Celtic initial consonant mutations - nghath and bhfuil?

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Undergraduate Honors Program
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Abstract

The Insular Celtic languages, such as Irish and Welsh, distinctively feature a morphophonemic process known as initial consonant mutation. Essentially the initial sound of a word changes due to certain grammatical contexts. Thus the word for 'car' may appear as *carr, charr* and *gcarr* in Irish and as *car, gar, char* and *nghar* in Welsh. Originally these mutations result from assimilatory phonological processes which have become grammaticalized and can convey morphological, semantic and syntactic information. This paper looks at the primary mutations in Irish and Welsh, showing the phonological changes involved and exemplifying their basic triggers with forms from the modern languages. Then it explores various topics related to initial consonant mutations including their historical development and impact on the grammatical structure of the Celtic languages. This examination helps to clarify the existence and operations of the initial mutations and displays how small sound changes can have a profound impact upon a language over time.

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Finally, many thanks go to my family for putting up with and supporting (and loving) my strange interests throughout my life and for at least sometimes listening to me talk about Celtic languages and linguistics.

Table of Contents:

I. INTRODUCTION

The Insular Celtic languages, such as Irish, Scottish Gaelic, Welsh and Breton, notoriously feature a grammatical process known as initial consonant mutation. Basically this involves a change of the first sound of a word in certain grammatical contexts. Initial mutations along with: verb-subject-object (VSO) word order, inflected pronouns and autonomus verbs, among other features, cause the Celtic languages to stand out against the rest of the members the Indo-European language family.

In this paper, I introduce and exemplify the initial consonant mutations in Modern Irish and Modern Welsh. This paper also provides some considerations about how they came about and how they are used. Additionally, it shows briefly the relationship among the Celtic languages, that is between the P-Celtic and Q-Celtic branches. I then look at the two main mutations in Irish (lenition and nasalization), showing the phonological changes involved and illustrating the basic triggers with examples from Modern Irish. Following this, I do the same for the three primary mutations of Modern Welsh (soft mutation, spirant mutation and nasal mutation).

After covering the basic phenomena, the main section of the paper presents a few selected in which "topics" related to these mutations and explores them more deeply: an additional mutation known as GEMINATION; an occurrence of lenition in Breton; the role which analogical levelling plays in the development of the mutation systems; the so-called "direct object mutation" in Welsh; a more detailed exploration of nasalization (including a phonological innovation in Scottish Gaelic); the information that Latin loan words in Old Irish can shed upon the history of lenition in both Goidelic and Brythonic; the phenomenon of prefixing /t/ to /s/; circumstances which block lenition from occurring. All of these focus mainly on the historical development of the mutations and on "problems" in explaining their occurrences. Understanding the underlying triggers and seeing how they operate word-internally as well make initial consonant mutations seem less exotic and allows one to see the similarities that the Celtic languages have with other Indo-European languages.

Appendices at the end exemplify the mutations of Modern Irish and Welsh with examples to show all of the sounds changed and not changed by these processes. After these, I exemplify which

forms of the copula ‘to be’ in Old Irish and Middle Welsh trigger lenition, provide notes on the way in which I transcribe the examples, show the effect of the fixed and moveable versions of the perfective augment *ro* in Old Irish, and display the Ogham alphabet.

The synchronic and diachronic views of the Celtic consonant mutations show how an originally phonological process developed into a morphophonemic and even syntactic phenomenon. Examining the historical underlying forms especially gives insight into these mutations which seem “puzzling” when viewed on the surface. Additionally, initial consonant mutations demonstrate how a language can radically change over time. Assimilation commonly occurs in language, but in Celtic languages the assimilations became grammaticalized and play an essential role in their grammars.

II. MUTATIONS AND THE CELTIC LANGUAGES

So-called initial consonant mutations serve as a primary distinguishing characteristic of the Insular Celtic language family. These set sound changes occur at the beginning of words due to historical conditioning factors which no longer exist, but whose effects (i.e. the mutations) remain. For example, in the Irish phrase *i gCarna* [ə gɑ:rˠn̪ˠə][1] 'in Carna', an /n/ that was historically present in the word *i* [ə] 'in' influenced the consonant /k/ to become voiced /g/:

/in karna/ → /ɪŋ kk◦/ → /ĩ kk◦/→/ĩ gg◦/ → /ɪ gg◦/ →/ɪ g◦/ → /ə g◦/ [2].

At later stages, therefore, the nasal trigger is no longer visible, but nevertheless its effect remains. Phonemic contexts no longer prompts the sound changes, but rather morphosyntactic features do. Linguists refer to this phenomenon as GRAMMATICALIZATION[3].

A process called ANALOGICAL LEVELLING in Celtic can also trigger mutation. For instance, in Old Irish the negative particle *ní* does not genrally cause mutation[4], but does cause the mutation known as lenition (/kʲ/ → /xʲ/, [c] → [ç] here) when it incorporates a (null on the surface) neuter object pronoun—compare:

ní cél	[n̪ʲi: ce:lˠ]	'he will not conceal'
*ní **ch**él*	[n̪ʲi: **ç**e:lˠ]	'he will not conceal it'

Whereas in Modern Irish *ní* lenites by rule (and infixed pronouns no longer feature in the language)—

*ní **ch**eilfídh sé*	[n̪ʲi: çɛlʲʲhə ʃe:]	'he will not conceal'

Such cases lack historical justification. See section VII for an expanded treatment of analogical levelling.

To go deeper, all six modern Celtic languages—the Goidelic (i.e. Gaelic) languages (Irish, Scottish Gaelic and Manx) and the Brythonic (or Brittonic, British) languages (Welsh, Breton and Cornish)—have initial consonant mutations. These mutations vary in their realizations and in the contexts which trigger them, but nonetheless they share many similarities from having

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[1] velarization (ˠ) will only be marked when the distinction between velar and neutral is important; except in the case of the sonorants, see Appendix vi.

[2] see section IX.a.

[3] GRAMMATICALIZATION- "generally regarded as a process by which linguistic elements (lexical, pragmatic, and sometimes even phonetic items) change into constituents of grammar, or by which grammatical items become more grammatical in time…it includes the funtionalization/grammaticalization of phonological…features such as palatalization and initial mutations to distinguish different cases; number and gender in Irish…" (Brown p.129).

