syllables containing long ones; this appears to fit with his and Jackson's hypothesis well […]
>
> The logical consequence of these observations is that pre-occlusion in Manx had no phonemic motivation but was instead determined only by word final position in a stressed syllable. This seems to be a good explanation for its comparatively wider operation, although it does not entirely explain why the additional changes /l/ [l] > [dl] and /ŋ/ [ŋ] > [gŋ] occurred only in Manx. It may have served to emphasise the long nature of a syllable where the inherited vowels tended to be shortened, although the evidence is equivocal (Chaudhri 2007: 43)

Chaudhri's invocation of Rhŷs overlooks the fact that the latter explicitly links the genesis of preocclusion with original fortis sonorants.

Chaudhri (2007: 55) argues that stressed position in itself favours the development of preocclusion. Although the following comment is made in

relation to Cornish, combined with the above remarks on Manx we may infer that Chaudhri thinks stressed position in and of itself is sufficient to motivate preocclusion in Manx, given that he supposes that, unlike in Cornish, there was no longer any fortis-lenis, tense-lax or geminate-non-geminate contrast in Manx at the time of the development of preocclusion:

> It is reasonable to suppose on a general basis that phonemes are articulated with additional tenseness in a stressed syllable and moreover that they may receive heavier articulation when the vocalic element of the syllable is relatively short and the consonantal element is relatively long. This is a good description of the environment in which pre-occlusion is in fact observed (Chaudhri 2007: 55)

As discussed above, Chaudhri's (2007: 42) suggestion that '[i]n the case of words containing an original short vowel, it seems most likely that any lengthening of the vowel occurred earlier than pre-occlusion' seems to imply an earlier stage characterized by loss of gemination and lengthening of the short vowel, presumably by compensatory lengthening, followed by new gemination and subsequent preocclusion. This seems to be based on an overly simplistic view of compensatory lengthening or diphthongization and preocclusion as binary alternatives. It is possible that preocclusion and vocalic lengthening or diphthongization arose more or less simultaneously; it is normal that multiple cues for a phonological contrast exist side by side, and that diachronic changes involve gradual shifts in the prominence of different cues. Even in the most conservative Gaelic dialects which retain long sonorants, the vowel may be somewhat lengthened also, as noted by Jones (2010: 61) in Jura Gaelic:

> The consonants /ʟ/, /lʲ/, /ɴ/, /nʲ/ and /ʀ/ are given by Holmer (1938: 68) as occurring in lengthened form, represented orthographically by doubling. Holmer gives such words as *ceann*, *mall* and *barrachd* with these consonants denoted as long and the vowel immediately preceding them short. He contrasts this with the forms familiar in northern dialects where the consonant is short with the preceding vowel undergoing diphthongisation.

> In the data I have gathered there does in fact appear to be some lengthening of the vowel preceding the 'doubled' forms of /**ʟ**/, /**lʹ**/, /**ɴ**/, /**nʹ**/ and /**m**/ where this occurs in a monosyllable or in the stressed syllable of a polysyllabic word where the /**ʟ**/, /**lʹ**/, /**ɴ**/, /**nʹ**/ or /**m**/ forms a homorganic cluster with a following consonant as, for example in *beanntan* [**bi̯ɑˑɴˑd̪ən**] ('mountains'). The syllable is long with partial lengthening of the vowel and lengthening of the consonant as well. I mark this phonetically as a half long vowel followed by a half long consonant (Jones 2010: 61)

As noted by Jones (2010: 62), this is implicit in the medieval Gaelic grammarians' concept of 'middle quantity' (*síneadh meadhónach*) (Greene 1952), and the occasional marking of vowel length in such items as far back as the Old Irish period (*GOI*: 32):

> Original short vowels are sometimes marked long when followed in the same syllable by unlenited *m*, *l*, *n*, *r* […]. Accordingly they must have at least sounded longer than the normal short vowel. Most, though not all, of them are long in the modern dialects also.
>
> The examples given [in *GOI*] are of the type *ránn*, *tróm*, *báll*, […]. Now all these […] still have a short vowel in many of the modern dialects, e.g. Donegal, where the usual treatment is short vowel plus long consonant. That is what the traditional spelling points to and the type from which the forms found in the other dialects […] are logical developments. There is of course no reason to believe that the vowels of these syllables sounded longer than the normal short vowels; it was the syllable itself which was half-long and therefore occasionally marked long. The syllable *ferr* was felt to be longer than *fer*, but not as long as *fḗr* (Greene 1952: 212–3)

If vowel and consonant length can co-exist simultaneously, and preocclusion is a development of the latter, then there is no obstacle to the initial restriction of preocclusion to long sonorants (and sonorant clusters). Chaudhri (2007: 43) does accept that preocclusion may have spread from one environment to another, namely 'pre-occlusion occurred first after short vowels and later spread to syllables containing long ones'.

