

Accent and metrical structure in Scottish Gaelic

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A number of languages of northern Europe display a suprasegmental contrast that is realised by means of either tone, glottalisation or overlength. For example, contrastive tones occur in Swedish and Franconian, contrastive glottalisation in Danish, and contrastive overlength in Estonian. As shown in (1), all three are employed in different dialects of Scottish Gaelic to distinguish words belonging to two accent classes, *Class 1* and *Class 2*.

(1)		Lewis	Islay	Applecross		
	a. Class 1:					
		<i>aran</i>	['áran]	['a ² ran]	['aran]	'bread'
		<i>dubhan</i>	['túan]	['tu ² an]	['tuan]	'hook'
		<i>bodha</i>	['pô:]]	['po ² u]	['po:]]	'submerged rock'
	b. Class 2:					
		<i>arm</i>	['arám]	['arəm]	['ara·m]	'army'
		<i>uan</i>	['uán]	['uan]	['ua·n]	'lamb'
		<i>bò</i>	['põ:]]	['pou]	['po:]]	'cow'

Overlength in Estonian has long been analysed as reflecting contrastive metrical structure (Prince 1980), and similar metrical analyses have more recently been proposed for the tonal contrasts in Swedish (Morén-Duolljá 2013) and Franconian (Köhnlein 2016) and glottalisation in Danish (Iosad 2016). Metrical structure has also been invoked for Scottish Gaelic in a variety of ways, involving e.g. "supersyllables" (Bosch & de Jong 1998), recursive syllables (Smith 1999), recursive feet (Iosad 2018) or a difference in the extent of the stressed syllable (Oftedal 1956; Ladefoged et al. 1998; Iosad 2015). Using evidence from morphophonology and speaker intuitions I argue that the last approach is the correct one, i.e. the stressed syllable contains only the first mora in Class 1 forms but the first two morae in Class 2 forms. Specifically, I propose that Class 1 and 2 forms contain a dimoraic trochaic foot of the shape $[\Sigma \sigma_\mu \sigma_\mu]$ and $[\Sigma \sigma_{\mu\mu}]$ respectively. The contrasts in pitch, phonation and duration in (1) therefore represent the various means employed by different dialects to distinguish two different types of feet.

Moreover, I claim that the accent class of a word in Scottish Gaelic is fully predictable from the segmental content of its underlying form. Using a Stratal OT framework (Bermúdez-Otero 2018), I argue that the historical vowel epenthesis responsible for Class 2 forms such as *arm* (in which the stressed syllable contains two sonority peaks) is a synchronically active word-level process targeting heterorganic clusters, and that the highly marked surface syllable structure of these forms results from faithfulness to foot structure built at the stem level. Following Köhnlein (2016) I define headedness according to the level at which branching occurs, such that the head of $[\Sigma \sigma_\mu \sigma_\mu]$ is the first syllable and that of $[\Sigma \sigma_{\mu\mu}]$ the first mora, and assume that a constraint HEADMATCH(Σ) motivates faithfulness to the level at which the foot-head occurs. If underlying /arm/ 'army' is taken to be $[\Sigma [\sigma a_\mu r_\mu m]]$ in the stem-level output then highly-ranked HEADMATCH(Σ) at the word level will favour monosyllabic $[\Sigma [\sigma a_\mu r_\mu m]]$ over disyllabic $*[\Sigma [\sigma a_\mu] [\sigma r_\mu m]]$ in spite of the epenthetic vowel. The claim that certain coda consonants are moraic at an intermediate level of representation is supported by evidence from the dialect of East Perthshire (Ó Murchú 1989), where epenthesis does not occur and instead the relevant consonants are explicitly moraic on the surface, e.g. [ar:m]. As for the other contrasts in (1), I assume that Class 1 forms such as *dubhan* and *bodha* contain a sequence of two short vowels while Class 2 forms such as *uan* and *bò* contain a diphthong or long vowel.