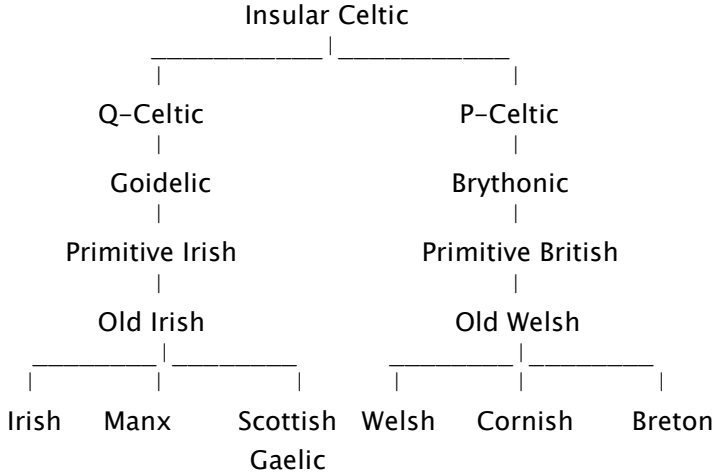
[4] in traditional Old Irish grammar schemes such as Thurneysen's *ní* causes the mutation known as GEMINATION, the doubling of the initial consonant (GOI §240-243). This was rarely shown in even Old Irish and can be ignored for the moment, see section V.

originally occurred in similar phonetic contexts. The word 'cat', whose Common Celtic form /*katt-/ has the underlying forms /kat/ in modern Goidelic languages and /kaθ/ in modern Brythonic languages, undergoes the so-called LENITION mutation in all of the Celtic languages after the word 'his':

Irish:	*a chat*	[ə xʊt]	'his cat'
Scottish Gaelic:	*a chat*	[ə x^ha^ht]	
Manx:	*e chayt*	[ɛ xɛt]	
Welsh:	*ei gath (e)*	[i: ga:θ (ɛ)]	
Breton:	*e gazh*	[ɛ gaz]	
Cornish:	*y gath*	[ɪ gaθ]	

In each case the original /k/ phoneme, after the morpheme 'his' changes to either /x/ in the case of the Goidelic languages or to /g/ in the case of the Brythonic languages.

Celtic languages were once widely spoken across Europe and into Asia minor. They compromise a sub-branch of the larger Indo-European language family. Continental Celtic languages, such as Gaulish, Leptonic, Celtiberian and Galatian, became extinct in the first half of the first millennium A.D. Only in Britain and Ireland did the Celtic languages survive; thus they are called Insular Celtic languages. This language family further divides into Goidelic and Brythonic, also referred to as Q-Celtic and P-Celtic respectively. The Goidelic languages include Irish (*Gaeilge*), Scottish Gaelic (*Gàidhlig*) and Manx (*Gaelg*), along with their common Old Irish (*Goídelc*) ancestor. Welsh (*Cymraeg*), Cornish (*Kernewek* / *Kernowek*) and Breton (*Brezhoneg*) make up the Brythonic family.



The terms Q- and P-Celtic derive from the treatment of the Proto-Indo-European /*k^w/ which distinguishes between the two branches early in their split. In Goidelic this phoneme remained /*k^w/ but later lost its labial quality and eventually became /k/, while Brythonic kept the labial

quality of the consonant, but lost the velar place of articulation, resulting in /p/ (which had otherwise disappeared in all Celtic languages) [5].

Ogham Irish	*MAQQI*	[mak^{w}i]	'son GEN'
→ Old Irish	*maicc* /*meicc*	[mac] / [m^{j}ɛc]	
→ Mod. Irish	*mic*	[m^{j}ɪc]	
Old Welsh	*map*	[map]	'son' [6]
→ Mod. Welsh	*mab*	[ma:b]	

Likewise, initially, Old Irish *cenn* [cɛn̪^{ɣ}] 'head' and Middle Welsh *penn* [pɛn] 'head'.

This study takes Irish and Welsh as exemplars of these two groups of Insular Celtic languages. Manx and Cornish mutational systems have decayed by extinction and later revival; Scottish Gaelic developed mutations beyond the core Goidelic system and these are subject to great dialectal diversity; French has had an extensive influence upon Breton. While all of these are fascinating in their own rights, this examination of Celtic consonant mutation concentrates on Irish and Welsh. Irish and Welsh of all the Celtic languages enjoy the most extensive attention in scholarship. Having remained closest to their earlier attested stages, they are seen as most representative of their respective Goidelic and Brythonic groups. Additionally, they are the Celtic tongues with which I am the most familiar.

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[5] Interesting enough, all Celtic languages lost Proto-Indo-European *p. Hence Irish *athair* (Old Irish [aθəɾ^{j}], Modern Irish [æ(hə)ɾ^{j}]) 'father', Latin *pater*, Greek πατήρ, Sanskrit *pitár-* all of which descend from Proto-Indo-European **pə$_2$tr-*. Irish words containing a /p/ are often loan words, such as *peann* [p^{j}ɑ:n̪^{ɣ}] 'pen' from Latin *penna* 'feather, wing'. Compare this with the native Irish result of the PIE root **pet-* 'fly' (the same root which yielded Latin *penna*): *éan* [e:n̪^{ɣ}] 'bird'. In Brythonic, this root produces *edn* [edn] 'bird' in Welsh and *penna* was borrowed into Welsh as *pin* [pin] 'pen.' These Celtic forms of 'bird' come from the root *etnos < *pet-no-s (McCone 1996, p. 152). Earlier Irish loan words failed to accept this voiceless labial sound - hence *Cáisc* [kɑ:ʃc] 'Easter' from Latin *Pascha*. In a like manner, Welsh readily accepted /p/ in loans – *Pasg* [pasg] 'Easter'. See section X on loan words in Old Irish. In later Irish /p/ was fully assimilated into the Irish sound inventory and is used in creating new native lexical items such as *paor* [p^{w}i:ɾ^{ɣ}] 'laughingstock, grudge'. Additionally, /p/ in Irish arises from the de-voicing of /b/ (i.e. *scuabfaidh* [skuəpə] 'will sweep') and other combinations (i.e. *timcheall* → *timpeall* [t^{ʲ}im^{j}çə̪l^{ɣ}] →[t^{ʲ}i:mpə̪l^{ɣ}] 'around').

[6] Brythonic languages lost any distinction between cases before the language was recorded. However one can observe remnants in prepositional phrases such as the Welsh *erbyn* [ɛrbɪn] 'against' of which the element *–byn* derives the dative case (and soft mutation) of *pen* [pɛn] 'head'. This parallels the Old Irish *ar-chiunn* [aɾ^{jˈ}çiu̯n̪^{ɣ}] 'before, facing'; *ciunn* [ciu̯n̪^{ɣ}] (modern *cionn* [ci:n̪^{ɣ}]) represents the dative case of *cenn* [cɛn̪^{ɣ}] 'head' (L&P §272). Welsh *pen* and Old Irish *cenn* develop from the Proto-Celtic NOM/ACC *k^{w}ennan. In Welsh, the Primitive British dative ending –ī < -ō caused the umlaut of /ɛ/ to /ɨ/ (/i/ Mod. Welsh) through /ɛɨ̯/ (L&P §181.6). The Irish dative derives from *k^{w}ennō > *k^{w}enū (reconstructions adapted from Stifter, p. 46).

