THE UNIVERSITY *of* EDINBURGH

Edinburgh Research Explorer

Glottal stop insertion in Scottish Gaelic and contrastive syllabification

Citation for published version:
Iosad, P 2013, 'Glottal stop insertion in Scottish Gaelic and contrastive syllabification' Paper presented at Teangeolaíocht na Gaeilge / Cànanachas na Gàidhlig / The Linguistics of the Gaelic Languages XV, Dublin, Ireland, 19/04/13 - 20/09/13, .

Link:
Link to publication record in Edinburgh Research Explorer

Document Version:
Author final version (often known as postprint)

Publisher Rights Statement:
© Iosad, P. (2013). Glottal stop insertion in Scottish Gaelic and contrastive syllabification. Paper presented at Teangeolaíocht na Gaeilge / Cànanachas na Gàidhlig / The Linguistics of the Gaelic Languages XV, Dublin, Ireland.

OPEN ACCESS

Glottal stop insertion in Scottish Gaelic and contrastive syllabification

Pavel Iosad
Ollscoil Uladh
p.iosad@ulster.ac.uk

1 Glottal stops and pitch accents in Scottish Gaelic

1.1 Pitch accents in Hebridean Gaelic

**Pitch accents in Hebridean Gaelic**

- It is well-known that Hebridean (e. g. Lewis) dialects show a contrast between two types of 'pitch accents'/'word tones' (Borgstrøm 1940; Oftedal 1956; Ladefoged et al. 1998)

- Long rise (late peak)

    - Historical monosyllables: [ˈpoː] 'cow' (OI *bó*)
    - Including svarabhakti words: [ˈpalˠak] 'bellows' (OI *bolg*)

- Rise-fall (early peak)

    - Historical disyllables: [ˈpalˠəx] 'boy'
    - Including hiatus words: [ˈpoː] 'underwater rock' (ON *boði*)

Pitch accents reflect syllabic structure

- Following Ladefoged et al. (1998); Ladefoged (2003), it is possible to analyse the pitch contours as reflecting syllable counts

    - The pitch contours: if the pitch accent is H*+L, the trailing tone can only appear in disyllables (rise-fall), in monosyllables we only see the H* rise
    - Rhyme palatalization: disyllabic plural [ˈpalˠɪç] 'boys' but monosyllabic [ˈpulʲukʲ] 'bellows'
    - Invisibility to syncope: [ˈobəðʲ] 'work', gen. sg. [ˈobrəx] rather than *[ˈobəðʲəx] but [valaxu] rather than *[valxu] 'boys (voc. pl.)'

Pitch accents as synchronic syllable count

- Smith (1999) analyses the svarabhakti vowels in *balg* and *bhalachaibh* with complex prosodic machinery (recursive syllables)
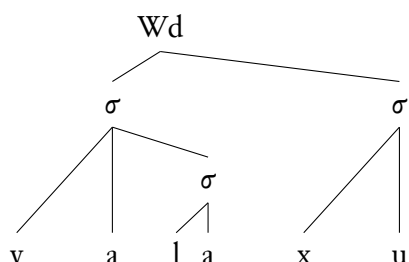
- But they are basically inert

- Proposal: these vowels are absent from *surface* phonological representations

Pitch accents as synchronic syllable counts

- Thus, *balg* is phonologically [palˠk]

    - Explains the tonal contour (Ladefoged et al. 1998)

    - Explains the rhyme palatalization to [puʎikʲ]

    - Explains the behaviour with respect to syncope

- Some things need ironing out

    - Dialects like Barra (Borgstrøm 1937; Clements 1986) where the svarabhakti vowel is not always an exact copy (['puʎikʲ] *builg*)

    - Historical svarabhakti before deleted segments: ['fala.i] with 'monosyllabic' rising pitch (*falbhaidh* 'will go')

- Still, this analysis makes sense (Oftedal 1956)

