Glottal stop insertion in Scottish Gaelic and contrastive syllabification

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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 bòði)

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 [ˈpulˠuk] ‘bellows’

Pitch accents as synchronic syllable count

• Smith (1999) analyses the svarabhakti vowels in *balg* and *bhalachaibb* with complex prosodic machinery (recursive syllables)

\[ Wd \]
\[ \sigma \]
\[ \sigma \]
\[ v \]
\[ a \]
\[ l \]
\[ a \]
\[ x \]
\[ u \]

• But they are basically inert

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

Pitch accents as synchronic syllable counts

• Thus, *balg* is phonologically [pulˠk]
  – Explains the tonal contour (Ladefoged et al. 1998)
  – Explains the rhyme palatalization to [pulik]
  – 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 ([ˈpulik] *butilg*)
  – Historical svarabhakti before deleted segments: [ˈfala.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 [ˈpoː] with rise-fall), [ˈpoː] ‘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) [tʰɾɑɨ̆i] tràigh ‘shore’
      (ii) [kʰʃuɬ] cliù ‘fame’
      (iii) [pʃɬ] beò ‘alive’
  
  b. Glottal stop insertion is subminimal monosyllables
      (i) [tʰɛ̆] teth ‘hot’
      (ii) [mɛ̆] math ‘good’
      (iii) [kɾuɬ] 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) [kʰʃuɬɾɪɾɪç mi] cuiridh mi ‘I will put’
      (ii) [xuɬɾɪɾɪɾɪ tu] chuireadh tu ‘you would put’

  b. Closed syllables, no glottal stop
      (i) [xuɬɾɪ mi] chuir mi ‘I put (past)’
      (ii) [xuɬɾɪ u] chuir tu ‘you put (past)’

Syncope

- Noted by Smith (1999)

- Open/closed syllable alternations due to syncope
Phrase-level resyllabification

- Data from Jura (Jones 2000)
- No GSI in closed syllables as expected

(4) \[\text{fan leam}\] ‘stay with me’

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

(5) a. \[\text{dh’fhan e}\] ‘he stayed’
b. \[\text{stad an càr}\] ‘stop the car’
c. \[\text{gob an eun}\] ‘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] bodba: VC.V syllabification?
- Argued to be impossible
- VC.V syllabification can be reported by speakers (Ni 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: [marɭv] ‘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 cunbalach) in Jura
- We do get forms like [fɛʔn] ‘stay’ alongside [fɛn]
The connection with fortis sonorants

- 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’ (bodba) and [po:] ‘cow’ (bó) is underlyingly one of syllable structure: /po(o)ɛ/ 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.

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• 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 spro-


Holmer, Nils M. 1938. Studies on Argyllshire Gaelic. Skrifter utgivna av Kungliga Humanistiska Vetenskaps-

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


