

**Scottish Gaelic**

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## Scottish Gaelic

### Introduction

Scottish Gaelic is a minority language of Scotland spoken by approximately 58,000 people, or 1% of the Scottish population (Census 2011). Here, we refer to the language as ‘Gaelic’, pronounced in British English as /galɪk/, as is customary within the Gaelic-speaking community. In Gaelic, the language is referred to as *Gàidhlig* /ka:lɪc/. Gaelic is a Celtic language, closely related to Irish (MacAulay 1992, Ní Chasaide 1999, Gillies 2009). Although Gaelic was widely spoken across much of Scotland in medieval times (Withers 1984, Clancy 2009), the language has recently declined in traditional areas such as the western seaboard and western islands of Scotland and is now considered ‘definitely endangered’ by UNESCO classification (Moseley 2010). Analysis of the location of Gaelic speakers in Scotland and maps from the most recent Census in 2011 can be found in National Records of Scotland (2015). Figure 1 shows the location of Gaelic speakers in Scotland as a percentage of the inhabitants aged over three in each Civil Parish who reported being able to speak Gaelic in the 2011 Census.

<INSERT FIGURE 1 ABOUT HERE>

A dialect of Gaelic in East Sutherland was once described as a prototypical case of language obsolescence (Dorian 1981) but the language is now undergoing significant revitalisation measures (e.g. McLeod 2006). These include the introduction of nursery, primary and secondary immersion schooling in Gaelic, as well as adult learning classes, more university degree courses, and many other public and private initiatives. Many of these activities are coordinated by the Gaelic Language Board (Bòrd na Gàidhlig), which was

created as a result of the 2005 Gaelic Language Act (Scotland). The language act states that Gaelic holds the same legal status as English in Scotland.

The speaker in the speech samples associated with this contribution is a male in his fifties. He was born and raised in Ness, a Gaelic-speaking community in the north of the Isle of Lewis, and is currently working at the University of Glasgow. Lewis is the most northerly island in the chain of islands known as the Outer Hebrides, or the Western Isles. It is the part of Scotland where the densest concentration of Gaelic speakers resides (52% Gaelic-speaking, 2011 Census). His speech can be considered representative of the middle-aged generation of fluent traditional Lewis Gaelic speakers, with some more levelled features due to his time in Glasgow among speakers of other dialects. We have noted where his Lewis dialect diverges significantly from other Hebridean dialects. The recordings were made onto a laptop computer in the noise-attenuated sound studio at the University of Glasgow using a Beyerdynamic Opus 55 headset and a Sound Devices USBPre2 pre-amplifier and analogue-to-digital converter.

## **Consonants**

### **‘Broad’ and ‘Slender’**

Similar to Irish, Gaelic consonants have a palatalised and a non-palatalised series. These are often referred to as ‘slender’ and ‘broad’ consonants respectively in the Gaelic literature and teaching materials (e.g. MacAulay 1992, Gillies 2009, Ó Maolalaigh & MacAonghais 2008, Bauer 2011). Several consonants do not take part in this alternation: /m v h/. Borgstrøm (1940:17) suggests that no labial(-dental) consonants have the alternation in Scottish Gaelic but recent articulatory work on Irish confirms that in Irish /p<sup>h</sup> p f/ do have palatalised counterparts (Ní Chiosáin & Padgett 2012), so we follow their work and Ladefoged et al. (1998). See also Oftedal (1965) and MacAulay (1968) for further comments on this topic. In

Table 1 we have shown the non-palatalised series on the top row of each cell, and the palatalised series below where possible. Laterals, rhotics and alveolar/dental nasals are discussed separately below. Sample words are shown in Table 2.

<INSERT TABLE 1 ABOUT HERE>

<INSERT TABLE 2 ABOUT HERE>

The only sounds with actively velarised counterparts are laterals and dental/alveolar nasals, which are discussed separately below. Some accounts of Irish have suggested that some other non-palatalised sounds are velarised, specifically /p<sup>y</sup> b<sup>y</sup> f<sup>y</sup> m<sup>y</sup> t<sup>y</sup> d<sup>y</sup> s<sup>y</sup>/ (Ní Chasaide 1999:35). This has not been reported for Gaelic, see Borgström (1940:17), Gillies (2009:239), Ladefoged et al. (1998:3), Ternes (2006:18), Bosch (2010:268–269). Ní Chiosáin & Padgett (2012:174) state that in Irish, the contrast is manifested as palatalised vs. non-palatalised before back vowels and palatalised vs. velarised before front vowels. In Irish, the example most commonly used is the contrast between *buí* ‘yellow’ /b<sup>y</sup>i/ and *bí* ‘be!’ /b<sup>i</sup>/ (see Ní Chasaide 1999 for audio recordings). The analogous context in Gaelic is not produced with velarisation e.g. *puing* ‘point’ [p<sup>h</sup>əiŋ<sup>i</sup>c]; *buidhe* ‘yellow’ [pui.ə]; *tuigsinn* ‘understanding’ [t<sup>h</sup>ikʃi]; *duine* ‘anyone’ [t<sup>h</sup>iŋ<sup>i</sup>ə]; *muinntir* ‘people’ [məiŋ<sup>i</sup>tʃ<sup>h</sup>əð]; *suidhe* ‘sit’ [sui.ə].

The broad/slender distinction manifests in a change of primary place of articulation for sounds produced further back than those discussed so far. For example, the palatalised dental/coronal stops are most commonly post-alveolar affricates, although some speakers produce alveolo-palatal affricates. Similarly, /ʃ/ is the palatalised counterpart to /s/. The

palatalised counterparts to /k<sup>h</sup>/ and /k/ are produced as palatal stops /c<sup>h</sup>/ and /c/ respectively (e.g. Borgstrøm 1940:17). /x/ and /ç/ are a broad and slender pair respectively, as are /y/ and /j/.

### **Initial consonant mutations**

A feature common to all the Celtic languages is the existence of initial consonant mutations, a system of consonantal alternations under certain morphophonological conditions. The most common mutation in Gaelic, and the only one recognised in orthography, is lenition. This mutation occurs in contexts such as feminine singular nominative nouns after the definite article, feminine attributive adjectives, the dative case with the definite article, and the vocative of proper nouns. For full details about the contexts where lenition occurs see Ó Maolalaigh (1996) and Byrne (2002). Examples of lenition are shown in Table 3. This table shows the broad transcription of lenited consonants; Archangeli et al. (2014) note there may be phonetic differences between lenited and ‘underlying’ consonants i.e. incomplete neutralisation (see also Welby et al. 2017 for incomplete neutralisation in Irish).

A second initial consonant mutation, not shown in orthography, and not realised in all dialects, is known as nasalisation or eclipsis. The phenomenon in Gaelic is somewhat different from the Irish phenomenon of eclipsis, which is recognised in orthography (Ó Maolalaigh 1996). In Gaelic, there is some dialectal variation in the realisation of eclipsis and its realisation is not obligatory. For details see Gillies (2009:251–252) and Ó Maolalaigh (1996). Eclipsis occurs after closely grammatically related items such as the definite article and noun or adjectives ending in a nasal consonant and noun.

<INSERT TABLE 3 ABOUT HERE >

## Aspiration

In word initial position, stops are either voiceless unaspirated or voiceless post-aspirated. In word-medial and word-final position, the stop series are either voiceless unaspirated or voiceless pre-aspirated (Borgstrøm 1940, Oftedal 1956, Ladefoged et al. 1998, Ó Maolalaigh 2010, Nance & Stuart-Smith 2013). Pre-aspiration is typically longest in velar/palatal stops and shortest in bilabials. The realisation of preaspiration varies from dialect to dialect. In Lewis it is typically a voiceless [h], but preaspiration can be more [x]-like especially preceding velar stops in dialects such as Barra (see Ó Murchú 1985). Instrumental evidence in Nance & Stuart-Smith (2013) suggest very little or no closure voicing even in word-medial stops which are orthographically *b d g*. For this reason we follow Ladefoged et al. (1998) in stating that the contrast is one of aspiration rather than voicing and use the transcriptions /p<sup>h</sup>/ and /p/ etc.