GENERAL ACCOUNT OF MUTATIONS IN IRISH AND WELSH:

III. IRISH

Irish has two main mutations: *séimhiú* [ʃe:vʲu:] (lenition, aspiration) and *urú* [urʸu:] (eclipsis, nasalization). Up through the Primitive Irish period phonetic conditions, such as the preceding word ending in a nasal or vowel, triggered the mutations. For example, under the influence of the final vowel of the preceding definite article the initial consonant of *MAQ(Q)I* /makʷī/, the genitive of **MAQ(Q)AS* [makʷas] 'son', would undergo LEN (i.e. *séimhiú*), changing /m/ to [µ]:

/*sindī makʷī/ →[*sɪndi: µakʷī] 'of the son'

However, as mentioned, at later stages of the language the phonetic trigger, in this case the final /ī/ of /sindī/, disappeared and morphophonemic triggers became responsible for the alteration of /m/ to [µ] instead. Thus, in Old Irish 'of the son' was *in maicc* [ɪnʸ µac], whose *séimhiú* originated from the now-lost vowel, but the trigger responsible for mutation had undergone "reinterpretation." The fact that *maicc* follows the genitive singular masculine definite article now triggers LEN, traditionally notated in Irish grammars with a superscripted L—*in* [L 1]. This constitutes an example of the GRAMMATICALIZATION mentioned earlier.

Here follows a table representative, but not exhaustive, of common morphemes which trigger *séimhiú* in Old and Modern Irish:

[1] likewise a superscripted N for *urú*.

Mutational context[1]	Modern Irish	Old Irish	English gloss
Some prepositions: *do* 'to, for'	*do bhean* [gə vʲæːn̪ʸ]	*do ben* [do vʲɛnʸ]	'to/for a woman'
possessive pronouns: *mo* 'my' *do* 'thy' *a* 'his'	*mo theach* [mə hʲæːx] *do mhac* [də waːk] *a chaoirigh* [ə xiːɾʲɪ]	*mo thech* [mo θʲɛx] *do macc* [do μak] *a cháeraig* [a xaːi̯rʸəɣʲ]	'my house' 'your son' 'his sheep (PL)'
some relative clauses:	*a ghlanann(s) tú* [ə ɣlʸaːn̪ʸən̪ʸ(s) tuː]	*no-glanai* [n̪ʸoˈɣlanʸi]	'that thou cleanest'
"dative" case:	*don mhnaoi bheag*[2] [gən̪ʸ βɾĩː vʲog]	*don mnaí bicc* [don̪ʸ μnaːi̯ βʲɪɟ]	'for the small woman'
Verbs: past tense conditional tense imperfect tense negative particles *ní,* *níor* (w/ simple past only)	*ghoid* [ɣɛdʲ][3] *ghoidfeadh* [ɣɛtʲəx] *ghoideadh* [ɣɛdʲəx] *ní ghoidfídh* [n̪ʲiː ɣɛtʲə] *níor ghoid* [n̪ʲiːrʸ ɣɛdʲ]	(*gatais* [gadəʃ]) *ro·gat* [4] [roˈɣad] (*no·gatad* [n̪ʸoˈgadəð]) (*no·gaitfed* [n̪ʸoˈgadʲf̪əð]) [5] (*ní·géta* [n̪ʲiˈɟeːda])[6] (*ní·gat* [n̪ʲiˈgad]) *níro·gat* [n̪ʲiɾʸoˈɣad]	'stole' 'would steal' 'used to steal' 'will not steal' 'did not steal'
past tense copula: *ba, ní ba (=níor), ar, nár*	*ba dhraoi é* [7][bə ɣɾʸiː eː] *ní ba dhraoi é* [n̪ʲiː bə ɣɾʸiː e]	(*ba druí*[8] [ba drʸuɪ]) *ní-po druí* [n̪ʲíbo ðɾʸuɪ̯]	'he was a druid' 'he was not a druid'

[1] Mutational triggers based on Modern Irish; Old Irish examples included as well, in parentheses if the mutation differs from the modern language.

[2] also *don bhean bheag* [gən̪ʸ vʲæn̪ʸ vʲog] (as in the Official Standard)

[3] *do*, from Old Irish *ro* , formally preceded all of these "past" tense forms, and still does in Munster dialects (*do ghoid*) and also in all dialects before vowels and lenited /f/: *d'ól* [doːl̪ʸ] 'drank' and *d'fhág* [dɑːg] 'left'.

[4] LEN in leniting relative clauses only; [roˈgad] normally in main clauses.

[5] later *no·gatfad* [n̪ʸoˈgadfəð]

[6] Old Irish *gataid* exceptionally has an ē-future (*gétaid*) by analogy with *gaibid* 'takes' and *gairid* 'calls' instead of the expected f-future (**gaitfid*). Thurneysen, GOI §651.b.

[7] often no LEN following *ba* in Conamara Irish especially on /d, t, g, s/ (Ó Siadhail (1988), p. 170): *ba draoi é* [bə drʸiː eː]. However, there usually is LEN with idiomatic adjective expressions such as *ba mhaith liom* [bə waː lʲum] 'I would like' (lit. would.be good with.me) and *ba cheart dom* [bə çæːɾʸt dum] 'I should' (lit. would.be right to.me).

[8] no lenition after positive, non-relative, preterit of the copular; only gemination.

Analogy has also played a large role in the development of the mutational system and the mutations spread beyond their original bounds and became more standardized. The spread of *séimhiú* after genitive singular masculine nouns exemplifies this.

In Old Irish most masculine nouns in the genitive singular triggered LEN on a following adjective:

NOM	*fer cóem*	[fʲɛrʸ koi̯µ]	'a nice man'	Prim. Irish	*u̯iranh
GEN	*fir **ch**oím*	[fʲirʲ xoi̯µʲ]	'of a nice man'	Prim. Irish	*u̯irī

However for some classes of nouns, like u-stem and consonant-stem nouns, this was not the case because the genitive ending did not historically terminated with a vowel, as demonstrated by the Primitive Irish froms of the nouns to the right[1]. For example the nt-stem *carae* /*karant-/ 'friend':

NOM	*carae cóem*	[karʸɛ koi̯µ]	'a nice friend'	Prim. Irish	*karēh
GEN	*carat coím*	[karʸəd **k**oi̯µʲ]	'of a nice friend'	Prim. Irish	*karēd**ah**
	#*carat **ch**oím* [2]				

In Modern Irish on the other hand, ***all*** masculine genitive singular nouns cause LEN:

NOM	*fear caomh*	[fʲæ:rʸ ki:w]	'a pleasant man'
GEN	*fir **ch**aoimh*	[fʲɪrʲ xi:vʲ]	'of a pleasant man'
NOM	*cara(id) caomh*	[ka:rʸə(dʲ) ki:w]	'a pleasant friend'
GEN	*carad **ch**aoimh*	[ka:rʲəd **x**i:vʲ]	'of a pleasant friend'
	#carad caoimh		