In explaining why preocclusion does not occur medially, Chaudhri suggests that Manx 'did not retain the phonemic oppositions /nn/–/n/, /mm/–/m/ by the time of pre-occlusion' (since otherwise we might expect medial G. *-nn-* etc. to give medial [dn] as in Cornish). However, it is quite unremarkable for the fortis sonorants to develop differently in medial and final position in Gaelic dialects. In Manx itself there is typically lengthening or diphthongization, and sometimes modification of quality (rounding) before coda fortis sonorants (e.g. G. *ceann* 'head' > Manx *kione* /kʲoːn/, /kʲaun̪/, phonetically [kʲo(ː)ᵈn], [kʲau̯ᵈn]), but before medial fortis sonorants there is only modification of quality (e.g. G. *ceannach* 'buy' > Manx *kionnagh* /kʲonax/). In Gaelic dialects in general we can identify at least four stages, from the most conservative to the most innovative (cf. Morrison 2020: 188):

1. Geminate sonorants retained both medially and finally, with no categorical vowel lengthening.
   – Old Irish;
   – Donegal dialects (Quiggin 1906: 77–8, 122; Wagner 1959: 17–26; Henderson 1974: 139–44; Wheatley and Iosad 2021), e.g. **k′aɴːɪ** *ceannuighthe* 'bought' (*LASID* IV: 143, point 83).
2. Geminate sonorants retained finally but shortened medially, with no categorical vowel lengthening or diphthongization.
   – Southern Scottish dialects (Holmer 1957: 87;[10] Holmer 1962a: 21–4, 27–30; Ó Murchú 1989: 107–10; Jones 2010: 62–3, 74–5), e.g. *ceann* 'head' **k′ɛn‘**ˑ, *ceannaich* 'buy' **k′ɛ’n‘iç** (*SGDS* II: 326, 336, point 53, Islay);[11]
   – Early Manx?
3. Geminate sonorants shortened in all positions but (all or some) fortis-lenis contrasts retained by means of place of articulation (dental v. alveolar) and secondary articulation (velarization, palatalization); there may be vowel lengthening or diphthongization before coda fortis sonorants.
   – Connacht (de Bhaldraithe 1945: 106–11; de Búrca 1958: 131–3; Mhac an Fhailigh 1968: 160–3; Ó Curnáin 2007: 210–22, 234–7);
   – Clare (Holmer 1962b: 38–42, 55–6);
   – northern Scottish dialects (Borgstrøm 1937: 90–95, 111–19; 1940: 38–46, 65–72, 142–8, 159–65; 1941: 24–29, 35–41, 77–82, 95–99; Oftedal 1956: 87–93, 120–29);
   – Classical Manx?

4. Geminate sonorants shortened in all positions, fortis-lenis contrast in sonorants entirely lost;[12] there may be vowel lengthening or diphthongization before original coda fortis sonorants.
   – Most of Munster (Ó Cuív 1944: 119–22; Breatnach 1947: 140–3; Ó Sé 2000: 17–18);
   – Late Manx.

These developments may be represented schematically as follows:[13]

	(1)	(2)	(3)	(4)
ceannach	/kʲaNːax/	/kʲaNax/	/kʲaNax/	/kʲanax/
ceann	/kʲaNː/	/kʲaNː/	/kʲəu̯N/	/kʲəu̯n/

It is quite plausible that Manx was at stage (2) at the point when preocclusion first developed, and that original final fortis sonorants were still geminate at this point (contrary to Chaudhri's claim) and thus liable to be affected by the initial development of preocclusion, whereas medial fortis sonorants had already been shortened, and so were unaffected by preocclusion, unlike in Cornish. Incidentally, the relatively recent shift from stage (2) to (4) within the recorded history of Manx since the seventeenth century should caution us against too readily claiming historical affinities between Manx and particular dialects in the rest of the Gaelic speech area. In 1610 the realization of the liquids in Manx may have closely resembled what we would now regard as the conservative Ulster or southern Scottish system, while more recent periods closely resemble contemporary Munster speech. In fact, it is unsurprising that shared inherited structures give rise to a limited range of distinct outcomes in different dialects, which may nonetheless be parallel, independent developments.