By ascribing all of the contrasts in pitch, phonation and duration in (1) to a distinction between two different types of feet, this analysis helps to tie together the existing metrical analyses of similar contrasts in other languages and demonstrate how metrical structure can be used to account for a wide range of suprasegmental phenomena. It also serves to further highlight the intimate relationships reported to exist between these phenomena, e.g. between tone and duration in Franconian and Estonian (Köhnlein 2015), between tone and glottalisation in North Germanic (Gårding 1977) and between all three in Livonian (Kiparsky 2017). However, it differs from existing metrical analyses of those contrasts in that foot structure in Scottish Gaelic is not lexically contrastive but rather is built according to regular rule in the stem-level phonology. In this way, it demonstrates the ability of Stratal OT to account for phonological phenomena as complex as those found in Scottish Gaelic.

References

- Bermúdez-Otero, Ricardo. 2018. Stratal Phonology. In S. J. Hannahs & Anna R. K. Bosch (eds.), *The Routledge Handbook of Phonological Theory*, 100-34. Abingdon: Routledge.
- Bosch, Anna & Kenneth de Jong. 1998. Syllables and supersyllables: Evidence for low level phonological domains. In Amanda R. Doran, Tivoli Majors, Claude E. Mauk & Nisha Merchant Goss (eds.), *Exploring the Boundaries Between Phonetics and Phonology: Proceedings of the 1998 Texas Linguistics Society Conference (Texas Linguistic Forum 41)*, 1-14. Austin, TX: Department of Linguistics, The University of Texas at Austin.
- Gårding, Eva. 1977. *The Scandinavian Word Accents (Travaux de l'institut de linguistique de Lund 11)*. Lund: Gleerup.
- Iosad, Pavel. 2015. 'Pitch accent' and prosodic structure in Scottish Gaelic: Reassessing the role of contact. In Martin Hilpert, Jan-Ola Östman, Christine Mertzlufft, Michael Rießler & Janet Duke (eds.), *New Trends in Nordic and General Linguistics*, 28-54. Berlin: Mouton de Gruyter.
- Iosad, Pavel. 2016. Prosodic structure and suprasegmental features: short-vowel stød in Danish. *Journal of Comparative Germanic Linguistics* 19(3), 221-68.
- Iosad, Pavel. 2018. A metrical analysis of Scottish Gaelic tonal accent. Paper presented at Rannsachadh na Gàidhlig 10, Edinburgh, 30th August 2018.
- Kiparsky, Paul. 2017. Livonian stød. In Wolfgang Kehrein, Björn Köhnlein, Paul Boersma & Marc van Oostendorp (eds.), *Segmental Structure and Tone (Linguistische Arbeiten 552)*, 195-210. Berlin: De Gruyter.
- Köhnlein, Björn. 2015. The complex durational relationship of contour tones and level tones: evidence from diachrony. *Diachronica* 32(2), 231-67.
- Köhnlein, Björn. 2016. Contrastive foot structure in Franconian tone-accent dialects. *Phonology* 33(1), 87-123.
- Ladefoged, Peter, Jenny Ladefoged, Alice Turk, Kevin Hind & St. John Skilton. 1998. Phonetic structures of Scottish Gaelic. *Journal of the International Phonetic Association* 28, 1-41.
- Morén-Duolljá, Bruce. 2013. The prosody of Swedish underived nouns: no lexical tones required. *Nordlyd* 40(1), 196-248.
- Oftedal, Magne. 1956. *The Gaelic of Leurbost, Isle of Lewis (A Linguistic Survey of the Gaelic Dialects of Scotland 3) (Norsk Tidsskrift for Sprogvidenskap suppl. vol. 4)*. Oslo: W. Aschehoug.
- Ó Murchú, Máirtín. 1989. *East Perthshire Gaelic: Social History, Phonology, Texts, and Lexicon*. Dublin: Dublin Institute for Advanced Studies.
- Prince, Alan. 1980. A metrical theory for Estonian quantity. *Linguistic Inquiry* 11(3), 511-62.
- Smith, Norval. 1999. A preliminary account of some aspects of Leurbost Gaelic syllable structure. In Harry van der Hulst & Nancy A. Ritter (eds.), *The Syllable: Views and Facts*, 577-630. Berlin: Mouton de Gruyter.