Analogy can work in other ways as well. For example an instance of lenition being lost: in Old Irish masculine nouns underwent LEN after the definite article in the nominative plural, but feminine and neuter ones did not:

masculine:	*in catt*	[ɪn̪ʸ kat]	'the cat'	
	*in **ch**ait*	[ɪn̪ʸ **x**atʲ]	'the cats'	{cait}[3]
feminine:	*in chloch*	[ɪn̪ʸ xlox]	'the stone'	{cloch}
	*(in)na **c**locha*	[(ɪ)n̪ʸa **k**loxa]	'the stones'	

[1] Primitive Irish from Stifter, p. 45 for *u̯iranh 'man' and p. 162 for *karēh 'friend'

[2] # indicates an incorrect/unpermitted form

[3] braces {} indicate the radical, unmutated form of a word.

neuter:	*a cenn*	[a ɟɛn̪ʸ]	'the head'	{cenn}
	(in)na cenn(a)	[(ɪ)n̪ʸa cɛn̪ʸ(a)]	'the heads'	

In Modern Irish the plural article is uniformly *na* [n̪ʸə] and causes no lenition:

na cait	[n̪ʸə kɪtʲ]	'the cats'
#*na chait*		
na clocha	[n̪ʸə kloxə]	'the stones'
na ceanna [4]	[n̪ʸə cæ:n̪ʸə]	'the heads' (MASC in Modern Irish)

The more complex array of mutational forms of Old Irish fell into a simple and standardized rule in the modern language.

Séimhiú historically took place between two vowels—whether word internally or word initially if in a close syntactic relationship between the two words exists. Phonologically this mutation realizes itself as a weakening of the manner of articulation, manifested by frictivization, or laxening or debuccalization (Green, Anthony (2006), p. 1949). By these assimilatory changes, the consonants become more vowel-like (Ó Dochartaigh (1978), p. 464).

SHÉIMHIÚ [5]

	radical	lenited form	
frictivization of oral plosives and nasal stop /m/:			
	p	f	
	t	θ	Mod. → h
	k	x	
	b	β	Mod. → v/β
	d	ð	Mod. → ɣ
	g	ɣ	
	m	µ	Mod. → v/ṽ
laxening of liquids and /n/:			
	L	l	
	R	r	

[4] also *cinn* [ci:n̪ʲ]

[5] for a more detailed depiction of lenition including palatalized variants and Modern Irish examples, see Appendix i.

N	n

debuccalization of fricatives:

f	Ø
s	h

no change to vowels:

V	V

With the loss of the interdental fricatives /θ/ and /ð/ the system becomes less uniform in Modern Irish.

Urú results from a historical nasal sound in word final position which was lost in the Early Irish period due to apocope—the loss of final syllables. This nasal caused the voicing of voiceless sounds, the nasalization of voiced sounds, and the insertion of a "tense" dental nasal /N/ before a vowel. In the case of vowels, the nasal is actually the remnant of the formerly present nasal which persisted in front a vowel in contexts where it usually would have been lost in apocope.

URÚ [6]

radical	**eclipsed form**	
voicing of voiceless stops and fricative /f/ :		
p	b	
t	d	
k	g	
f	v	
nasalization of voiced stops:		
b	mb	→ m
d	Nd	→ N
g	ŋg	→ ŋ

[6] for a more detailed depiction of eclipsis including palatalized variants and Modern Irish examples, see Appendix ii.

dental nasal prefixed to vowels:

V	NV

no change:

s	s
m	m
L	L
R	R
N	N

In early Old Irish the voiced plosives remained after the prefixed homorganic nasals, but the nasals soon overtook (i.e. "eclipsed") them and they disappeared.

Formerly an "accidental" purely phonological occurrence, by the Old Irish period syntactic and morphological processes triggered the mutations. These mutations may or may not have an essential role in meaning. For example, the third person possessive pronouns in Irish share the identical form *a* [ə]; only mutation or lack of mutation distinguishes between 'his', 'her' and 'their.' For example, the Modern Irish word *bróg* [7] 'shoe' has three mutational by-forms:

the radical (non-mutation):	*bróg*	[bɾʸo:g]
the lenited form:	*bhróg*	[vɾʸo:g]
the eclipsed form:	*mbróg*	[mɾʸo:g]

All of these are brought into play when combing *bróg* the third person possessive pronouns:

a bhróg	[ə vɾʸo:g]	'his shoe'
a bróg	[ə bɾʸo:g]	'her shoe'
a mbróg	[ə mɾʸo:g]	'their shoe'

Any confusion of the mutated forms would change the meaning. Oftedal (1962) claims that the mutation which word like 'his' trigger are a part of the word itself. Using the Scottish Gaelic *a mhàthair* /ə ṽa:həɾʲ/ (unlenited *màthair* [ma:həɾʲ] 'mother') as an example, he asserts that the morpheme 'his' consists of more than /ə/, but rather that the fricative quality ([+cont]) of the /ṽ/ belongs to it as well. The labial nature of /ṽ/ along with the rest of the word carries the meaning 'mother' (p. 97-98). Thus it is /ə/ + LEN which carries the meaning 'his' and the form

[7] Conamara often has *bróig* [bɾʸo:ɟ] for the old dative singular of this class of noun usually replaces the nominative.

/ ṽa:hərʲ/ exhibits syncretism, for it both carries the meaning of 'mother' and contains a part of the meaning of 'his'.

On the other hand, in other instances the presence of mutation does not add anything to the meaning. The noun *geata* 'gate' has in the variations *geata* [ɟæ:tə], *gheata* [jæ:tə], and *ngeata* [ŋʲæ:tə]. When saying 'at the gate' the use of LEN or NAS has no contrastive meaning in Modern Irish. Connacht and Munster dialects employ eclipsis, while Ulster Irish utilizes lenition here:

Connacht/Munster	*ag an ngeata*	[ɛɟ ə ŋʲæ:tə]
Ulster	*ag an gheata*	[ɛɟ ə jætə]

The *urú* or *séimhiú* of *geata* adds nothing to the meaning. If one were to violate the rule and omit mutation here—*ag an geata* [ɛɟ ə ɟæ:tə]—one would be understood, but be grammatically wrong.[8] Thus, in the case of Modern Irish prepositional phrases, if mutation did not exist, meaning would not be affected. Historically Old Irish, however, differentiated case in part by the different mutations in prepositional phrases.

i [ɪ] 'in(to)':

with DAT, 'in'	*isin **ch**náim*	[ɪsɪnˠ xnˠaːμʲ]	'in the bone'	LEN
	*isin **ch**ridiu*	[ɪsɪnˠ xʲɾʲiðʲu]	'in the heart'	LEN
with ACC, 'into'	*isin cnáim*	[ɪsɪnˠ **g**nˠaːμʲ]	'into the bone'	NAS
	isin cride	[ɪsɪnˠ **ɟ**ɾʲiðʲɛ]	'into the heart'	NAS

Modern Irish has no distinct inflectional accusative case and little trace of a dative. Dialectal choice of mutation in prepositional phrases has no consequence to meaning. In the *Caighdeáin*[9] the preposition and article combination *sa* [sə] 'in the' uses LEN, while many dialects employ NAS. The meaning 'into' is supplied periphrastically with the adverb *isteach* [əˈʃtʲæx].

sa chnáimh / gcnáimh	[sə xɾˠɑ̃ːvʲ / gɾˠɑ̃ːvʲ][10]	'in the bone'
isteach sa chnáimh/ gcnáimh	[əˈʃtʲæːx sə xɾˠɑ̃ːvʲ / gɾˠɑ̃ːvʲ]	'into the bone'

However, as previously shown above, mutation still does affect the meaning in the case of possessive pronouns.