## Laterals, Nasals and Rhotics

This subheading is shorthand to refer to laterals, dental/alveolar nasals and rhotics. Previous reports state that these sounds participate in a three-way contrast (Borgstrøm 1940, Oftedal 1956, Ní Chasaide 1979, Shuken 1980, Ladefoged et al. 1998, Ternes 2006, Nance 2013, 2014). In earlier forms of Gaelic, it is hypothesised that there was a four-way distinction between these sounds. The alleged distinction was as follows: palatalised and velarised dental variants contrasted with palatalised and velarised alveolar variants i.e. /ɲ̪ ɲ̪ʷ ɲ̪ʲ ɲ̪ʲʷ/ (see, for example, Russell 1997:76). This previous four-way distinction has reduced to the three-way distinction, or two-way distinction in the case of rhotics, in most varieties of modern Gaelic

(see Ternes 2006:19 for details). We refer to the three sounds as ‘palatalised’, ‘velarised’ and ‘alveolar’ as shorthand for their full descriptions.

### **Laterals**

The laterals in modern Gaelic are a velarised dental lateral, a palatalised dental lateral, and an alveolar lateral. Following static palatographic work in Shuken (1980) and Ladefoged et al. (1998), and descriptions in Borgstrøm (1940) and Oftedal (1956), we consider the palatalised lateral as palatalised, rather than palatal. Acoustically, the velarised lateral is characterised by low F2 and high F1, the palatalised lateral by high F2 and low F1, and the alveolar lateral lies in between these two extremes (Shuken 1980, Ladefoged et al. 1998, Nance 2013, 2014).

In word-initial position, our speaker produces three laterals: the velarised and palatalised laterals differ substantially e.g. *loch* ‘lake’ /l̪ˠɔx/ and *leabaidh* ‘bed’ /l̪ˠapi/. Very few lexical items, excluding recent borrowings, begin with the alveolar lateral, but this can be derived through the lenition initial consonant mutation. Generally speaking, the velarised and palatalised laterals, nasals and rhotics lose their secondary articulations in lenition conditions. For example, the lenited palatalised lateral becomes alveolar e.g. *leabaidh*, ‘bed’ /l̪ˠapi/ but *mo leabaidh* ‘my bed’ /mo lapi/. It has been reported that a lenited velarised lateral will become alveolar, but our speaker did not make this distinction. In word-medial position, there is a straightforward three-way contrast e.g. *callaid* ‘fence’ /kʰaˠl̪ˠatʃ/, *coileach* ‘cockerel’ /kʰaˠɔx/, *cailleach* ‘old woman’ /kʰaˠl̪ˠɔx/. Similarly, there is a three-way contrast in word-final position e.g. *dall* ‘blind’ /t̪aˠl̪ˠ/, *dàil* ‘delay’ /t̪aˠl/, *caill* ‘lose’ /kʰaiˠl̪ˠ/.

## Nasals

Descriptions in Borgstrøm (1940) and static palatography in Shuken (1980) describe the articulation of the three (dental/alveolar) nasals as /n̠ʲ/, /n/ and /n̠/. Velar and palatal variants of these sounds occur in the context of /k/ and /c/, for example *long* ‘ship’ [l̠ʲɑũŋk], and *taing* ‘thanks’ [t̠ʲhɑũŋc]. As these are the only contexts where [ŋ] and [ɲ] occur we consider them as allophones of /n̠ʲ/ and /n̠/ respectively (see also Borgstrøm 1940:77).

In word-initial position, there is a contrast between velarised and palatalised nasals, e.g. *nach* ‘not’ /n̠ʲax/, and *neach* ‘person’ /n̠ʲax/. Very few lexical items begin with alveolar nasal, but this can be derived through lenition. The lenited palatalised nasal becomes alveolar e.g. *nighean* ‘daughter’ /n̠ʲi.ən/, *mo nighean* ‘my daughter’ /mo ni.ən/. Theoretically, the lenited velarised also becomes alveolar, but our speaker did not make this distinction. In word-medial position, there is a three-way contrast e.g. *Anna* ‘Anna’ /aŋʲə/, *banais* ‘wedding’ /benɪʃ/, *bainne* ‘milk’ /bɔŋʲə/. In word-final position, there is a three-way contrast e.g. *seann* ‘old’ /ʃaun̠ʲ/ (produced here as [ʃɑũŋʲ] with a very short final nasal), *sean* ‘grandfather’ /ʃɛn/, *seinn* ‘singing’ /ʃəin̠ʲ/.

## Rhotics

The rhotics also historically participated in the three-way distinction between velarised, alveolar and palatalised phonemes (Borgstrøm 1940, Oftedal 1956). In modern Gaelic however, most speakers have merged the velarised and alveolar rhotics (Ladefoged et al. 1998). Traditional descriptions indicate that the velarised rhotic is produced as a velarised trill (Borgstrøm 1940, Oftedal 1956), but most speakers now produce the velarised/alveolar



rhorics as taps or approximants, and trills are very rare in contemporary production (Ó Dochartaigh 1997, Nance et al. 2016). The palatalised rhotic is often produced as a dental fricative [ð] in Lewis and in other dialects. There is, however, substantial variation across dialects in the production of this sound, with many dialects and individuals producing some kind of tap or fricated tap (Ó Dochartaigh 1997). We have represented the current two-way contrast as a distinction between /r/ and /rʲ/ but it should be noted that there is substantial variation in the production of these sounds.

In word-initial position, the palatalised variant is almost non-existent so the contrast is effectively neutralised. The preposition *ri* ‘to’ /rʲi/ is reported to use the palatalised variant, but our speaker did not produce this rhotic substantially different to the rhotic in, for example, *ràdh* ‘saying’ /ra:/. In word-medial position, there is a two-way contrast e.g. *aran* ‘bread’ /aran/, *aire* ‘attention’ /aɾʲə/ (produced as [aðə]). In word-final position there is also a two-way contrast e.g. *car* ‘somewhat’ /kʰar/, *air* ‘on’ /ɛrʲ/ (produced as [ɛð]).

In the dialect presented here, clusters with rhotics, dental/alveolar stops, laterals, and nasals tend to be produced as retroflex, and the rhotic as a retroflex approximant; for example, *thuir* ‘said’ [hʷɹ̠ʲ]. In *-rs* clusters, the rhotic and sibilant are often produced as retroflex; e.g. *carson* ‘why’ [kʰaɾ̠ʲsɔ̠n]. In the vast majority of other Gaelic dialects, an audible [ʃ] or [ʂ] occurs in *-rt* clusters; e.g. *thuir* ‘said’ [hʷaɾ̠ʲʃ]; in some dialects this also occurs in *-rd* (Watson 1990).

## Vowels

### Monophthongs

Gaelic has nine oral monophthongs, which can be long or short, these are shown in Figure 2 (acoustic data from the recording samples in this illustration). For acoustic analysis of a larger dataset focussing on the high back vowels, see Nance (2011). Sample words are given in Table 4. Long vowels are indicated by an accent grave in orthography. Generally, the long vowels are of similar acoustic quality to the short vowels, although they tend to be slightly more peripheral. The ‘high back’ vowels /ɤ u/ are acoustically more central, or even front in the dialect represented here (Nance 2011). Borgström (1940:11) describes these vowels as phonologically, rather than phonetically, back. The two previous dialect descriptions of Lewis Gaelic, Borgström and Oftedal, do not use the modern IPA. We follow Ladefoged et al. (1998) in interpreting their symbols as /ɤ/ and /u/. The vowel /u/ has two allophones, back [u] occurring in the environment of velarised sonorants, and central [ɯ] occurring elsewhere; for example *sùil* ‘eye’ [sɯ:l], but *ubhal* ‘apple’ [u.əɫʲ]. The formant distribution of these two allophones is strikingly different; see Ladefoged et al. (1998) and Nance (2011). Similarly, /a/ is auditorily [a] in the environment of velarised sonorants; for example *latha* ‘day’ [lʲa.ə], but *leat* ‘at you’ [laʰt]. Long /ɛ:/ is not common and has merged with /e:/ for some speakers, including our participant. In Lewis, a group of words containing orthographic *ea* before *g* are pronounced with /ɤ/, but /ɛ/ or /e/ in other dialects; e.g. *beag* ‘small’, *eaglais* ‘church’.