1.2   Glottal stops in southern Gaelic

Glottal stops in southern Gaelic

- Much like Danish *stød* corresponds to Norwegian and Swedish pitch accent, in southern Gaelic the Hebridean pitch accents correspond to glottal stop insertion

- Argyll (Holmer 1938; Jones 2000), Tiree (Ternes 1980), see also Ternes (2006); Eliasson (2000)

- Tiree [poʔo] 'underwater rock' (Hebridean ['poː] with rise-fall), ['poː] 'cow' (Hebridean [poː] with rise)

- Smith (1999) suggests that the southern glottal stop is due to a stress-to-weight (Prince 1992; Bye and de Lacy 2008) requirement: if a stressed syllable cannot be bimoraic, insert a glottal stop

- Questions

    - Is GSI a live process? Yes
    - Is Smith (1999) correct? Yes

2   Glottal stop insertion as stress-to-weight

2.1   Glottal stop insertion is phonological

Is GSI phonological?

- A lot of the evidence is static

(1)   a.   No glottal stop insertion in heavy syllables
       (i)   [ˈtʰɾɑ$_\mu$i$_\mu$]   *tràigh*   'shore'
       (ii)   [ˈkʰlʲuː$_{\mu\mu}$]   *cliù*   'fame'
       (iii) [ˈpjɔː$_{\mu\mu}$]   *beò*   'alive'
      b.   Glottal stop insertion is subminimal monosyllables
       (i)   [ˈtʰʲe$_\mu$ʔ$_\mu$]   *teth*   'hot'
       (ii)   [ˈmɛ$_\mu$ʔ$_\mu$]   *math*   'good'
       (iii) [ˈkɾu$_\mu$ʔ$_\mu$]   *gruth*   'curds'

- Evidence from alternations shows that at least in some cases it is a live phonological process

Inflection

- Adding inflectional suffixes/clitics leads to open/closed syllable alternations

(2)   a.   Open syllables, glottal stop inserted
       (i)   [ˈkʰu$_\mu$ʔ$_\mu$.ɾiç mi]   *cuiridh mi*   'I will put'
       (ii)   [ˈxu$_\mu$ʔ$_\mu$.ɾə tu]   *chuireadh thu* 'you would put'
      b.   Closed syllables, no glottal stop
       (i)   [ˈxu$_\mu$ɾ$_\mu$ mi]   *chuir mi*   'I put (past)'
       (ii)   [ˈxu$_\mu$ɾ$_\mu$ u]   *chuir thu*   'you put (past)'

Syncope

- Noted by Smith (1999)

- Open/closed syllable alternations due to syncope

(3)   a.   (i)   [ˈtɔ$_\mu$ʔ$_\mu$.rəs]   *dorus*   'door'
               (ii)   [ˈtɔ$_\mu$r$_\mu$.ʃən]   *doirsean*   'doors'
       b.   (i)   [ˈpɑ$_\mu$ʔ$_\mu$.lʲə]   *baile*   'place'
               (ii)   [ˈpɑ$_\mu$l$_\mu$.tʲən]   *bailtean*   'places'

Phrase-level resyllabification

- Data from Jura (Jones 2000)

- No GSI in closed syllables as expected

(4)   [fɛn lɛm]   *fan leam*   'stay with me'

- Postlexical syllabification takes a normally weight-bearing segment out of the onset

(5)   a.   [ɣɛʔ.n ɑ]   *dh'fhan e*   'he stayed'
       b.   [stɑʔ.t əŋ kʰɑːr]   *stad an càr*   'stop the car'
       c.   [koʔ.p ənʲ ɛːn]   *gob an eun*   'the bird's beak'

2.2   The glottal stop is a moraic coda

The prosodic affiliation of the glottal stop

- Smith (1999) proposes that glottal stop insertion is triggered by stress-to-weight

- In other words, [ʔ] is a coda

- This is important in cases like [poʔo] *bodha*: VC.V syllabification?

