

Enhancement of quantity contrasts by place as fortition

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Claim

Some **place** changes affecting coronal sonorants are **fortition**

- Apical [l n] > laminal [ɭ ɳ] in two kinds of contexts
 - Metrically **strong** position
 - **Assimilation** to laminal stops

Goidelic Celtic: (abstract) quantity

Connacht Irish (Ni Chiosáin 1991)

	Old Irish	Coda	Onset
	<i>gel</i>	gʲæl	gʲælə
	'bright'	<i>geal</i>	<i>gealadb</i> VN
	<i>gell-aid</i>	gʲa:l	gʲælə
	'promise'	<i>geall</i>	<i>gealladb</i> VN

- /gʲæl/ 'bright' ≠ /gʲa:l/ 'promise'
- Compensatory lengthening: /gʲa:l_μ/ → [gʲa:l_{μμ}]
- No moraic onsets: /gʲa:l_μ/ → [gʲa:l_μ]

Goidelic Celtic: (abstract) quantity and place

Scottish Gaelic, Lewis (Oftedal 1956)

	Coda	Onset
OI <i>bun</i>	pūn	pūnə
'bottom'	<i>bun</i>	<i>buine</i> GEN.SG
ON <i>blunn-</i>	lʲūn	lʲūnə
'launching roller'	<i>lunn</i>	<i>lunnan</i> PL

Basically the same pattern, with a quality difference

- **fortis** [N L R] for **nn ll rr*: **laminal dental** or **palatal**, moraic
- **lenis** [n l r] for **n l r*: **apical alveolar**, nonmoraic

Detailed analysis by Morrison (2019)

Brythonic Celtic: quantity and manner

CCelt	Welsh	Breton
* <i>k=ello-</i>	<i>pell</i>	p ^h e:l
* <i>kanninā-</i>	<i>cennin</i>	k ^h en:n
* <i>karreko/ā-</i>	<i>carreg</i>	k ^h ar:eg
		<i>karreg</i>
		kar:eg

- In this context, quantity is mostly retained
- But some qualitative change: Welsh *ll* > [ʃ]

Celtic: metrically strong position

The sonorants are also involved in initial mutation

Consonant	SE Breton	Welsh	Gaelic
* <i>n-</i>			n ~ ɳ ɳ ~ n(ʲ)
* <i>l-</i>		ɭ ~ l	lʲ ~ ɭ ɭ ~ l(ʲ)
* <i>r-</i>	r/ɣ ~ r	r ^h ~ r	r ^h ~ r(ʲ)

- Implicational hierarchy for mutation (Humphreys 1972): NN > LL > RR
- Fortis outcomes:
 - Word-initial unlenited (i. e. not postvocalic in sandhi)
 - Some internal homorganic onsets (cf. Honeybone 2005): W *gwinllan* 'vineyard' < **uino-landa*

Celtic: place

- Place differences **enhance** quality contrasts
- Once place has entered the phonology (Kiparsky 2015, Bermúdez-Otero 2015), it emancipates from quantity
- Fortis outcomes by **assimilation**
 - Welsh **lt* > *tr*: **metljion* 'clover', MW *meillyon*
 - SC Gd coda lateral 'fortition': *geal* [kʲa:l] 'white' < *gel*, no moraicity (*[kʲa:lʲ])
 - Similar pattern for *n*, **but only before** coronal stops: *lean* [lʲa:n] 'follow' ~ [lʲa:nʲɪj] 'follow.VN' (*[lʲa:nʲɪj])
 - Laterals: assimilation > **rule generalization**

Celtic: summary

- Laminal outcomes for **l n r* occur in **strong** positions:
 - Historical length
 - Unmutated contexts
- Others involve **place** not strength

Mechanism

1. Phonological quantity contrast
2. Enhancement of quantity by quality
3. Phonologization of quality
4. Loss of quantity

North Germanic: quantity

Old West Norse (Noreen 1923, Seip 1955)

- *l n ≠ ll nn* in word-medial onsets/word-finally

	Short	Long
Nasal	<i>man</i>	'woman'
Lateral	<i>fūl</i>	'foul.ACC'
	<i>mann</i>	'man'
	<i>full</i>	'full.ACC'

- Evidence for quantity:
 - Spelling
 - Poetic metre?
 - Quantity shift: Norwegian [kʰɔ:l] 'coal' < *kol* vs. [ful] < *fullr*

North Germanic: place

- [t]-excrecence suggests a place difference

	Apical	Laminal
Nasal	<i>mans</i>	'woman.GEN'
Lateral	<i>fuls</i>	'foul.GEN'
	<i>mannz</i>	'man.GEN'
	<i>fullz</i>	'full.GEN'