<INSERT VOWEL QUADRILATERAL ABOUT HERE>

<INSERT FIGURE 2 ABOUT HERE>

<INSERT TABLE 4 ABOUT HERE>

### Nasal monophthongs

There are disagreements in the literature with reference to the number of nasal vowels in Gaelic, and their nature. Borgstrøm (1940:13) reports five short nasal vowel phonemes, and six long nasal vowel phonemes. Oftedal (1956:40), who was reporting on a dialect on the eastern side of Lewis, describes nine short and seven long nasal vowel phonemes. It is also important to note that Borgstrøm and Oftedal recorded participants born in the 1880s and before, and this may not represent the contemporary situation. Even from these recordings, Oftedal notes that nasality in vowels is ‘one of the most elusive features’ of the phonemics of the dialect under investigation (1956:40), and suggests that nasality has ‘little distinctive value’, referring to its very low functional load. Similarly, Borgstrøm (1940:13) states that nasality has ‘not a great functional value’. The degree of nasality appears to vary from dialect to dialect and is also to some extent speaker-specific. Oftedal (1956:41) notes that even between two of his participants, who were from the same village and married, there was great variation as to the degree of nasality among their vowels. One person, he claimed, had nasal vowels perceptibly similar to nasal vowels in French, whereas the other speaker has nasal vowels similar to a speaker of General American (see also Ó Curnáin 2009 for analysis of individuals in Irish). When listening to our sample sound files, there appears to be variable amounts of nasality on different words, shown in Table 5. See Warner et al. (2015) and Morrison (2015) for analysis of nasal airflow data. The quality of the nasal vowels is similar to that of their oral counterparts so they are not repeated in a figure here.

Nasal vowels in Gaelic generally arose due to coarticulation with an original nasal consonant; for example *tàmh* ‘rest’ /t̪<sup>h</sup>ã:v/. In this word, the orthographic *m* suggests there was a bilabial nasal consonant historically, which is no longer pronounced. See Ó Maolalaigh (2003) for an account of nasalisation processes in Gaelic. Some accounts suggest that the final

fricative in words such as *tàmh* is also nasalised (Borgstrøm 1940, Ternes 2006), but aerodynamic work suggests that this is not the case phonetically (in Warner et al.'s 2015 work on Skye, but see also Morrison 2015), and it has been suggested that these are unlikely in articulatory terms (Ohala 1975:300).

<INSERT TABLE 5 ABOUT HERE >

### **Diphthongs**

Gaelic has a rich diphthongal system. Borgstrøm (1940:37) describes 14 phonemic diphthongs /ai ei ei ui vi au eu ou iə ia iɛ uə ua uɛ/, and Oftedal (1956:44) describes 10 /ei ui əi ai ou au iə ia uə ua/. We find that Oftedal's account best describes contemporary Gaelic. These two previous descriptions do not specifically mention whether nasality in diphthongs should be considered a phonemic aspect or not. However, both give examples of nasal diphthongs. We asked our speaker to produce a large number of words listed by Borgstrøm and Oftedal as containing nasal diphthongs, but these were not consistently audibly nasal. We consider the contemporary situation to be that some words contain diphthongs with nasalisation, but nasalised diphthongs are not phonemic in the language. Sample words are given in Table 6.

<INSERT DIPHTHONG REPRESENTATION HERE>

<INSERT TABLE 6 ABOUT HERE>

## Prosody

### Syllables, svarabhakti and hiatus

Gaelic syllable structure has been described as typically VC rather than the typologically much more common CV (Clements 1986, Bosch 1998, Smith 1999). See Ní Chiosáin et al. (2012) for experimental work on syllabification in Irish and similar discussion. Two classes of Gaelic words will be described in more detail here, as they behave unusually within Gaelic phonology: words containing a svarabhakti vowel, and ‘hiatus’ words. Certain consonant sequences in Gaelic are broken up by a svarabhakti vowel, which is not represented in the orthography; for example, *arm* ‘army’ [ar̩am], *ainm* ‘name’ [an̩am], *balg* ‘belly’ [pal̩ʲak], *dorcha* ‘dark’ [t̩ɔr̩xə], *Alba* ‘Scotland’ [al̩ʲap̩ə]. Usually the svarabhakti vowel is a copy of the preceding vowel (Borgstrøm 1940, Clements 1986, Bosch & de Jong 1997, Hall 2006). Svarabhakti vowels in Gaelic occur where (1) The consonant preceding the svarabhakti vowel is a sonorant, (2) The preceding vowel is short, (3) The consonant cluster is non-homorganic, and (4) The second consonant is not a pre-aspirated plosive. Previous descriptions state that svarabhakti vowels do not contribute to the syllable count of a word; for example, *falbh* ‘going’ [fal̩ʲav] is monosyllabic, but *falamh* ‘empty’ [fal̩ʲ.u] is disyllabic (Borgstrøm 1940, Oftedal 1956, Bosch 1998). Recent experimental work (Hammond et al. 2014) suggests that speaker perceptions are more complex: they found that words such as *falbh* were perceived as not quite monosyllabic, but not quite disyllabic either. The svarabhakti vowels are described as stressed, which is unusual for stress-initial Gaelic and also typologically (Borgstrøm 1937:77; Bosch & de Jong 1997).

‘Hiatus’ words in most cases refer to a class of words in which historic intervocalic consonants are no longer pronounced; for example, *leabhar* ‘book’ [l̩ʲə.ər] compared to *gu leòr* ‘enough’ [kə l̩ʲɔ:r]; *rathad* ‘road’ [ra.ət̩], compared to *ràdh* ‘saying’ [r̩ʲa:]. In the word

accent system of (Lewis) Gaelic (see below), words with a svarabhakti vowel such as *falbh* ‘going’ [fa<sup>h</sup>ˠvav] are produced with the accent for monosyllabic words and words with hiatus such as *leabhar* ‘book’ [l̪ˠə.əɾ] are produced with the accent for polysyllabic words. In other dialects, hiatus is produced with an inserted glide, a period of creaky voice or a glottal stop (Holmer 1938, Jones 2000, Ternes 2006:138).

### **Tone, intonation and stress**

The Lewis dialect of Gaelic, along with north-west mainland dialects such as Applecross, is described as having contrastive word accents (Borgstrøm 1940, Oftedal 1956, Dorian 1978, Bosch & de Jong 1997, Ladefoged et al. 1998, Ternes 2006, Iosad 2015, Nance 2015a, Morrison forthcoming). Southern Hebridean and other mainland dialects are not reported to use this prosodic feature (see Ternes 2006:138 for details). Ternes (2006) provides the most complete extensive of the Lewis Gaelic system. In this account, word accents correspond to differences in syllabicity: monosyllabic words have a rising or level low pitch, whereas polysyllabic words have a level high pitch, falling pitch, rising-falling pitch. This is schematised in Figure 3. In general, speakers are often not consciously aware that their dialect uses pitch contrastively. When Gaelic is taught, the dialects of Skye or Uist are more often used as models, so tone is rarely, if ever, explicitly taught. Example pairs of words illustrating the contrast are in Table 7, and spectrograms of the contrast between *falbh* ‘going’ [fa<sup>h</sup>ˠvav] and *falamh* ‘empty’ [fa<sup>h</sup>ˠv.u] are shown in Figure 4. Analysis of the word accent system from a corpus of spontaneous speech is presented in Nance (2013, 2015a).

<INSERT FIGURE 3 ABOUT HERE >

<INSERT TABLE 7 ABOUT HERE >

<INSERT FIGURE 4 ABOUT HERE >

In terms of sentence intonation, the default pattern in declaratives is a fall in pitch (Oftedal 1956:36, Dorian 1978:37, MacAulay 1979). Borgstrøm (1940:53) additionally states that if the last syllable has a (lexical) rising word accent, the rise is often very reduced. MacAulay's descriptive account of common pitch patterns in Lewis intonation suggests that interrogatives may be realised with rising pitch.

In the vast majority of Gaelic words, the word-initial syllable is stressed. Exceptions are generally borrowings such as *buntàta* [pun<sup>h</sup>ˈaː<sup>h</sup>t̪] ‘potatoes’ and some adverbs such as *an-diugh* ‘today’ [ən<sup>h</sup>ˈt̪ɥ] and days of the week e.g. *Didòmhnaich* ‘Sunday’ [t̪iˈt̪õːniç]. Words containing a svarabhakti vowel (see above) are unusual in terms of stress and it has been claimed that both vowels bear stress (Bosch & de Jong 1997).