- Argued to be impossible

- VC.V syllabification can be reported by speakers (Ní Chiosáin, Welby, and Espesser 2012)

- But examples of core phonological phenomena involving it are more difficult to find

- I argue that southern Gaelic is an example

The glottal stop and weight-to-stress

- As Smith (1999) observes, the glottal stop appears in open syllables as discussed above

- Tellingly, it does not appear before svarabhakti vowels: [marəv] 'dead', consistent with surface-phonological [marv]

- Jones (2000) provides more evidence for the connection with moraicity

- The rule is that there is no GSI in closed syllable is not 'fully regular' (*gu léir cunbhalach*) in Jura

- We do get forms like [fɛʔn] 'stay' alongside [fɛn]

The connection with fortis sonorants

- According to Jones (2000), word-final [n l r] in forms like [fɛn] are long

- GSI overapplies in closed syllables only before [n l r]

- Obviously, these are the segments participating in the 'fortis' contrast

- ☞ The GSI overapplication is a type of compensatory lengthening before underlyingly moraic sonorants like lengthening/diphthongization (Ní Chiosáin 1991)

3 Contrastive syllabification in Scottish Gaelic

3.1 Pitch accent and GSI as syllabic structure

Why is this important again?

- If I have convinced you that glottal stop insertion creates moraic codas in light syllables, we are in a position to reconsider [poʔo] 'underwater rock'

- I suggest that the contrast between something like [poʔo] 'underwater rock' (*bodha*) and [po:] 'cow' (*bó*) is underlyingly one of *syllable structure*: /po(o)$_\sigma$/ vs. /poo/

- Syllable structure has been assumed to be completely predictable

- For instance, for McCarthy (2007) syllabification does not introduce a LUM because there are no faithfulness constraints for syllabification

Weight-to-stress or hiatus?

- Returning to [poʔo], how do we know that the glottal stop is not a hiatus-breaker?

- We know that hiatus is repaired by contraction

- Syncope deletes the second syllabic node (even if it stored), triggering contraction

(6) a. (i)   [ˈjoʔur]   *leabhar*   'book'
         (ii) [ˈjowriçən]   *leabhraichean* 'books'
     b. (i)   [ˈuʔul]   *ubhal*   'apple'
         (ii) [ˈuːlən]   *ubhlan*   'apples'

- No explanation for this interaction if the glottal stop
  has nothing to do with syllabic structure

3.2 Against empty onsets

Stored syllable structure all around

- Clements (1986); Smith (1999) have proposed to derive unusual syllabification effects in Scottish Gaelic by postulating empty onset consonants

- In /po_o/, the empty onset creates an open syllable

- Conceptually, I can't see an objection against empty segments

- However, how do we know they are *onsets*?

- Syllabification is done by the phonology

- Normally, syllabification is driven by sonority (e. g. Zec 1988; Morén 2001; Topintzi 2010)

- But...

  – How sonorous is an empty segment?

  – How do we know that the best prosodification doesn't involve, say, deletion?

- The whole idea stands and falls on the onset status of the empty consonant

- But that's essentially storing a syllabic treelet

Wrapping up

- Glottal stop insertion in southern Scottish Gaelic is driven by constraints on syllabic structure

- The existence of unpredictable glottal stops (and Hebridean pitch accents) shows that syllabic structure is not fully predictable

- Best analysis: assume that syllabic structure can also be stored (cf. Vaux 2003)

☞ After all, we can store

  – Foot structure (e. g. lexical stress)

  – Moraic structure (lexical vowel length, lexical geminates)

  – So why not syllabic structure?

☞ Syllables are not special

References

Borgstrøm, Carl Hjalmar. 1937. 'The dialect of Barra in the Outer Hebrides.' *Norsk tidsskrift for sprogvidenskap* 8:71–242.

———. 1940. *The dialects of the Outer Hebrides.* A linguistic survey of the Gaelic dialects of Scotland 1. Norsk Tidsskrift for Sprogvidenskap, suppl. bind I. Oslo: Norwegian Universities Press.