- Present-day dialects (Kusmenko 1997, Sandøy 1997):
 - Laminal [ɳ ɭ] > [ɳ ɭ] in Trøndelag, Northern Norwegian, Danish...
 - Apical [ɭ] > [tɕ] ('thick l') in Eastern Norwegian, most of Swedish
- Assimilation [l n] → [ɭ ɳ] before [t ɕ] (Noreen 1923: 189):
 - *builld* < *huilld* 'rest' (*builla*)
 - *greinda* < *greinda* 'discuss.PST.3SG' (*greina*)
- No assimilation before [ð], which must have been apical: cf. also **rð* > *r*
- Kümmel (2007: 225) for West Germanic parallels

Some generalizations

- Quantity distinctions arise in medial position and are enhanced by **laminalization**
- Place contrasts are phonologized before the quantity contrast is lost
- As a consequence, laminal coronal sonorants are treated as **strong**
- Laminal outcomes occur in **strong** contexts, including onsets ('initial strengthening' [Hock 1992]), and in pre-laminal contexts

Sonorant fortition

The best understood kind of sonorant fortition is probably **obstruentization of glides**: a change in **manner** (Kümmel 2007: 159–161, Bybee & Easterday 2019)

- Italian *gioco*, French *jeu* < VL *iocu*
- French *gage*, *guerre* < Gmc **wadju*, **werra*
- Faroese *skerping*: *nýggjur*, *trúgvá* < ON *nýr*, *trúa*
- Holtzmann's Law/*Verschärfung*: ON *tryggr*, *egg* vs. glides in OE *trēowe*, *æġ*
- Brythonic **#u-* > *g*w-, **-j* > *-ð*: **uanno-* > W *gwan* 'weak', **moniĵo-* > *mynydd* 'mountain'

I suggest that laminalization, despite being a place change, is the counterpart of this process for lower-sonority coronals

Parallels

Other types of sonorant fortition

- Lengthening
- Manner change: obstruentization
- Laryngeal change: devoicing

Romance: quantity to quality

Well known as a case of quantity reflected as quality (Haudricourt & Juilland 1949)

	Singleton			Geminate	
VL	Italian	Spanish	VL	Italian	Spanish
MANU	ma: no	ma no	PANNU	pa: no	pa no
PALU	pa: lo	pa lo	BULLIRE	bol: i re	bu ir
CARU	ka: ro	ka ro	CARRU	kar: o	ka ro

- Italian: consonants preserved, open syllable lengthening
- Spanish: transphonologization

Iberian Romance: initial position

Also **fortis** outcomes word-initially (Martinet 1955)

VL	Italian	Castilian	Catalan	Asturian
NIGRU	<i>nero</i>	<i>negro</i>	<i>negre</i>	<i>ñegru</i>
LOCU	<i>luogo</i>	<i>luego</i>	<i>lloc</i>	<i>llueu</i>
ROTA	<i>rota</i>	[r]ueda	[r]oda	[r]ueda

- Same NN > LL > RR hierarchy

Romance: quantity

Evidence for quantity

- Spelling
 - Open syllable lengthening
- The NN > LL > RR hierarchy
- ...is the sonority hierarchy
 - ...regulates the order of degemination in Romance (Brandão de Carvalho 1989)

Corollary: sonority

- Putting together the fortition of glides, liquids, and nasals, the maintenance of the strong-weak distinction broadly follows the sonority hierarchy
- Unsurprising in light of the tendency for high-sonority segments to attract moraicity (Zec 1995, Morén 2001)
- Even in the absence of distinctive length in medial position: cf. Holt (1999) on Romance
- Expectation: 'initial strengthening' is more likely to occur with higher-sonority segments, because it is contingent on strong-weak contrasts internally
- A corollary: fortitions only affecting the higher end of the sonority scale may be unrecognized initial strengthenings

Word-initial rhotics

Restrictions on word-initial *r*:

- Ancient Greek (Jatteau 2016): **-rr-* > *ῥῥ*, initial **r* > *ῥ*
 - Extensive support from various sources of **br* > *ῥ*
 - Greek also has **#j-* > *ζ*, following the sonority hierarchy; admittedly **#w-* just gets lost
- See Kocharov & Shatskov (2021) on **#r-* in IE more generally

Strengthening without lengthening

- Sonorant fortition occurs in typical 'coda mirror' (Ségéral & Scheer 2008) contexts {#, C}__
- Qualitative differentiation has a diachronic link to length contrasts, but no logical connection
 - No direct link to internal lenition (Hock 1992)
 - No need for initial gemination (Martinet 1952, Cravens 2002)

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