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[8] The only confusion could result from a word #*ceata* [cæ:tə] whose eclipsed from #*gceata* [ɟæ:tə] would sound the same as the unmutated *geata* [ɟæ:tə].

[9] official standard of Modern Irish, see *Gramadach na Gaeilge agus litriú na Gaeilge – an caighdeán oifigiúil.*

[10] change of [n] to [ɾ] after stops (and [m]) is a feature of Connacht and Ulster dialects

Irish utilizes mutation in many different positions. The vast majority of mutational situations occur within noun phrases or on the verb. Beginning with noun phrases, mutation can either happen to the noun itself or the adjective. An outline of the syntactic positions in which initial mutations occur in Modern Irish follows (based on, and some examples adapted from, Ó Siadhail (1995), Christian Brothers and Mac Congáil):

III.a. NOMINAL *SHÉIMHIÚ*

LEN takes place on the noun after:

•the feminine singular definite article:

*an **bh**róg* {bróg}	[ə vrˠo:g]	'the shoe'

•the masculine singular definite article:

*an **fh**ir* {fir}	[əˈn̪ʲirʲ]	'of the man'

•some prepositions with the article:

*ag an **ch**athair* {cathair}	[ɛɟ ə xæhərʲ]	'at the city' (Ulster)
*don **ch**athair*	[gən̪ˠ xa:(hə)rʲ]	'to/for the city'

•some prepositions:

*do **bh**ean* {bean}	[gə vʲæ:n̪ˠ]	'to/for a woman'

•numbers 1-6:

*dhá **bh**róig*	[ɣɑ: vrˠo:ɟ]	'two shoes'
*trí **bh**róg*	[tʲrʲi: vrˠo:g]	'three shoes
*cheithre **bh**róg*	[çɛhrʲə vrˠo:g]	'four shoes'

•possessive pronouns (SG1, SG2, SG3M):

*mo **ch**ara* {cara}	[mə xa:rˠə]	'my friend'
*do **ch**ara*	[də xa:rˠə]	'your friend'
*a **ch**ara*	[ə xa:rˠə]	'his friend'

•the vocative particle:

*a **Sh**eáin*	[ə çɑ:nʲ]	'(oh,) Seán'

• the past tense of the copula:

ba ***mh****úinteoir* *mé* {múinteoir}

be.PST teacher SG1

[bə βu:nʲtʲo:ɾʲ mʲe]

'I was a teacher'

•prefixes:

*an-****mh****aith* {maith} [ˈa:n̪ʸˈwa:] 'very good'

LEN happens to an adjective after:

•feminine nouns in the nominative singular:

bean ***mh****ór* {mór} [bʲæ:n̪ʸ wo:ɾʸ] 'big woman'

•feminine nouns in the dative singular:

ag an mnaoi ***mh****ór* [ɛɟ ə mɾʸĩ: wo:ɾʸ] 'at the big woman'

~ag an mbean ***mh****ór* [ɛɟ ə mʲæ:n̪ʸ wo:ɾʸ] 'at the big woman'

•masculine nouns in the genitive singular:

an fhir ***mh****óir* {móir} [ə n̪ʲiɾʲ wo:ɾʲ] 'of the big man'

• nouns in the vocative singular:

a ghrá ***gh****eal* {geal} [ə ɣɾʸɑ: jæ:l̪ʸ] 'oh bright love'

• plural masculine nouns ending in Cʲ (palatal consonant):

báid ***mh****óra* {móra} [bɑ:dʲ wo:ɾʸə] 'big boats'

but:

buachaillí móra [bu:əxəl̪ʲi: mo:ɾʸə] 'big boys'

• singular nouns preceded by a number (2-10)

seacht mbó ***bh****eaga* {beaga} [ʃæxt mo: vʲogə] 'seven little cows'

•the past tense of the copula:

ba ***dh****eas* *an* *cailín* *í* [bə jæ:s ə ka:lʲi:nʲ i:] {deas}

be.PST nice DEF girl PRON.SG3.ACC

'she is a nice girl'

• LEN may spread to multiple adjectives:

*an bhean **bh**eag **bh**án*	{beag, bán}	[ə vʲæːn̪ˠ vʲog wːɑɾˠ]	‘the small fair woman’
*an fhir **bh**ige **dh**uibhe*	{bige, duibhe}	[ə n̪ʲiɾʲ vʲɪɟə ɣɪvʲə]	‘of the small dark man’

Additionally, proper nouns and definite noun phrases in the genitive case (whether overt or not) are lenited:

•*os cionn*	***dh**oras*	*an*	*tí*	[aːs ciːn̪ˠ ɣoɾˠəs ə tʲiː]	{doras}
above	door	DEF	house.GEN		

‘above the door of the house’[11]

•*ar son*	***Mh**áire*	[ɛɾʲ son̪ˠ wɑːɾʲə]
for the sake of	Máire.GEN	

‘for Máire’s sake’

LEN also occurs internally in compound words on the beginning of the non-initial elements:

•*bréag**fh**olt* [ˈbʲɾʲeːgˌolˠt] ‘wig’

from *bréag* ‘lie’ + *fholt* ‘hair’

•*grian**gh**raf* [ˈɟɾʲiːəŋ̪ˠˌɣɾˠaːf] ‘photograph’

from *grian* ‘sun’ + *graf* ‘graph’

III.b. NOMINAL *URÚ*

NAS takes place on nouns after:

•some prepositions with the article:

*ag an **gc**athair*	{cathair}	[ɛɟ ə gaː(hə)ɾʲ]	‘at the city’
(Connacht & Munster dialects)			

•some prepositions:

*i **mB**ostún*	{Bostún}	[ə mostuːn̪ˠ]	‘in Boston’

•numbers 7-10

*ocht **gc**loch*	{cloch}	[oxt gl̪ˠox]	‘eight stones’

[11] *doras an tí* considered definite and “genitive” – double genitive like **os cionn* dhoraịs *an tí* not permitted.