Ó Maolalaigh (2014), Wagner (1956)

Ó Maolalaigh (2014) briefly considers Manx preocclusion in a paper on 'glottal and related features' in the Gaelic languages. In unpublished lecture notes, he tentatively suggests that preocclusion resembles the phenomena of glottalization, h-insertion, devoicing and gemination in other dialects. He notes that Manx preocclusion can shorten a preceding long vowel, and proposes that 'preocclusion following long vowels may be a secondary

development', implying that preocclusion began in stressed monosyllables with original short vowels.

> It seems that pre-occlusion has the effect of shortening a preceding long vowel, which is reminiscent of the shortening of vowels before geminates in Donegal Irish. The development of pre-occlusion following long vowels may be a secondary development.
>
> […]
>
> My suggestion is that pre-occlusion in Manx may be yet another reflex of glottalisation in the Gaelic languages. Phonetically speaking, the preglottalisation of sonorants is similar to pre-occluded sonorants or prestopped sonorants in the occlusion or closing of the oral cavity. They are acoustically very similar, it seems to me (Ó Maolalaigh 2014: 22–3)

Wagner (1956: 109) similarly saw the origins of preocclusion in glottalization:

> The occlusive element of the sonores (**ˈn**), as well as the pre-aspiration of the tenues must arise from a glottal stop (Wagner 1956: 109)

Ó Maolalaigh (2014: 23) lays considerable weight on the two examples of medial preocclusion from *HLSM* cited above (*brynnagh* and *lieenyn*), suggesting that '[p]erhaps it was once more common intervocalically but has been lost', without, however, suggesting a mechanism or motivation for this loss, or for its retention in these items.

> The environments in which pre-occlusion occurs is [*sic*] very similar to that of glottalisation and gemination in ScG and Irish, i.e. it occurs in word final position and intervocalically following a short vowel. Unfortunately, I have only two examples of this in intervocalic position. Perhaps it was once more common intervocalically but has been lost (Ó Maolalaigh 2014: 23)

It appears to be implicit in the following discussion from Ó Maolalaigh's (2014: 24) conclusion that he considers the environment of short vowel +

lenis ('light') sonorant to be the prototypical environment for preocclusion, from which it subsequently spread to other environments (short vowel + fortis sonorant, long vowel + lenis sonorant):

> The joint evidence from Holmer and Wagner suggest that glottalisation may have occurred originally only with the light single sonorants.
>
> The absence of glottalisation with tense sonorants originally, can be related to the fact that glottalisation is not associated with heavy syllables. We have seen that in the case of syllables with long vowels and epenthetic or svarabhaktic environments. We can extend that to syllables containing geminate tense double sonorants too, although there seems to have been fluctuation between tense geminates and tense non-geminates in intervocalic position.
>
> Given the presence of glottalisation with heavy sonorants nowadays in ScG, it seems that gemination spread to these once they were reduced to non-geminate consonants. Perhaps the spread of glottalisation itself was a catalyst in the reduction of long tense sonorants – just as we have seen in the case of the shortening of stressed long vowels before geminate and pre-occlusive stops.
>
> The most conducive environment for glottalisation, gemination and pre-occlusion is a preceding short vowel. Indeed, we have seen that gemination in Irish and pre-occlusion in Manx can have the effect of shortening preceding long vowels (Ó Maolalaigh 2014: 24)

Ó Maolalaigh (2014: 27) further presents the following reconstruction of preocclusion as a later stage in a series of developments of glottalization. This reconstruction is predicated on the same (possibly unsound) assumption made by Chaudhri that degemination in e.g. *cam*, *cill* occurred prior to the development of preocclusion.

(5) Glottalisation of stops may result in pre-occlusion:
cam **kamm** > **kam** > **k′a^{b}m,** *cill* **k^{j}iʟ^{j}:** > **k^{j}iʟ^{j}** > **k^{j}i^{d}l**
(Ó Maolalaigh 2014: 27)

Ó Maolalaigh's hypothesis that Manx preocclusion developed out of glottalization in similar environments to those found with the latter phenomenon in southern Scottish Gaelic dialects supposes that it was originally prevalent word medially. However, there is little evidence for this.