Bye, Patrik, and Paul de Lacy. 2008. 'Metrical influences on fortition and lenition.' In *Lenition and fortition,* edited by Joaquim Brandão de Carvalho, Tobias Scheer, and Philippe Ségéral, 173–2006. Studies in Generative Grammar 99. Berlin: Mouton de Gruyter.

Clements, G. Nick. 1986. 'Syllabification and epenthesis in the Barra dialect of Gaelic.' In *The phonological representation of suprasegmentals,* edited by John Massie Stuart, Koen Bogers, Harry van der Hulst, and Maarten Mous, 317–336. Berlin: Walter de Gruyter.

Eliasson, Stig. 2000. 'Typologiska och areallingvistiska aspekter på de nordeuropeiska språkens fonologi.' In *Språkkontakt: innverknaden frå nedertysk på andre nordeuropeiske språk,* edited by Ernst Håkon Jahr, 21–70. Nord 2000: 19. København: Nordisk ministerråd.

Holmer, Nils M. 1938. *Studies on Argyllshire Gaelic.* Skrifter utgivna av Kungliga Humanistiska Vetenskapssamfundet i Uppsala 31. Uppsala: Almqvist & Wiksell.

Jones, George. 2000. 'Beagan mu'n stad ghlotasach ann an Gàidhlig Ceann a Deas Earraghaidheil.' *Scottish Gaelic Studies* 20:201–211.

Ladefoged, Peter. 2003. 'Commentary: some thoughts on syllables — an old-fashioned interlude.' In *Papers in laboratory phonology VI,* edited by John Local, Richard Ogden, and Rosalind A. M. Temple, 269–276. Cambridge: Cambridge University Press.

Ladefoged, Peter, Jenny Ladefoged, Alice Turk, Kevin Hind, and St. John Skilton. 1998. 'Phonetic structures of Scottish Gaelic.' *Journal of the International Phonetic Association* 28 (1): 1–41.

McCarthy, John J. 2007. *Hidden generalizations: phonological opacity in Optimality Theory.* Advances in Optimality Theory 1. Equinox.

Morén, Bruce. 2001. *Distinctiveness, coercion, and sonority: a unified theory of weight.* London, New York: Routledge.

Ní Chiosáin, Máire. 1991. 'Topics in the phonology of Irish.' PhD diss., University of Massachusetts, Amherst.

Ní Chiosáin, Máire, Pauline Welby, and Robert Espesser. 2012. 'Is the syllabification of Irish a typological exception? An experimental study.' *Speech Communication* 54 (1): 68–91.

Oftedal, Magne. 1956. *The Gaelic of Leurbost, Isle of Lewis.* A linguistic survey of the Gaelic dialects of Scotland 3. Oslo: W. Aschehoug & Co.

Prince, Alan S. 1992. 'Quantitative consequences of rhythmic organization.' *CLS* 25 (2): 355–398.

Smith, Norval. 1999. 'A preliminary account of some aspects of Leurbost Gaelic syllable structure.' In *The syllable: views and facts,* edited by Harry van der Hulst and Nancy Ritter, 577–630. Studies in Generative Grammar 45. Berlin: Mouton de Gruyter.

Ternes, Elmar. 1980. 'Scottish Gaelic phonemics viewed in a typological perspective.' *Lingua* 52 (1–2): 73–88.

———. 2006. *The phonemic analysis of Scottish Gaelic, based on the dialect of Applecross, Ross-shire.* 3rd revised. Dublin: Dublin Institute for Advanced Studies.

Topintzi, Nina. 2010. *Onsets.* Cambridge: Cambridge University Press.

Vaux, Bert. 2003. 'Syllabification in Armenian, Universal Grammar and the lexicon.' *Linguistic Inquiry* 34 (1): 91–125.

Zec, Draga. 1988. 'Sonority constraints on prosodic structure.' PhD diss., Stanford University.