### **Airstream mechanisms**

A final notable feature of Gaelic prosody is the extensive use of the ingressive airstream mechanism, especially in the last word of a phrase and discourse markers expressing agreement (Lamb 2003, Thom 2005, Eklund 2008). This use of ingressives is informally referred to as the ‘Gaelic gasp’.

### **Sociolinguistic variation**

Gaelic's endangered and minority status means that the language is susceptible to rapid and extensive change. This illustration discusses the phonetic and phonological characteristics of conservative Gaelic as spoken by older or middle-aged speakers from (at least formerly) Gaelic-dominant communities. Younger speakers may sound substantially different to the

variety of Gaelic described here. For example, nasal vowels are rare in the speech of younger speakers (see also Ó Curnáin 2009:333 for Irish). The word accent system described above is not used by younger speakers from any background (Nance 2015a, Nance 2015b). Some younger speakers do not produce the three-way lateral contrast (Nance 2014, Nance 2019).

### Transcription of recorded passage

va ə ɣu: ə t̪ʰuə akəs ə ɣr̪iən ə t̪ʰɛspət̪ kʰo: aʰkə ə pu t̪ʰrɛsə n̪ʰuər̪ʲ ə n̪ʰɔxk n̪ʰax ʃu.əl ə va ɛr̪ʲ ə  
xɔ̃:t̪əx au̪n̪ʰ ən kʰlɔ:hkə pl̪ʰa: || ɣu:n̪ʰt̪ʰiç̪ iət̪ kə pr̪i kʰo: ə vɛr̪ʲəɣ ɛr̪ʲ ən n̪ʰax ʃu.əl ə xlo:hkə ə  
xur je ən̪ʰ t̪ʰɔʃɔx kər̪ i ə viɣ ka mɛs na pə t̪ʰrɛsə na ən t̪ʰe: elə || ən uər̪ʲ ʃɪn he:t̪ʃ ə ɣu: ə t̪ʰuə  
xɔ̃ l̪ʰa:t̪ʃɪr̪ʲ s ə pur̪n̪ʲ ji ax mar ə pə vɔ̃.ə ə he:t̪ʃ i paun̪ʰ na pə t̪ʰɛn̪ʲə ə façkəɣ ə n̪ʰax ʃu.əl ə  
xlo:hkə t̪ʰimiç̪ə̃l̪ʰ ɛr̪ʲ he:n ɣkəs mu jɛr̪ʲəɣ lec ə ɣu: ə t̪ʰuə ʃaxət̪ ən ɣr̪ʰp̪ || ən uər̪ʲ ʃɪn ja:rs ə  
ɣr̪iən əmax kə pl̪ʰa: ɣkəs sə vaɫ xur̪ʲ ə n̪ʰax ʃu.əl je ə xlo:hkə || ɣkəs mar ʃɔn pe:t̪ər̪ t̪ɔn ɣu:ri ə  
t̪ʰuə at̪ɔxəɣ kəm pi ə ɣr̪iən ə pə t̪ʰrɛsə jɛn t̪ʃi.iʃ aʰkə ||

### Orthographic version

Bha a' ghaoth a tuath agus a' ghrian a' deasbad cò aca a bu treasa nuair a nochd neach-siubhail a bha air a chòmhdach ann an cleòca blàth. Dh'aontaich iad ge brith cò a bheireadh air an neach-siubhail a chleòca a chur dheth an toiseach gur i a bhiodh ga meas na bu treasa na an tè eile. An uair sin shèid a' ghaoth a tuath cho làidir 's a b'urrainn dhi, ach mar a bu mhotha a shèid i b' ann na bu teinne a phaisgeadh an neach-siubhail a chleòca timcheall air fhèin agus mu dheireadh leig a' ghaoth a tuath seachad an oidhirp. An uair sin dheàrrs a'



ghrian a-mach gu blàth agus sa bhad chuir an neach-siubhail dheth a chleòca. Agus mar sin, b'fheudar don ghaoith a tuath aideachadh gum b' i a' ghrian a bu treasa den dithis aca.