As Ó Maolalaigh notes, very few apparent cases of medial preocclusion occur in *HLSM* (II: 49, 238, 277, III: 29). Ned Maddrell's plural **l′iᵈnən** *lieenyn* 'nets' (G. *líon*) may be influenced by preocclusion in the singular, or indeed by the /nt/ cluster of the historical irregular plural *lieenteenyn* (Bible, Cregeen); similarly Joseph Woodworth's *joanagh* **d′ʒɔᵈnɑ̨x** 'dusty' probably reflects the monosyllabic stem *joan*. Woodworth's **brɛ̨d′n′ɑ̨x** 'flattering, comely' and **brɛ̨n′ərɑ̨x** 'act of flattering' (the latter without preocclusion, it should be noted) are anomalous in other ways, as palatalization is not expected here (if the etymology *brionnal* is correct). It seems more likely that medial preocclusion here is a speech error, than that medial preocclusion was once widespread before its unmotivated loss. Indeed, if preocclusion ever had developed medially after short vowels, there would be motivation for retaining it in the interests of increased syllable weight, as with glottalization and gemination etc. in other dialects. In addition, medial preocclusion would be expected to be more prone to being reanalysed as medial clusters /d.n/ etc., with syllable boundary, given the pre-existing phonotactics of the language; in which case they would be unlikely to subsequently disappear.

As mentioned above, Ó Maolalaigh's (2014: 27) reconstruction of the development of preocclusion with original fortis sonorants apparently suggests loss of gemination prior to the development of preocclusion. As discussed above in relation to Chaudhri's hypothesis, there is no reason to suppose this, and it will be argued that there is good typological reason rather to suppose that preocclusion developed from original final geminate sonorants. The development of an oral stop from a glottal segment (buccalization), on the other hand, is reported to be typologically very rare (Trask 1995; La Voie 1996: 304; Hall 2009: 150–1).

If the evidence of MNHL MD 900 MS 08307 discussed above is taken to suggest that preocclusion, after developing in final geminate sonorants, spread first to long vowel + lenis sonorants, and only subsequently to short vowels + lenis sonorants, then the environments in which preocclusion originates and is initially favoured are quite the opposite of those in which glottalization and the other features discussed by Ó Maolalaigh (2014: 14, 27) are most

prevalent. Nevertheless, it may be argued that preocclusion ended up serving prosodic ends similar to those of glottalization and related phenomena (see below).

Broderick (2018)

Similarly to Rhŷs (1894), Broderick (2018: 13) in a brief comment suggests that preocclusion began with the original fortis sonorants, although he does not mention the issue of consonant length.

> Preocclusion became quite prevalent in L[ate] M[anx] whereby original fortis /L/, /N/, /M/, /Ɲ/, in losing their fortis quality, would be preceded by the corresponding stop, viz. /dl/, /dn/, /bm/, /gŋ/ to differentiate them from their lenis counterparts (Broderick 2018: 32)

It seems more probable that the development of preocclusion precedes the loss of the fortis-lenis contrasts, rather than compensating for it as suggested by Broderick. Furthermore, it is unclear what the 'lenis counterparts' of 'fortis' '/M/, /Ɲ/' would be: although preocclusion in its earlier stages may have played a role in maintaining contrasts between e.g. /N/ [n̥ʸ(:)] and /n/ [n̥], the original length of the fortis consonants is likely to be more relevant in motivating the development.

McDonald (2021)

In a chapter discussing possible Norse influence on Manx, McDonald (2021: 95–96) points to the parallel between Manx and Icelandic preocclusion as well as the presence of the phenomenon in other northern European languages, raising the possibility of language contact as an explanatory factor in the Manx development. He admits that there is 'no way knowing for certain why or how this behaviour [i.e. preocclusion] arose, and it is possible that it arose organically on the Isle of Man, not from outside influence' (ibid.: 95), and that the probable date of the development in Icelandic in the fourteenth century on manuscript evidence (Stefán Karlsson 2014: 21), after the period of Norse rule in Man, is a challenge for the contact hypothesis, although he points out that developments in spoken language can predate their appearance in the written record (McDonald 2021: 96). Iosad (2016; in preparation) argues on

chronological and historical grounds that direct contact influence of these languages on each other in respect of preocclusion and other prosodic features is implausible, but that more fundamental structural similarities between these languages — which may themselves reflect older language contact (cf. Salmons 1992) — 'conspire to encourage the repeated genesis of shared features' (Iosad 2016: 15). This seems a more plausible scenario than the diffusion of preocclusion as a direct result of language contact; it would also account for the development of preocclusion in Cornish in the absence of significant Norse settlement.[14]