•genitive plural article:

*na **bhf**ear* {fear}	[n̪ʸə vʲæːrʸ]	‘of the men’

•plural possessive pronouns:

*ár **dt**each* {teach}	[ə dʲæːx]	‘our house’
*bhur **dt**each*	[ə dʲæːx]	‘your (PL) house’
*a **dt**each*	[ə dʲæːx]	‘their house’

•after the permanently lenited *dhá* [ɣɑː] ‘two’ when proceeded by a plural possessive pronoun:

*a dhá **mb**ád* {bád}	[ə ɣɑː mɑːd]	‘their five boats’

versus:

(a) dhá bhád	[(ə) ɣɑː wɑːd]	‘(his) five boats’
a dhá bád	[ə ɣɑː bɑːd]	‘her five boats’

•certain historical prefixes:

*éa**g**óir*	[eːgoːrʲ]	‘injustice’

(from *é*[N] ‘neg. prefix’ + *cóir* ‘justice’[12])

Numerals (except *dhá* ‘two’) may undergo *urú* following:

•the genitive plural definite article *na*[N]:

*na **dt**rí bhó* {trí}	[n̪ʸə dʲrʲiː βoː]	‘of the three cows’

•some prepositions in conjunction with the definite article:

*ag na **n**-ocht gcrann* {ocht}	[ɛɟ n̪ʸə n̪ʸoxt gɾʸɑːn̪ʸ]	‘at the eight trees’

•possessive pronouns:

*a **gc**úig theach* {cúig}	[ə guːɟ hʲæːx]	‘their five houses’

NAS on adjectives occurred in Old Irish, in the same conditions that a noun nasalizes after the definite article (i.e. genitive plural, accusative singular and neuter nominative singular). Some older speakers of Munster Irish preserve this old feature of eclipsing adjectives, but only with those beginning with consonants.

[12] very limited negative prefix, only found before nouns with radical of /c/, /t/ or /s/; c.f. GOI §872.

•Old Irish:

*inna cáerach **mb**án*	[ɪn̪ʸə gaɪ̯rʸəx m(b)a:nʸ]	‘of the white sheep (PL)’
*in cáeraig **n-**álaind*[13]	[ɪn̪ʸ gaɪ̯rʸəɣʲ n̪ʸa:lʸənʲd̪ʲ]	‘the beautiful sheep (ACC.SG)’

•Munster Irish (Ó Buachalla 2003 & Ó Sé):

*aige’n gcaoirigh **mb**ocht*	[ɛɟənʸ gï:ɾʲɪɟ moxt]	‘at the poor sheep (SG)’
aige’n gcaoirigh[14] *álainn*	[ɛɟənʸ gï:ɾʲɪɟ a:lʸənʲ]	‘at the beautiful sheep (SG)’

but *#aige’n gcaoirigh **n-**álainn*

{bán, álaind, bocht, álainn}

III.c. VERBAL *SHÉIMHIÚ*

In verbs mutation is largely governed by particles, although mutation alone can also mark tense.

Triggers for LEN on verbs:

• absolute (positive) forms of verbs in the simple past, imperfect/past habitual and conditional[15]

***ph**ógadar*	{póg◦}	[fo:gədərʸ]	‘they kissed’ [16]
***ph**ógaidís*		[fo:gəd̪ʲi:ʃ]	‘they used to kiss’
***ph**ógfaidís*		[fo:kəd̪ʲi:ʃ]	‘they would kiss’

• negative particles *ní* and *níor* (*níor* simple past only, except for some irregular verbs):

ní	***bh**risfidh*	*mé*	*é*	*sin*	{brisfidh}	[n̪ʲi: vʲɾʲɪʃə mʲe: e: ʃɪnʲ]
NEG	break.FUT	SG1	SG3.ACC	that		

‘I will not break that’

níor	***fh**ág*	*mé*	{fág}	[n̪ʲi:ɾʸ ɑ:g mʲe:]
NEG.PST	leave.PST	SG1		

‘I did not leave’

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[13] *bein* is archaic accusative of ‘woman’, replaced by *mnaí* [mnaɪ̯] early in Old Irish (Stifter, p. 61).

[14] *caoirigh* is the dative singular form rarely used outside of Munster, elsewhere it is the same as the NOM, i.e. *caora* [kï:rʸə]

[15] In Classical Modern Irish LEN triggered by *do* [də], from the Old Irish perfective particle *ro* [ro], which can still appear in Munster Irish, ex. *do phógadar*.
This particle appears in Modern Irish as *d’* before vowels and lenited /f/ in the past tenses: *d'ól mé* [do:l̪ʸ mʲe] ‘I drank’, *d'fhág mé* [dɑ:g mʲe] ‘I left’.

[16] standard = *phóg siad* [fo:g ʃi:əd]

•simple past tense question particles:

ar	***ph****ógadar?*	{pógadar}	[ərʏ fo:gədərʏ]
Q.PST	kiss.PST.PL3		

'did they kiss ?'

nár	***bh****ris*	*tú*	*do*	*láimh?*	{bris}	[n̪ʏa:rʏ vʲrʲɪʃ tu: də l̪ʏɑ:vʲ]
NEG.Q.PST	break.PST	SG2	POSS.SG2	hand		

'didn't you break your hand?'

• "real condition" *má* 'if':

má	***bh****íonn*	*tú*	*liom*	{bíonn}	[mɑ: vʲi:(ə)n̪ʏ tu: lʲum]
if	be.PRES.HAB	SG2	with.SG1		

'if you are with me'

• direct relative clause particle *a:*

an	*fear*	*a*	***ph****óganns*[17]	*an*	*bhean*	{póganns}
DEF	man	REL.PRT	kiss.PRES.REL	DEF	woman	

[ə fæ:rʏ ə fo:gən̪ʏs ə vʲæ:n̪ʏ]

'the man who kisses the woman' / 'the man whom the woman kisses'

• past tense particles (i.e. past tense verbs retain LEN) :

dúirt	*mé*	*gur*	***ch****eannaigh*	*mé*	*é*	{ceannaigh}
say.PST	SG1	COMPL.PST	buy.PST	SG1	SG3.M	

[du:rʏtʲ mʲe: gərʏ çæ:n̪ʏə mʲe: e:]

'I said that I bought it'

dúirt	*mé*	*nár*	***ch****eannaigh*	*mé*	*é*
say.PST	SG1	NEG.COMPL.PST	buy.PST	SG1	SG3.M

[du:rʏtʲ mʲe: n̪ʏa:rʏ çæ:n̪ʏə mʲe: e:]

'I said that I did not buy it'

[17] standard *phógann* [fo:gən̪ʏ], correct special "direct relative form" of Classical Modern Irish *phógas* [fo:gəs] (still used in Ulster). The Conamara form *phóganns* is a mixture of the two.

sular ***th****áinig* *mé* {táinig} [sʊlərʏ hɑ:nʲəc mʲe:]
before.PST come.PST SG1
'before I came'

cár ***fh****an* *tú?* {fan} [kɑ:rʏ a:n̪ʏ tu:]
where.PST stay.PST SG2
'where did you stay?'

marar[18] ***fh****ág* *tú* {fág} [ma:rʏərʏ ɑ:g tu:]
NEG.if leave.PST SG2
'unless you left'
(final /r/'s all from the Old Irish perfective augment *ro*)

•past/conditional copula

ba ***mh****aith leat*	[bə wa: lʲæ:t]	'you would like'[19] {maith}
ba ***mh****úinteoir í*	[bə βu:n̪ʲtʲo:rʲ i:]	'she was a teacher' {múinteoir}
ní ba ***mh****aith leat*[20]	[n̪ʲi: bə wa: lʲæ:t]	'you would not like'
an mba ***mh****aith leat*[21]	[ə mə wa: lʲæ:t]	'would you like?'
nach mba ***mh****aith leat*[22]	[n̪ʏa:x mə wa: lʲæ:t]	'wouldn't you like?'