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**Footnotes**

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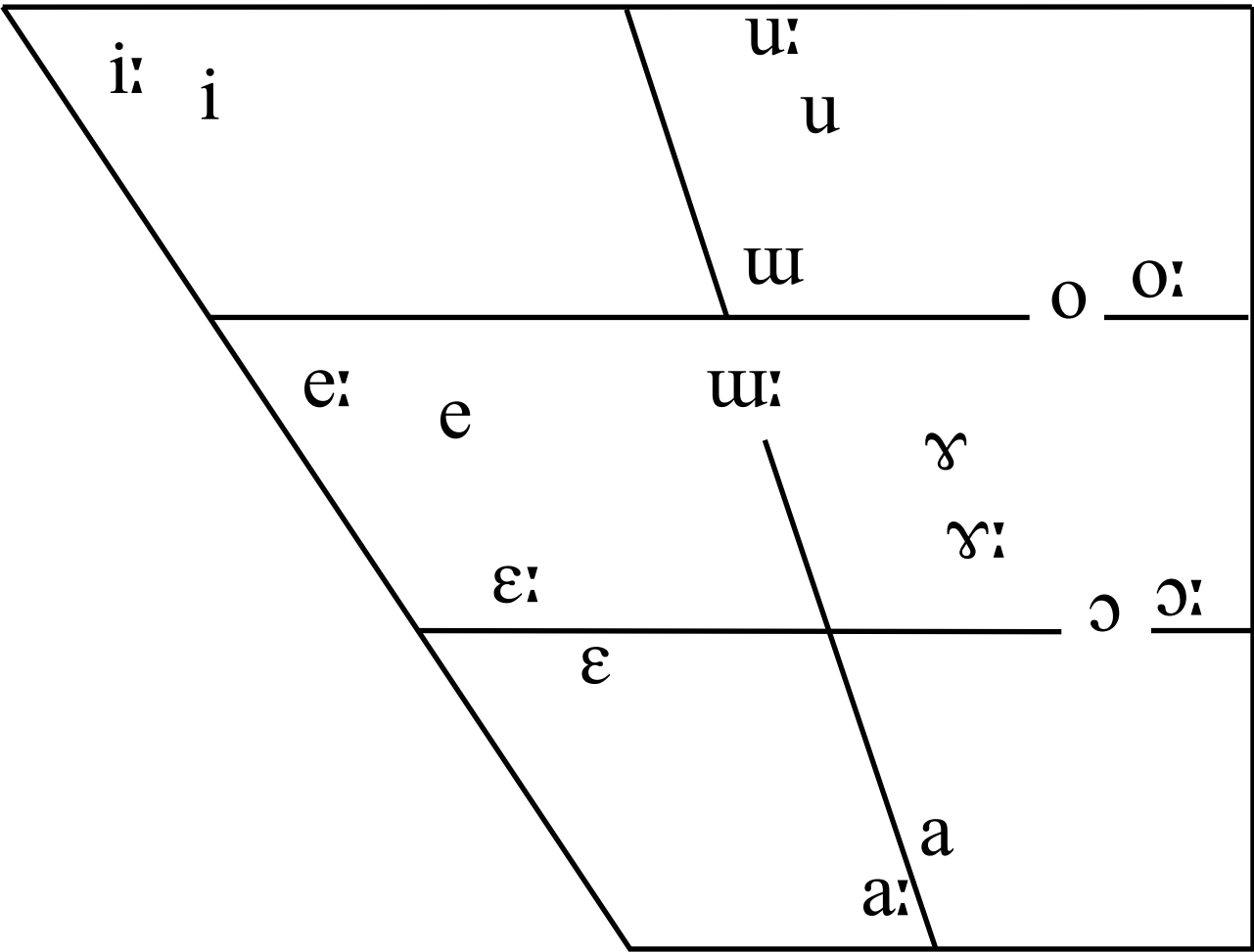
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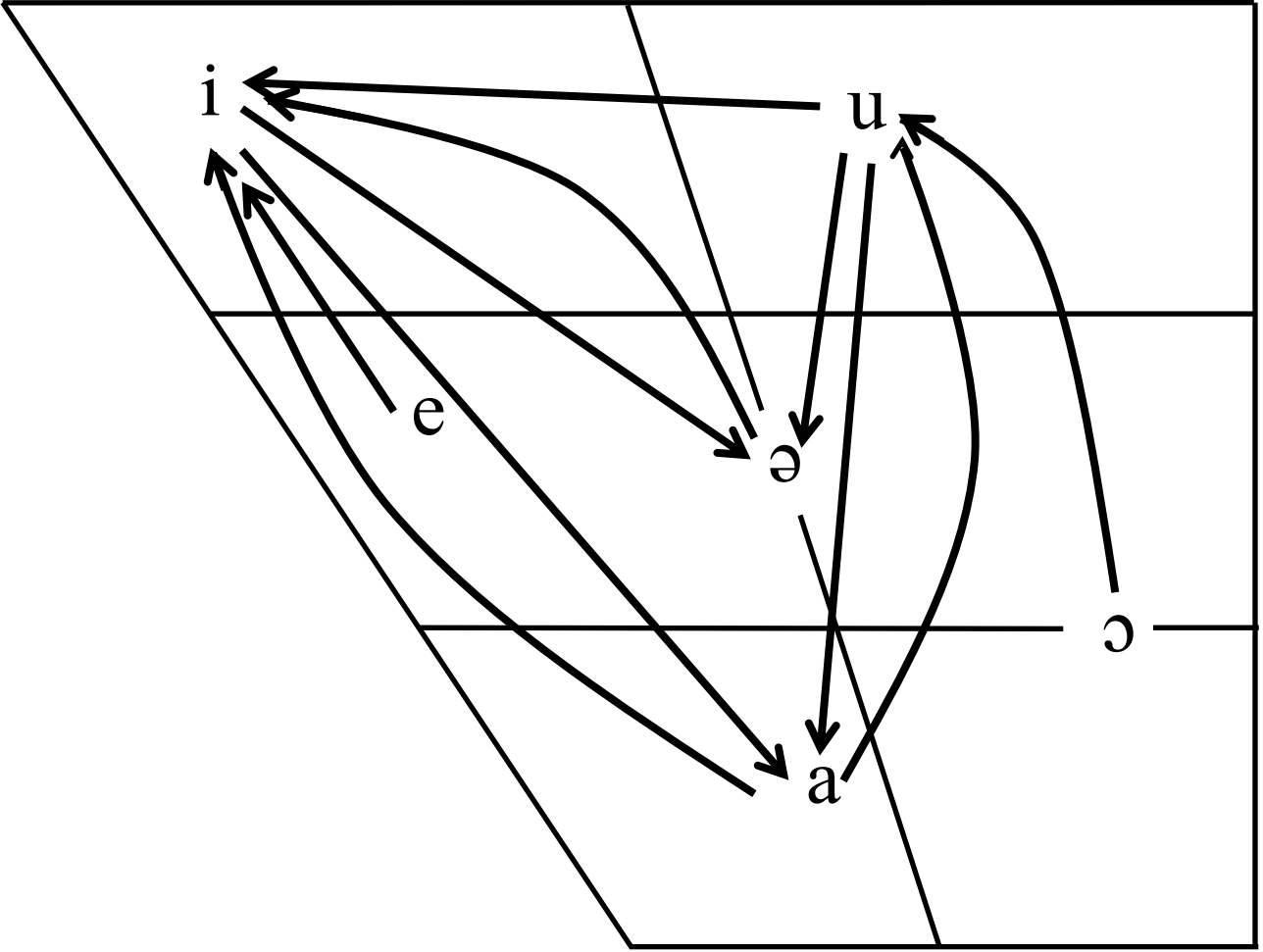
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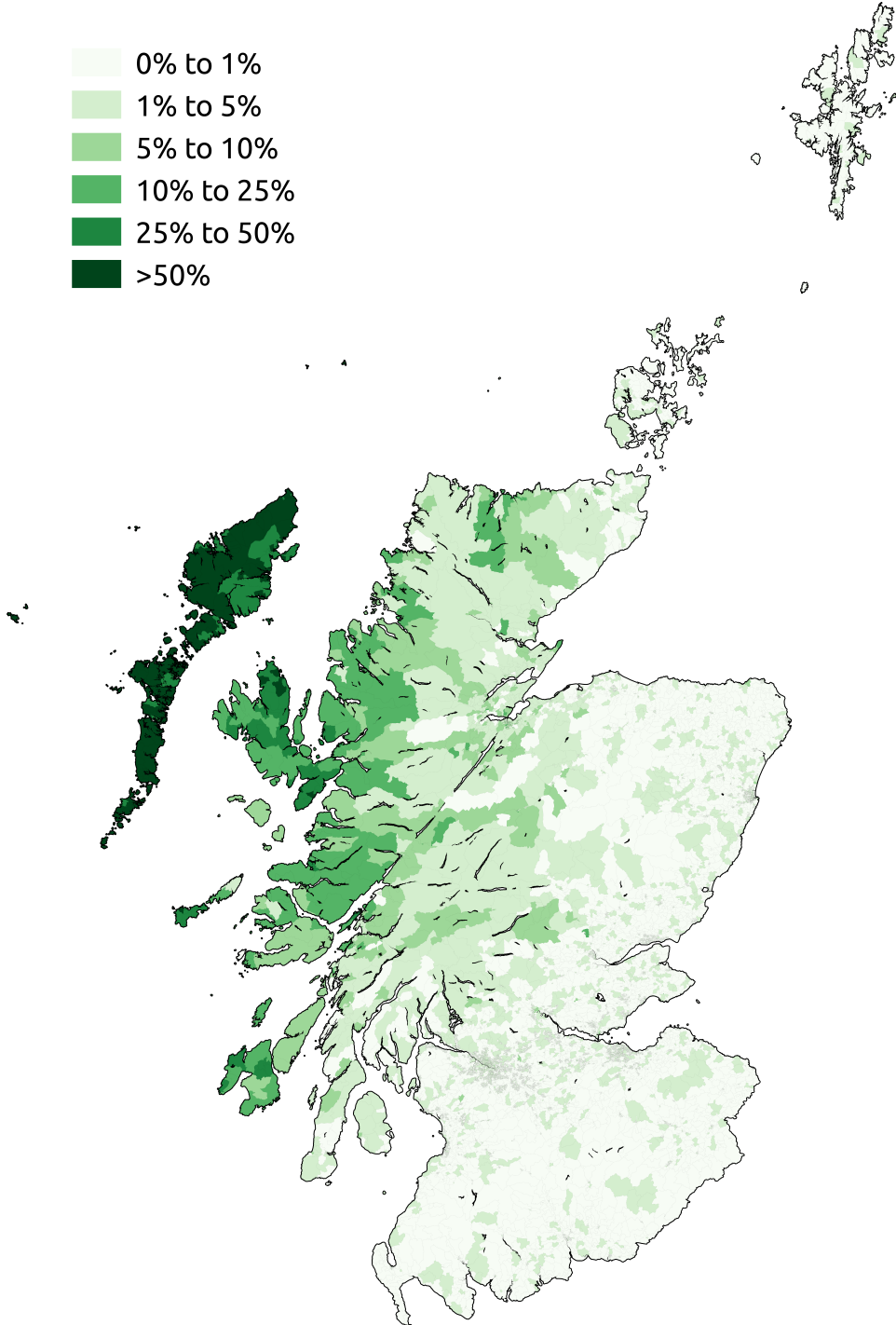
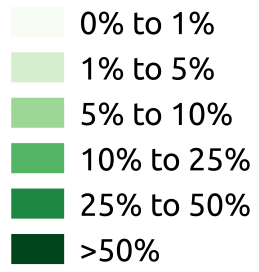
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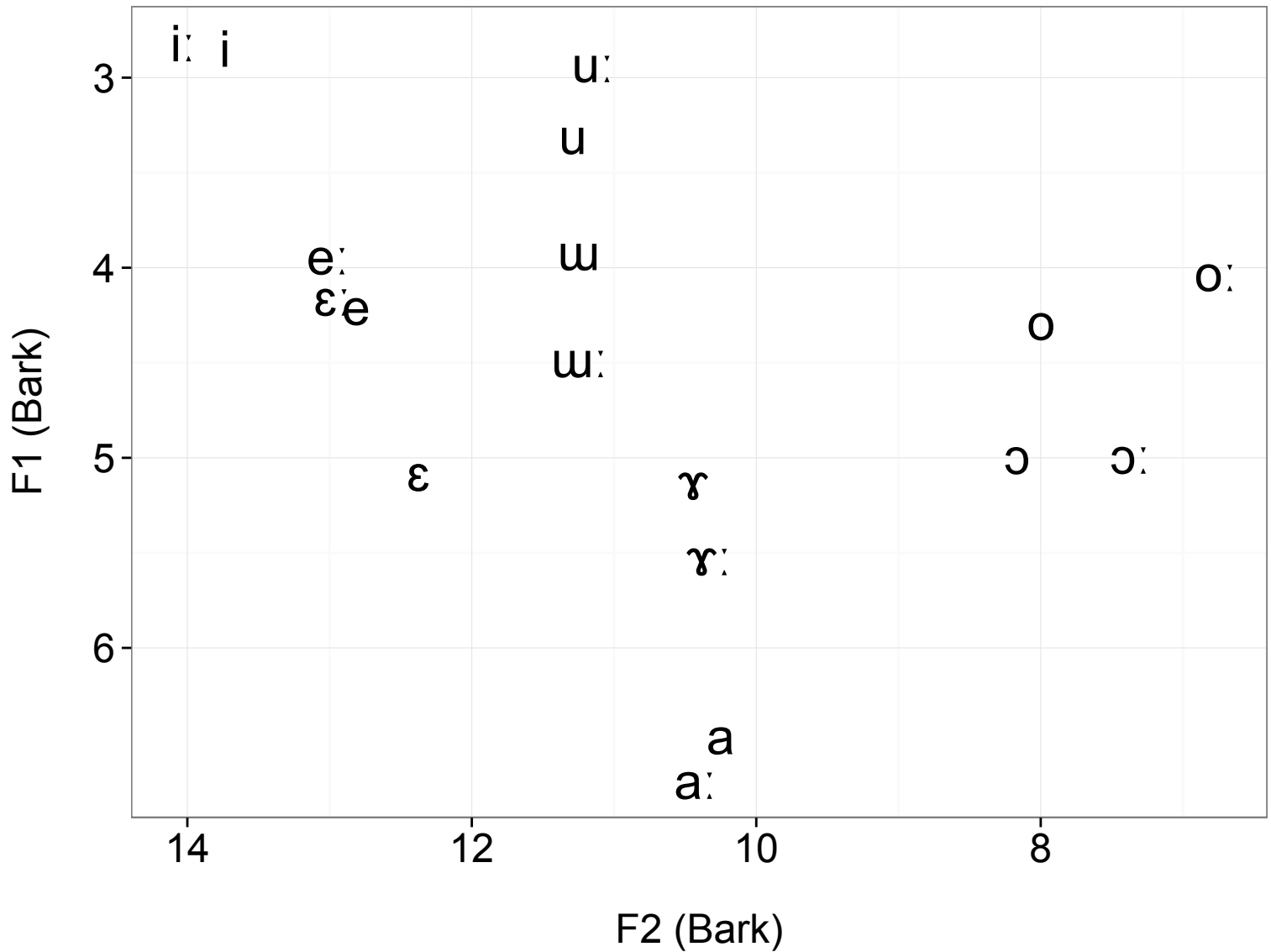
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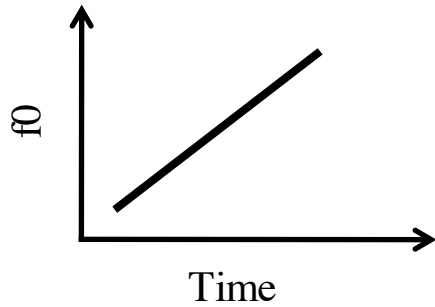
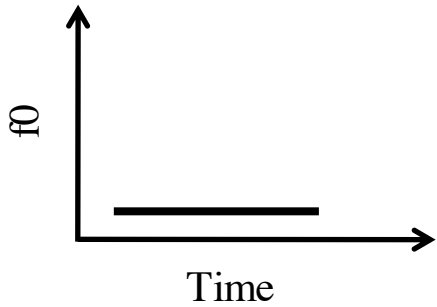