The origin and spread of preocclusion

Typological and phonetic considerations

Given the typological comparisons with other northern European languages mentioned above, it seems that the most likely origin for preocclusion in Manx would be, as Rhŷs (1894) supposed, as a development of the original long sonorants /m:/, /N:/, /Nʲ:/, /ŋ:/, /ŋʲ:/, /L:/, /Lʲ:/ and the clusters /RN/, /RNʲ/, /RL/, /RLʲ/. As far as the nasals are concerned, the initial development of preocclusion would consist of misalignment between oral closure and opening of the velum, resulting in an interval where the oral occlusion has been made but the velum is still closed. The greater the duration of the sonorant, the more time there is for this to occur and be perceived and conventionalized. It is worth noting that in languages which have long nasal sonorants but without consistent or frequent preocclusion, preocclusion may nevertheless occur sporadically.[15] Intrusive stops are also phonetically natural in the /rn/, /rl/ clusters (Wetzels 1985).[16] In view of the absence of an oral-nasal transition, the development of preocclusion may be less natural in the long laterals /L:, Lʲ:/, as pointed out by Chaudhri (2007: 54):

> The nasals [n] and [m] possess close oral counterparts [d] and [b], whereas the articulation of the lateral [l] is relatively further removed from that of [d] than is true of [n]. […] This may explain why /nn/ and /mm/ were inherently more likely to be pre-ploded as [ᵈn] and [ᵇm] than /ll/ […]. It is likely that the further type of pre-occlusion [ll] > [ᵈl] occurred in Manx, but not in Cornish, because the phonetic motivation for these changes

> was sufficiently greater that the articulatory distance between [l] and [d] could be overcome.

Marstrander (1932: 58; quoted above) takes the difference between nasals and laterals in this regard as evidence against oral-velar misalignment as an account of the initial development, but his analysis confounds different periods of the development, and overlooks the possibility that preocclusion could spread analogically from *nn* and *rl* to *ll*, as well as other motivations for the development or extension of preocclusion, such as to preserve consonant length and moraicity. The fact that some scholars fail to notice preocclusion with laterals, and that it seems to be less prevalent in general with laterals than nasals, may suggest that the development was not so well-established with laterals.

Generalization and reanalysis of preocclusion

From the long sonorants and sonorant clusters, preocclusion would have spread to original short or lenis sonorants, perhaps in association with the mergers between fortis and lenis sonorants which seem to have taken place between the seventeenth and nineteenth centuries. Unfortunately, given that preocclusion is not evidenced in writing until after this spread had already taken place, there can be no firm evidence for this supposition. However, the evidence of MNHL MS 08307 discussed above may provide a clue. The fact that preocclusion is not found in items of the *ben* category (original short vowel + original lenis sonorant) in this manuscript may represent an intermediate stage, where preocclusion has spread to the *lane* (G. *lán*) category (original long vowel + original fortis) but not to the *ben* category. Such syllables (short vowel + most consonantal codas) are light or monomoraic in modern Gaelic languages, in contrast to Old Irish (Ní Chiosáin 1990; Green 1997: 65).

Preocclusion may have been reanalysed as a marker of long (i.e. bimoraic) or heavy syllables — that is, vowel length/diphthongality, sonorant length and preocclusion became interchangeable and co-existing markers of syllable weight. Compare Iosad (2016: 13), who comments briefly that moraicity is ‘possibly’ associated with Manx preocclusion; and also Chaudhri’s (2007: 43) comment that preocclusion ‘may have served to emphasise the long nature of a syllable where the inherited vowels tended to be shortened’. From here, preocclusion would finally spread to the *ben* category. This final stage may have

been encouraged by the analogy of the small number of monosyllables with original final long sonorants in which the vowel had not been lengthened, such as /ka[ᵇ]m/ *cam* 'bent' (G. *cam*), /tʃi[ᵍ]ŋʲ/ *ching* 'sick' (G. *tinn*), including those in which short vowels had been retained or restored by paradigmatic analogy, such as /tʃo[ᵈ]n/ *chionn* 'tight, fast' (G. *teann*), as well as anomalous items such as *skynn* 'knife' (G. *scian*) which may have had a long vowel or diphthong earlier.