III.d. VERBAL *URÚ*

NAS triggers on verbs:

• question particles:

an ***dt****uigeann tú?*	[ə d(ʲ)ɪɟən̪ʏ tu:]	'do you[23] understand?' {tuigeann}
nach ***dt****uigeann tú?*	[n̪ʏa:x d(ʲ)ɪɟən̪ʏ tu:]	'don't you understand?'

[18] standard *murar* [mʊrʏərʏ]
[19] (lit. would.be well with.you)
[20] standard *níor* [n̪ʲi:rʏ]
[21] standard *ar* [ərʏ]
[22] standard *nár* [n̪ʏa:rʏ]
[23] SINGULAR

• indirect relative particle (examples based on Mac Congáil p. 183, Ó Siadhail (1989) p. 314-5):

na	*croinnte* [24]	*a*	***dt**agann*	*na*	*héin* [25]	*astu* [26]	{tagann}
DEF	tree.PL$_i$	REL.PRT	come.PRES	DEF	bird.PL	out-of.PL3$_i$	

[n̪ʸə kɾʸi:n̪ʲtʲə ə da:gən̪ʸ n̪ʸə he:nʲ a:stəb]

'the trees which the birds come out of'

na	*croinnte*	*as*	*a*	***dt**agann*	*na*	*héin*
DEF	tree.PL	out-of	REL.PRT	come.PRES	DEF	bird.PL

[n̪ʸə kɾʸi:n̪ʲtʲə a:sə da:gən̪ʸ n̪ʸə he:nʲ]

'the trees out of which the birds come'

an	*bhean*	*a*	***bhf**uil*	*a*	*hathair*	*tinn*	{fuil}
DEF	woman	REL.PRT	be.pres.conj	POSS.SG3.F	father	sick	

[ə væ:n̪ʸ ə wɪlʲ ə hæ:(hə)ɾʲ tʲi:n̪ʲ]

'the woman whose father is sick'

an	*fear*	*a*	***bp**ógann*	*an*	*bhean*	*é*
DEF	man	REL.PRT	kiss.PRES	DEF	woman	SG3.MASC

[ə fæ:ɾʸ ə bo:gən̪ʸ ə vʲæ:n̪ʸ e:]

'the man whom the woman kisses'

• non-past negative relative particle *nach* (direct and indirect):

na	*croinnte*	*nach*	***dt**agann*	*na*	*héin*	*astu*
DEF	tree.PL$_i$	NEG.REL.PRT	come.PRES	DEF	bird.PL	out-of.PL3$_i$

[n̪ʸə kɾʸi:n̪ʲtʲə na:x da:gən̪ʸ n̪ʸə he:nʲ a:stəb]

'the trees which the birds do not come out of'

an	*fear*	*nach*	***n-**íosfaidh*	[ə ʰʲæ:ɾʸ n̪ʸa:x n̪ʲi:sə]	{íosfaidh}
DEF	man	NEG.REL.PRT	eat.FUT		

'the man who will not eat'

---

[24] standard *crainn* [kɾʸa:n̪ʲ]

[25] also *na héanachaí* [n̪ʸə he:n̪ʸəxi:] in Conamara Irish

[26] this type of construction involves a resumptive pronoun; literally, 'the trees$_i$ which the birds come out of ***them**$_i$*'

• *a* 'whatever':

an	*áit*	*agus*	*a*	***bhf****uil*	*inti*
DEF	place	and	all-that.REL.PRT	be.PRES.CONJ	in.SG3

[ənˠ ɑ:tʲ əgəs ə wɪlʲ i:n̪ʲtʲə]

'the place and whatever is in it'

•*cá* 'where':

cá	***mb****eidh*	*do*	*mhac?*	{beidh}	[k:ɑ meɻ də wa:k]
where	be.FUT	POSS.SG2	son		

'where will your son be?'

• complementizer particles:

dúirt	*sí*	*go*	***ng****lanann*	*sí*	{glanann}	[du:ɾˠtʲ ʃi: gə ŋl̪ˠa:n̪ˠən̪ˠ ʃi:]
say.PST	SG3.F	COMPL	clean.PRES	SG3.F.NOM		

'she says that she cleans'

dúirt	*sí*	*nach*	***ng****lanann*	*sé*	[du:ɾˠtʲ ʃi: na:x ŋl̪ˠa:n̪ˠən̪ˠ ʃe:]
say.PST	SG3.F	NEG.COMPL	clean.PRES	SG3.M.NOM	

'she says that he doesn't clean'

• "unreal" *dhá*[27] 'if' (with conditional or past subjunctive only):

dhá	***mb****eadh*	*airgead*	*agam*[28]	{beadh}	[ɣɑ: mʲɛx æ:ɾʲəɟəd a:m]
if	be.COND	money	at.SG1		

'if I were to have money'

• negative conditional *mara* 'unless' (negative of both *dá* and *má*, used with all tenses (but habitual present used in place of future)):

mara[29]	***mb****eadh*	*airgead*	*agat*[30]	[ma:ɾˠə mʲɛx æ:ɾʲəɟəd a:d]
NEG.if	be.COND	money	at.SG2	

'unless you were to have money'

---

[27] standard *dá* [da:]

[28] often *a'm* [a:m] rather than *agam* [a:gəm] in Conamara

[29] standard *mura* [mʊɾˠə], also dialectally *muna* [mʊnˠə]

[30] often *a'd* [a:d] rather than *agat* [a:gət] in Conamara

mara	***bh**fuil*	*mo*	*chara*	*anseo*	[maːɾʸə wɪlʲ mə xaːɾʸə əˈnʲʃo]
NEG.if	be.PRES.CONJ	POSS.SG1	friend	here	

'if my friend is not here'

mara	***mb**íonn*	*na*	*cúití*[31]	*sa*	*scioból* {bíonn}
NEG.if	be.PRES.HAB	DEF	hound.PL	in.DEF	barn

[maːɾʸə mʲiː(ə)n̪ʸ nə kuːtʲiː sə ʃʊboːl̪ʸ]

'if the hounds/greyhounds wont be in the barn'

• *sol má*[32] 'before':

sol má	***n-**imím*	*ar scoil*	{imím}	[sol̪ʸ (m)ɑː n̪ʲɪmʲiːmʲ ɛɾʲ skɛlʲ]
before	go.PRES.SG1	to school		

'before I go to school'