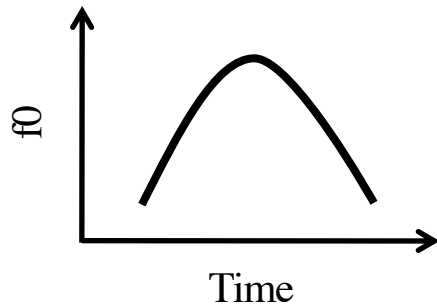
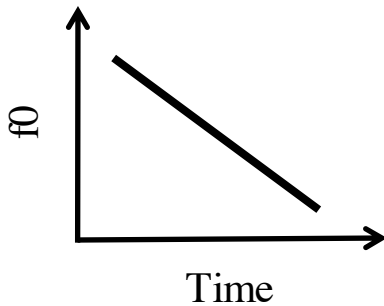
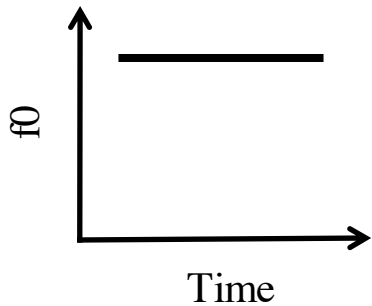




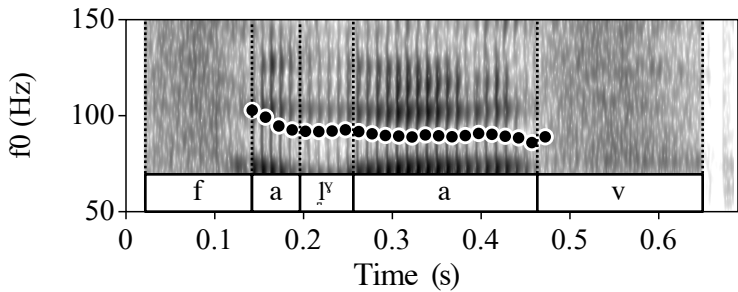
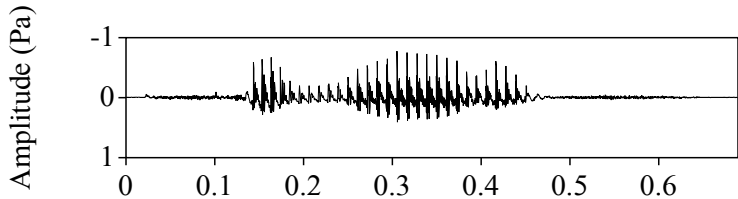
Monosyllabic



Polysyllabic

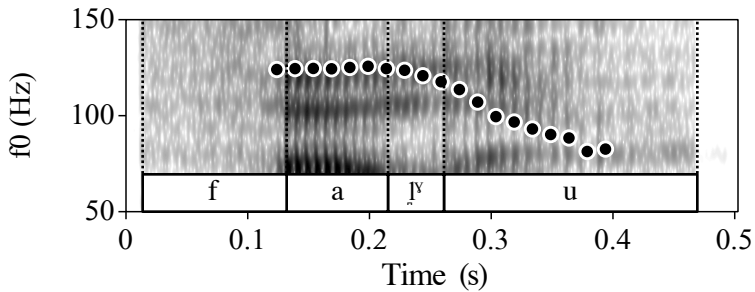
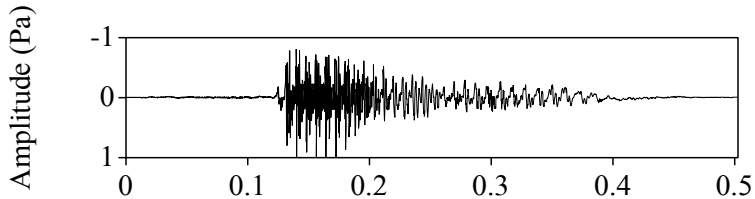


# Monosyllabic



'going'

# Polysyllabic



'empty'

**Figure 1:** Percentage of people over the age of three able to speak Gaelic according to the 2011 Census (colour online).<sup>i</sup>

**Figure 2:** Formant measurements of the Gaelic monophthongs (Bark).

**Figure 3:** Schematised pitch traces for Gaelic word accents.

**Figure 4:** Spectrograms and pitch traces illustrating the word accent contrast between *falbh* 'going' (monosyllabic) vs. *falamh* 'empty' (polysyllabic).