Iosad (2016: 12) mentions the possibility of a 'bimoraic norm' in Gaelic which may motivate the development of /be[ᵈ]n/ etc. Sporadic gemination of consonants after short vowels in Manx (*HLSM* III: 27–8), as in other Gaelic dialects, may be a further manifestation of this tendency (Ó Maolalaigh 2014: 21), as may the Late Manx lengthening of certain stressed short vowels (Jackson 1955: 9; *HLSM* III: 122; Lewin 2020: 406–7), and perhaps the apparent Manx retention or restoration of the Early Irish constraint against final stressed short vowels (Lewin 2020: 147; cf. Breatnach 2003). As shown in the spectrograms above, preocclusion seems to be interchangeable with sonorant lengthening, and occasionally 'postocclusion' (cf. Rhŷs's [1886–93, notebook 7: 176] comment cited above on *ooyl* 'apple', G. *ubhal*, 'mostly **ūðλ** [uːd̪l̪] sometimes **ű̄λð** [uːl̪ᵍ]'), and these can all be seen as realizations of the same synchronic phenomenon.

Preocclusion as a synchronic prosodic process

Apart from the variability in production discussed in the preceding section, there is further evidence that preocclusion in Late Manx is synchronically an prosodic process which is implemented after other processes in its appearance in polysyllables with unstressed final syllables, where these are optionally reduced to monosyllabic realizations via secondary lenition of medial fricatives, as in *jeeaghyn* 'looking' (G. *déachain*):

/dʒiːxən/ > [dʒiːxən], [dʒiːɣən], [dʒiːːən], [dʒiːᵈn]
d′ʒiᵈn HB, SK, **d′ʒiəᵈn** JK, **d′ʒiːən** JTK, **d′ʒiən** JK, NM, **d′ʒiɣən**, **d′ʒiːg′ən** NM, **d′ʒiːɣən** JW (*HLSM* II: 229–30)

This medial lenition may apparently be lexicalized, as in *shegin da* 'must' (G. *is éigean do*), often spelled *sheign* in eighteenth- and nineteenth-century texts, for monosyllabic [ʃeinʲ], [ʃeiᵈnʲ] etc:

> **seiᵈˈn′** HK, **saiᵈn** NM, **baiᵈn** NM, **ʃein** TC, **ʃiːn** JK, **sain** JTK, EL, **sẹin** JW, **sein** EKh, **böin** RC, **brain** [*sic*] W:S (*HLSM* II: 28, 395–6)

Compare *er-egin* 'by force' (G. *ar éigean*) with retention of the disyllabic realization and no preocclusion: **ẹr** ˈẹːɣən′ (HK), **ẹr** ˈẹːɣən (JW) (*HLSM* II: 149).

Anomalous preocclusion in normally unstressed final syllables may be further evidence of preocclusion as a live synchronic prosodic process, as in **aˈraᵈn** EL *arran* 'bread' (G. *arán*) (*HLSM* II: 11), *cassan* 'path' (G. *cosán*) (Rhŷs 1886–93, notebook 6: 133). With *cassan* in particular (expected /ˈkasan/ [ˈkazan], [ˈkaðan]) it seems possible that the informant was deliberately stressing the final syllable to draw attention to the contrast (in vowel quality) with *cassyn* 'feet' (/ˈkasən/ [ˈkazən], [ˈkaðən]) in response to Rhŷs's questioning, thus creating a possible preocclusion environment:

> [John] Dawson [Michael / Peel, 1825–95] says **tē bĭ̯u er y chāðyn** [teː bi̯u er ə xaːðən] he is swift on his feet: but he calls a foot **căs** [kas], and **căsā́dn** [kaˈsaːᵈn] for a footpath (Rhŷs 1886–93, notebook 6: 133)

Preocclusion in Manx English and Revived Manx

Some of the scholars cited above remark on the presence of preocclusion in the contact-influenced variety of English spoken by Manx native speakers and others in the immediate post-language-shift period (Strachan 1897: 55; Marstrander 1932: 58; Jackson 1955: 113), although this seems to have long since disappeared from Manx English and is not mentioned in recent accounts such as Hamer (2007) or Broderick (2021). Preocclusion is also found in the contemporary speech of L2 speakers of Revived Manx, where it is

> likely to represent retention or restoration of particularly salient or iconic linguistic features (i.e. distinctively 'Manx' as opposed both to English and other Gaelic varieties), which are seen as a link to the historical language and thus a marker of linguistic authenticity (Lewin 2022: 678–9)

However, preocclusion in the revived language may be more distinctly articulated than in the traditional variety, and more likely to be realized syllabically, in line with general English influence on L2 pronunciation. Preocclusion also appears to be lexicalized as a feature of certain words for some revival speakers, rather than being conditioned entirely by phonological environment as appears to have been the case in the traditional language (although see Rhŷs's [1894: 143] comment discussed above).