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<sup>i</sup> Attribution: SkateTier.

([https://commons.wikimedia.org/wiki/File:Scots\\_Gaelic\\_speakers\\_in\\_the\\_2011\\_census.png](https://commons.wikimedia.org/wiki/File:Scots_Gaelic_speakers_in_the_2011_census.png)), "Scots Gaelic speakers in the 2011 census", <https://creativecommons.org/licenses/by-sa/3.0/legalcode>.

**Table 1:** Consonant table for Gaelic. Non-palatalised consonants are shown in the top of the cell, and palatalised below.

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal
Plosive	p <sup>h</sup> p p <sup>h</sup> p <sup>j</sup>		t <sup>h</sup> t		tʃ <sup>h</sup> tʃ	c <sup>h</sup> c	k <sup>h</sup> k	
Nasal	m		n <sup>ʲ</sup> n <sup>j</sup>	n				
Tap/ trill				r r <sup>j</sup>				
Fricative		f v f <sup>j</sup>		s	ʃ	ç	x ɣ	h
Approximant						j <sup>a</sup>		
Lateral approximant			l <sup>ʲ</sup> l <sup>j</sup>	l				

<sup>a</sup>Oftedal (1956:113) additionally reports a distinction in some speakers from the east coast of Lewis between /j/ and /j<sup>h</sup>/, for example in ionnsaich ‘teach, learn!’ /j<sup>h</sup>ẽũsıç/ and dh’ionnsaich ‘taught, learned’ /j<sup>h</sup>ẽũsıç/. Our participant is from the north-west of Lewis so does not make this distinction.



**Table 2:** Consonant sample words (phonemic transcription).

Phoneme	Gaelic	IPA	Gloss	Phoneme	Gaelic	IPA	Gloss
p <sup>h</sup>	<u>p</u> oll	p <sup>h</sup> oʉl <sup>Y</sup>	mud	p <sup>h</sup>	<u>pi</u> uthar	p <sup>h</sup> u.ər	sister
	<u>p</u> uing	p <sup>h</sup> əiŋ <sup>j</sup> c	point		<u>pe</u> ann	p <sup>h</sup> əaun <sup>Y</sup>	pen
	<u>ca</u> ball	k <sup>h</sup> a <sup>h</sup> pəɫ <sup>Y</sup>	mare		<u>ci</u> pean	k <sup>h</sup> i <sup>h</sup> pən	peg
p	<u>b</u> ò	po:	cow	p <sup>j</sup>	<u>b</u> eàrr	p <sup>j</sup> a:r	cut
	<u>b</u> uidhe	pui.ə	yellow		<u>b</u> eò	p <sup>j</sup> ə:	alive
	<u>ob</u> air	opɪr <sup>j</sup>	work		<u>ri</u> b	rip <sup>j</sup> ə	trap, snare
t <sup>h</sup>	<u>t</u> og	t <sup>h</sup> ok	lift	t <sup>h</sup>	<u>t</u> eth	t <sup>h</sup> e	hot
	<u>t</u> uigsinn	t <sup>h</sup> ikʃin <sup>j</sup>	understanding		<u>t</u> eòclaid	t <sup>h</sup> ə:kɫ <sup>Y</sup> ɪtʃ	chocolate
	<u>b</u> ata	pə <sup>h</sup> tə	stick		<u>t</u> aitinn	t <sup>h</sup> aɪ <sup>h</sup> tʃin <sup>j</sup>	please (verb)
t	<u>d</u> oras	ʔarəs	door	tʃ	<u>d</u> ealbh	tʃaɫ <sup>Y</sup> av	picture
	<u>d</u> uine	tin <sup>j</sup> ə	anyone		<u>d</u> eoch	tʃəx	drink
	<u>f</u> ada	faʔə	long		<u>m</u> aide	matʃə	beam
k <sup>h</sup>	<u>c</u> aol	k <sup>h</sup> u:ɫ <sup>Y</sup>	thin	c <sup>h</sup>	<u>c</u> iall	c <sup>h</sup> iəɫ <sup>Y</sup>	reason
	<u>c</u> uibhle	k <sup>h</sup> əilə	wheel		<u>c</u> eòl	c <sup>h</sup> ə:ɫ <sup>Y</sup>	music
	<u>a</u> ca	a <sup>h</sup> kə	at them		<u>a</u> ice	e <sup>h</sup> cə	at her
k	<u>g</u> aol	ku:ɫ <sup>Y</sup>	love	c	<u>g</u> eal	caɫ <sup>Y</sup>	white
	<u>g</u> uidhe	kui.ə	wish		<u>g</u> eòla	cə:ɫ <sup>Y</sup> ə	yawl
	<u>a</u> gad	akəʔ	at you		<u>a</u> ige	ɛcə	at him
f	<u>f</u> uar	fuər	cold	f <sup>h</sup>	<u>f</u> ion	fian	wine
v	<u>b</u> ha	va	was	ʃ	<u>s</u> einn	ʃəin <sup>j</sup>	singing
s	<u>s</u> ùil	su:l	eye	ç	<u>ch</u> ì	çi:	will see
x	<u>ch</u> aith	xai	went	j	<u>dh</u> 'ith	jiç	ate
y	<u>dh</u> aibh	ʔaiv	for them				
h	<u>fh</u> uair	huər <sup>j</sup>	obtained				
m	<u>m</u> ath	mah	good				
n <sup>Y</sup>	<u>n</u> ach	n <sup>Y</sup> ax	not <sup>a</sup>	n <sup>j</sup>	<u>n</u> each	n <sup>j</sup> ax	person
	<u>A</u> nn	an <sup>Y</sup> ə	Anna		<u>n</u> ighean	n <sup>j</sup> i.ən	daughter
	<u>s</u> eann	ʃaun <sup>Y</sup>	old		<u>b</u> ainne	pən <sup>j</sup> ə	milk
				<u>s</u> einn	ʃəin <sup>j</sup>	singing	
				n	mo <u>n</u> ighean	mo ni.ən	my daughter
					<u>b</u> anais	pənɪʃ	wedding
					<u>s</u> ean	ʃen	grandfather
ɫ <sup>Y</sup>	<u>l</u> och	ɫ <sup>Y</sup> əx	lake	ɫ <sup>j</sup>	<u>l</u> eabaidh	ɫ <sup>j</sup> əpi	bed
	<u>c</u> allaid	kaɫ <sup>Y</sup> atʃ	fence		<u>c</u> aill	k <sup>h</sup> aɫ <sup>j</sup> əx	old woman
	<u>d</u> all	ʔaɫ <sup>Y</sup>	blind		<u>c</u> aill	k <sup>h</sup> aɪɫ <sup>j</sup>	lose
				l	mo	mo ləpi	my bed
					<u>l</u> eabaidh	k <sup>h</sup> əɫəx	cockereel
					<u>c</u> oil	ʔa:l	delay
					<u>d</u> àil		
r	<u>r</u> adh	ra:	saying	r <sup>j</sup>	<u>r</u> ì	r <sup>j</sup> i	to
	<u>a</u> ran	aran	bread		<u>a</u> ire	ar <sup>j</sup> ə	attention
	<u>c</u> ar	kar	somewhat		<u>a</u> ir	ɛr <sup>j</sup>	on

<sup>a</sup>The velar fricative /x/ is realised as [χ] following back vowels (including /a/ in a velarised environment). So

*nach* /n̩ax/ is realised as [n̩aχ].

**Table 3:** Lenition mutations (phonemic transcription). Where there are differences between broad and slender consonants, these are shown. Where not, the mutated variants are the same as those shown. The prefix *mo* means ‘my’ and causes lenition.

Phoneme	Lenited	Gaelic unlenited	IPA	Gaelic lenited	IPA	Gloss
p <sup>h</sup>	f	pòg	p <sup>h</sup> ok	mo p <sup>h</sup> òg	mo fo:k	(my) kiss
p	v	bò	po:	mo b <sup>h</sup> ò	mo vo:	(my) cow
t <sup>h</sup>	h	taigh	t <sup>h</sup> ai	mo t <sup>h</sup> aigh	mo hai	(my) house
tʃ <sup>h</sup>	h	tìde	tʃ <sup>h</sup> i:tʃə	mo t <sup>h</sup> ide	mo hi:tʃə	(my) time
t	ɣ	dachaigh	taxi	mo d <sup>h</sup> achaigh	mo ɣaxi	(my) home
tʃ	j	dealbh	tʃalav	mo d <sup>h</sup> ealbh	mo jalav	(my) picture
k <sup>h</sup>	x	càt	k <sup>h</sup> a <sup>h</sup> t	mo c <sup>h</sup> at	mo xa <sup>h</sup> t	(my) cat
c <sup>h</sup>	ç	cèòl	c <sup>h</sup> o:l <sup>v</sup>	mo c <sup>h</sup> eòl	mo ço:l <sup>v</sup>	(my) music
k	ɣ	gaoil	ku:l <sup>v</sup>	mo g <sup>h</sup> aol	mo ɣu:l <sup>v</sup>	(my) love
c	j	gèòla	co:l <sup>v</sup> ə	mo g <sup>h</sup> eòla	mo jo:l <sup>v</sup> ə	(my) yawl
m	v	muc	mũ <sup>h</sup> k	mo m <sup>h</sup> uc	mo vũ <sup>h</sup> k	(my) pig
f	Ø	fàcal	f <sup>h</sup> a <sup>h</sup> kə:l <sup>v</sup>	mo f <sup>h</sup> acal	m a <sup>h</sup> kə:l <sup>v</sup>	(my) word
s	h	sùil	su:l	mo s <sup>h</sup> ùil	mo hu:l	(my) eye
ʃ	ç	seòmar	ʃo:mər	mo s <sup>h</sup> eòmar	mo ço:mər	(my) room
l <sup>j</sup>	l	leabaidh	l <sup>j</sup> api	mo l <sup>e</sup> abaidh	mo lapi	(my) bed
n <sup>j</sup>	n	nighean	n <sup>j</sup> i.ən	mo n <sup>i</sup> ghean	mo ni.ən	(my) daughter

**Table 4:** Gaelic oral monophthongs (phonemic transcription).

Phoneme	Gaelic	IPA	Gloss	Phoneme	Gaelic	IPA	Gloss
i	r <u>i</u>	r <sup>h</sup> i	to	i:	ch <u>i</u>	çi:	will see
e	t <u>e</u> th	t <sup>h</sup> e	hot	e:	t <u>e</u>	t <sup>h</sup> e:	woman
ɛ	b <u>e</u> an	pɛn	wife	ɛ:	G <u>a</u> idheal	ke:əɫ <sup>v</sup>	Gael
a	b <u>a</u> ta	pa <sup>h</sup> tə	stick	a:	b <u>a</u> ta	pa <sup>h</sup> tə	boat
ɔ	b <u>o</u> c	pɔ <sup>h</sup> k	goat	ɔ:	b <u>o</u> c	pɔ <sup>h</sup> k	swell
o	b <u>o</u> g	pok	soft	o:	b <u>o</u>	po:	cow
u	c <u>u</u> r	kur	put	u:	ù <u>r</u>	u:r	new
u	t <u>u</u> radh	t <sup>h</sup> urəɣ	dry weather	u:	ca <u>o</u> l	k <sup>h</sup> u:ɫ <sup>v</sup>	thin
ɣ	t <u>a</u> gh	tɣ	choose	ɣ:	a <u>d</u> hbhar	ɣ:vər	cause

**Table 5:** Gaelic nasal monophthongs (phonemic transcription).

Phoneme	Gaelic	IPA	Gloss	Phoneme	Gaelic	IPA	Gloss
ĩ	c <u>e</u> angal	k <sup>h</sup> ĩ.aɫ <sup>v</sup>	connection	ĩ:	ĩnnse	ĩ:ʃə	telling
ẽ	am fa <u>i</u> c	əm fẽ <sup>h</sup> k	will see	ẽ:	chan e	xaŋ <sup>j</sup> ẽ:	it is not
ẽ	te <u>a</u> nga	tʃ <sup>h</sup> ẽkə	tongue	ẽ:	sè <u>i</u> mh	ʃẽ:v	gentle
ã	a <u>b</u> hainn	ãviŋ <sup>j</sup>	river	ã:	t <u>a</u> mh	t <sup>h</sup> ã:v	rest, quiet
õ	cn <u>o</u> c	krõ <sup>h</sup> k	hill	õ:	D <u>o</u> mhnall	tõ:.əɫ <sup>v</sup>	Donald
õ	m <u>o</u> thachadh	mõ.əxəɣ	perceiving	õ:	Did <u>o</u> mhnaich	tʃi'tõ:.niç	Sunday
ũ	m <u>u</u> c	mũ <sup>h</sup> k	pig	ũ:	u <u>n</u> nsa	ũ:sə	ounce
ũ	cr <u>u</u> inneachadh	k <sup>h</sup> rũŋ <sup>j</sup> əxəɣ	gathering	ũ:	na <u>o</u> mh	ŋ <sup>v</sup> ũ:v	saint
ĩ	e <u>a</u> nchainn	ĩnəxiŋ <sup>j</sup>	brain	ĩ:	fa <u>i</u> oin	fĩ:ŋ <sup>j</sup>	mad

**Table 6:** Gaelic diphthongs (phonemic transcription).

Phoneme	Gaelic	IPA	Gloss	Phoneme	Gaelic	IPA	Gloss
iə	biadh	piəɣ	food	ei	tìll	tʃei̯l̪	return
	ciall	cʰiə̯l̪ʲ	reason		cinnteach	cʰei̯n̪tʃʰəx	certain
	fìon	fʲiə̯n	wine		grinn	krʲei̯n̪	elegant
ia	beul	piə̯l̪ʲ	face	əi	soillse	səi̯l̪ʲsə	light
	brèagha	prʲiə̯.a	beautiful		cuibhle	kʰəi̯l̪ə	wheel
	feuch	fʲiə̯x	try		mùinntir	məi̯n̪tʃʰə̯rʲ	people
uə	tuath	tʰuə	north	ui	suidhe	sui.ə	sit
	fiar	fua̯r	cold		buidhe	pui.ə	yellow
	ruadh	ruəɣ	red		guidhe	kui.ə	wish
ua	cuan	kʰua̯n	ocean	au	call	kʰau̯l̪ʲ	loss
	a-nuas	ə̯n̪ʲuas	down		samhradh	saurəɣ	summer
	duan	tua̯n	song		ceann	cʰau̯n̪ʲ	head
ai	dhaibh	ɣaiv	for them	əu	poll	pʰəu̯l̪ʲ	mud
	cainnt	kʰai̯n̪tʃʰ	speech		donn	təu̯n̪ʲ	brown
	taing	tʰai̯n̪ʲc	thanks		leam	ləum	at me

**Table 7:** Pairs of words illustrating the word accent contrast (phonemic transcription).

Monosyllabic words are to the left, polysyllabic comparison words to the right.

Syllabicity/Accent	Word	IPA	English	Syllabicity/Accent	Word	IPA	English
Monosyllabic/Accent 1	bò	po:	cow	Polysyllabic/Accent 2	bogha	po.ə	rockpool
Monosyllabic/Accent 1	gu leòr	kə ɫ̪ɔ:r	enough	Polysyllabic/Accent 2	leabhar	ɫ̪ɔ.əɾ	book
Monosyllabic/Accent 1	sùil	su:l	eye	Polysyllabic/Accent 2	ubhal	u.əɫ <sup>v</sup>	apple
Monosyllabic/Accent 1	fàlbh	fəɫ <sup>v</sup> av	going	Polysyllabic/Accent 2	falamh	fəɫ <sup>v</sup> .u	empty
Monosyllabic/Accent 1	tinn	tʃ <sup>h</sup> eiŋ <sup>j</sup>	ill	Polysyllabic/Accent 2	tighinn	tʃ <sup>h</sup> i.əŋ <sup>j</sup>	coming
Monosyllabic/Accent 1	ainm	anam	name	Polysyllabic/Accent 2	anam	anəm	soul
Monosyllabic/Accent 1	ràmh	rãv	oar	Polysyllabic/Accent 2	rathad	ra.ət	road
Monosyllabic/Accent 1	sinn	ʃəiŋ <sup>j</sup>	we	Polysyllabic/Accent 2	sithinn	ʃi.iŋ <sup>j</sup>	venison