Conclusions

Apart perhaps from the complex area of lexical stress shift and long vowel shortening (e.g. Ó Sé 1991; Green 1997; Lewin 2020: 361–87), no topic in the (generally rather neglected) field of Manx historical linguistics has received as much scholarly attention as that of sonorant preocclusion. However, despite the impression of Manx preocclusion as an exotic and noteworthy feature in the wider cross-linguistic and Gaelic dialectological context, in some ways it may be viewed as a relatively ephemeral part of the phonology: it is generally weakly articulated and often entirely absent in native speech; does not appear to have been particularly salient to speakers; is ignored in the written language with the exception of a handful of texts; and is best analysed as a reflex of more general processes of interactions between vowel and consonant length and syllabic structure attested in differing form throughout the Gaelic speech area.

Nevertheless, it is hoped that the analysis provided here sheds further light on the interactions between consonant realizations and prosodic structure in the Gaelic languages, as also seen in related phenomena such as glottalization, preaspiration and gemination (Ó Maolalaigh 2014; Iosad 2016; 2020), as well as clarifying the internal linguistic history of Manx in recent centuries, and clearing up some deficiencies and omissions in previous descriptions and analyses. A close examination of the available data also highlights the decisive role of internal motivations (at least proximally) for the development of preocclusion despite the superficial lure of the 'contact romantic' tendency to ascribe divergent features of Manx to Norse or English influence (Lewin 2017: 195; cf. Lass 1997: 201). This does not exclude the possibility, however, that preocclusion and related prosodic features may ultimately be indirect echoes of ancient language contact giving rise to a northwest European

sprachbund of languages with similar phonological structures (Salmons 1992; Iosad 2016; 2021).

Notes

1 This article builds on my discussion of this topic in my doctoral thesis (Lewin 2020). I would like to thank the AHRC Centre for Doctoral Training in the Celtic Languages for funding my research; Professor William Lamb and Dr Pavel Iosad, University of Edinburgh, for their patient and insightful supervision; Professor Roibeard Ó Maolalaigh, University of Glasgow, and Dr Warren Maguire, University of Edinburgh, for providing many helpful comments in their role as examiners; and Societas Celtologica Europaea for awarding me the Johann Kaspar Zeuß prize in recognition of my work. I would also like to thank Pavel Iosad in particular for helpful discussion of the present topic and sharing unpublished work with me, as well as Roibeard Ó Maolalaigh for sharing the lecture notes discussed below in the section on origin hypotheses. I would also like to thank an anonymous reviewer for helpful feedback. Any outstanding errors are my own.

2 In citations from the literature, authors' original phonetic transcriptions are silently highlighted in bold and transliterated into IPA notation by the present author where appropriate. Any inaccuracies of interpretation are mine.

3 For biographical details of Rhŷs's informants, see Broderick (2016).

4 Broderick gives an exception **lo^{g}ŋ** from Thomas Christian of Maughold, but explains this by noting '[h]is father came from Lonan (i.e.. on the southside) from whom he likely inherited any southern forms in his speech' (*HLSM* I: 162). Another counter-example is **k′i^{d}l** (W:N) *keeill* 'church' (G. *cill*) (*HLSM* II: 245).

5 In a few cases the sense of the passage is unclear and so the reading of the word is not entirely certain; these are indicated with a question mark in the table below. A handful of other possible instances were so uncertain that they were omitted entirely.

6 From the song *Yn Folder Gastey* 'The Nimble Mower'. Moore (1896: 70–1) interprets this as *foaidyn* 'sods', but the metre clearly requires a monosyllable with preocclusion, rhyming with *boyn* 'heel', and it is probably to be equated with Kelly's (1866: 87) *foyn* 'the grass or ground underfoot, earth's mantle or covering', Cregeen's (1835: 67) *foain* 'the sward, the green grassy surface of the earth or ground; *Fo-ain*, (under us)', which is evidently G. *fonn* 'base,

foundation, soil, ground, land, territory' (cf. Ó Dónaill, Dinneen, *eDIL*). Kelly's spelling *foyn* is probably more accurate; Cregeen's <i> is unlikely to represent palatalization here, but rather reflects his predilection for inserting unwarranted <i> (Lewin 2020: 78), and in this case he is probably influenced by his proposed etymology, and perhaps the preceding headword *foaid* 'sod' (G. *fó(i)d*). The stanza does not occur in the version of the song given in Broderick (1982: 11–3) from the Clucas Collection. In a recording of the native speaker John Nelson (1839/40–1910) reading Moore's text, he pronounces singular *foaid* 'sod' [foːdʲ] (Trebitsch and Remmer 2003: disc 2, track 19).

7 Brook forming the boundary between the parishes of Jurby and Andreas (cf. Rhŷs 1894: 143); for etymology see Marstrander (1932: 231–4), Broderick (1997: 146).

8 I.e. underlyingly long; disregarding optional vowel shortening which in some cases may be a result of preocclusion itself, and is assumed to be non-categorical.

9 The short vowel here is probably by analogy with inflected and derived forms such as plural *chionney* (G. *teanna*), verbal noun *chionney* 'tighten' (G. *teannadh*) etc. See Lewin (2020: 359–60) for discussion of similar cases.

10 Holmer's (1957: 87) descriptions of Arran Gaelic seem to suggest optional retention of intervocalic fortis sonorant length, perhaps with morphological conditioning.

11 Holmer (1938: 81) tentatively suggests that medial *nn* may be lengthened in Islay as transcribes it and *ll* as such, e.g. **ə-nɔl**:ᵘ**ikj** *Nollaig* 'Christmas', **kˈjɛn**:**iç** *ceannaich* 'buy' (ibid.: 137, 197). Jones (2010: 74) casts some doubt on Holmer's descriptions, and gives forms such as **kˈɑʔniç** *ceannaich*. One wonders whether Holmer perceived sequences [ʔN] as a long sonorant; in my experience glottalization is often quite weak in Islay Gaelic. On the other hand, Ó Maolalaigh (2014: 12) suggests that 'Holmer's description reflects the speech of older conservative speakers and that he ignored or failed to hear glottalisation in the speech of other speakers'. In general, Holmer's discussion of this topic seems somewhat confused; so he claims that '[i]n Islay, Gigha, and certain parts of Skye, no difference is heard between the lenited and non-lenited n-sounds'. For what may be regarded as an intermediate stage between (2) and (3) in the Gaelic of Colonsay (situated between the southern area typified by Islay and the more northerly dialect area typified by diphthongization in items like *ceann*), see Scouller (2017: 76).

12 Except for /ŋʲ/ as a reflex of /Nʲ/ in Manx and certain Munster varieties (see above).

13 The details are somewhat simplified, especially as regards vowel quality.

14 McDonald (2021: 103) acknowledges my scepticism of the contact hypothesis.

15 Pavel Iosad, personal communication, has noted this in Welsh *honni* 'claim'.

16 Compare the development of medial **ɴr** > **ɴḍr**, **ɴṭr** and **ʟ** > **ʟḍr**, **ʟṭr** in Cois Fhairrge Irish (de Bhaldraithe 1945: 36–7), and Manx *maynrey* 'happy' (G. *méanar*) /meːnrə/ > [meːndrə] (Rhŷs 1894: 149; *HLSM* III: 18).

Abbreviations and transcription practices

Phonetic and phonemic transcriptions follow IPA conventions except that fortis or tense sonorants are shown with capital letters, e.g. /N, Nʲ/. Preocclusive stop elements are shown with superscript symbols, e.g. [ᵈn]. In citations from the literature, authors' original phonetic transcriptions are silently highlighted in bold and transliterated into IPA notation by the present author where appropriate; any errors of interpretation are my own. Abbreviations of the names of native speaker informants follow those given by Broderick (*HLSM* I: xxvii–xxviii).

dat.	dative
G.	('Common') Gaelic
GOI	*A Grammar of Old Irish* (Thurneysen 1946)
HLSM	*A Handbook of Late Spoken Manx* (Broderick 1984–86)
Ir.	Irish
LASID	*Linguistic Atlas and Survey of Irish Dialects* (Wagner 1958–69)
MNHL	Manx National Heritage Library, Manx Museum, Douglas, Isle of Man
OIr.	Old Irish
N	northern
S	southern
ScG.	Scottish Gaelic
SGDS	*Scottish Gaelic Dialect Survey* (Ó Dochartaigh 1994–97)
sg.	singular

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eDIL = Electronic dictionary of the Irish language. <www.dil.ie>

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