• subjunctive particle *go*:

go	***nd**éantar*	*do*	*thoil*	{déantar}	[gə n̪ʲiːn̪ʸtəɾʸ də hɪlʲ]
PRT	do.PRES.AUT	POSS.SG2	will		

'may thy will be done'

III.e /t/ PREFIXED TO /s/

Additionaly, after the definite article in LEN–triggering circumstances, a /t/ prefixes to nouns beginning with a /s/ that is followed by a vowel, /l/, /n/, or /r/. The /t/ "eclipses" the /s/ and the latter is not pronounced. Refer to section XI for the historical background. This change operates on:

• feminine singular nouns in the nominative (/accusative) and after prepositions (even ones which would normally eclipse):

*an **ts**eachtain*	[ə tʲæːxtənʲ]	'the week'
*ar an **ts**ráid*	[ɛɾʲ ə tɾʸɑːdʲ]	'on the street'
*don **ts**láinte*	[gən̪ʸ tlaːn̪ʲtʲə]	'to/for the health'

[31] or standard *cúnna* [kuːn̪ʸə] ~ [kuːn̪ʸiː] (or *coin* [kon̪ʲ], etc.)

[32] standard *sula* [sul̪ʸə]

• masculine nouns in the genitive singular:

*an **ts**agairt*	[ə ta:gəɾˠtʲ]	‘of the priest’

- not after prepositions in the standard language, but often dialectically:

don sagart	[gən̪ˠ sa:gəɾˠt]	‘to/for the priest’
or		
*don **ts**agart*	[gən̪ˠ ta:gəɾˠt]	
ag an siopa	[ɛɟ ə ʃʊpə]	‘at the shop’
or		
*ag an **ts**iopa*	[ɛɟ ə tʲʊpə]	

Analogy has played a large role in the contexts in which mutations apply in Irish. The Modern Irish system has been extended and simplified to cover more situations than are historically warranted, and sometimes discarded certain usages of mutation. However despite this simplification and proliferation of the system, large amounts of dialectal variations do remain in relation to mutations.

IV. WELSH

Representing the Brythonic Celtic branch, Welsh has three mutations – *treiglad meddal* [treˌlad mɛðal] (soft mutation, lenition), *treiglad llaes* [treˌlad ɬaˌɪs] (aspirate mutation, spirant mutation), and *treiglad trwynol* [treˌlad truwɪnol] (nasal mutation). As with Irish, these mutations historically resulted from phonetic conditions, but now have morphological triggers.

Proto-Celtic *bostā [1] 'palm (of hand), fist' — lenition after the definite article:

'the palm'

	Welsh: bos 'palm'		**Irish: *bos* 'palm'**
British:	*sindā bostā	Primitive Irish:	*sindā bostā
	⇩		⇩
	*sinda βossa		*sinda βossa
	⇩		⇩
	*in βos		
	⇩		
	*ir βos	Old Irish:	/ɪn βos/ *in bos(s)*
	⇩		⇩
Mid.W	/i βos/ *y vos*		/ən βos/ *an ḃos*
	⇩		⇩
Mod.W.	/ə vos / *y fos*	Mod. Irish:	/ə wos/ *an bhos*

also compare:

Breton:	/ʌʁ voz/ *ar voz*	Scottish Gaelic:	/ə vas/ *a' bhas*

Despite similar origins and comparable phonetic changes, the mutations of the Brythonic and Goidelic branches do not always involve exact corresponding phonetic processes. For example, the lenition (i.e. *séimhiú / treiglad meddal*) caused by a vowel manifests itself as frictivization in Irish (with later developments), but as both frictivization and voicing in Welsh—applying to

[1] Proto-Celtic from MacBain, p. 30

originally voiced and voicless consonants respectively. In the case of the LEN of /k/, Irish fricativizes to /x/ and Welsh voices to /g/:

	Welsh		**Irish**	
	indefinite:	definite:	indefinite:	definite:
	cadair	*y gadair*	*cathaoir*	*an chathaoir*
phonemic:	/kadaɪ̯r/	/ə **g**adaɪ̯r/	/kahi:ɾʲ/	/ən **x**ahi:ɾʲ/
phonological:	[kadɛr]	[ə gadɛr]	[kaɪ̯ɾʲ]	[ə xaɪ̯ɾʲ]
gloss:	'chair'	'the chair'	'chair'	'the chair' [2]

However, in the case of *bos* above, both Welsh and Irish turn the stop into a fricative.

As with Irish, mutation in Modern Welsh varies greatly between dialects and especially between the literary language and the colloquial forms. In colloquial Modern Welsh, soft mutation extends its application at the expense of the other mutations. Instead of the "correct" *ym Mangor* [əm:aŋgo:r] 'in Bangor', a native speaker would be likely to produce *yn Fangor* [ən vaŋgo:r], or even omit the mutation altogether *yn Bangor* [ən baŋgo:r]. The spirant mutation, too, often is ignored—such as after *a* [a] 'and' where the literary *mam a thad* [ma:m a θa:d] 'mother and father' would be commonly pronounced *mam a tad* [ma:m a ta:d] in spoken Welsh.

However, positions of contrast cause this mutation to remain steadfast. As in Irish, the third person pronouns share the same phonetic structure [i:], but cause different mutations. Such positions of contrast cause the mutations to persist. For example, the Welsh *ei* [i:] 'her' causes the spirant mutation, even in colloquial forms, for the mutation itself carries semantic information:

*ei **th**ad (hi)* [3]	{tad}	[i: θa:d (hi:)]	'her father'
*ei **d**ad (e)*		[i: da:d (ɛ)]	'his father'
eu tad (nhw)		[i: t a:d (n̊^{h}u:[4])]	'their father'

[2] one can even see this internally in the words for 'chair'—the Welsh has /d/ and the Irish /h/ (from /θ/), both of which ultimately go back to a common /t/, as both derive from the Latin *cathedra* (MacBain, p. 75).

[3] repeated/echoed pronouns not always necessary; see King, p. 81.

[4] also commonly [nu:]

OUTLINE OF WELSH MUTATIONAL TRIGGERS: [5]

IV.a. *MEDDAL*

Treiglad meddal (soft mutation, lenition, LEN), like the Irish *séimhiú,* historically occurred to a consonant between two vowels. Phonologically, this manifests itself as a weakening of the manner of articulation, but not always in the same manner as in Irish. In Welsh, this mutation involves the frictivization of voiced stops, including the bilabial nasal /m/, and the voicing of voiceless stops and liquids. [6] Already in the Middle Welsh period (12th-14th centuries), the voiced velar fricative [ɣ] completely disappeared and the nasal labio-dental fricative [µ] lost its nasalization, and thus lenited /b/ and /m/ became identical (LHB, p. 543).

TREIGLAD MEDDAL [7]

	radical	lenited form	
voicing of voiceless stops and liquids:	p	b	
	t	d	
	k	g	
	ɬ ‹ll›	l ‹l›	
	r̥ʰ ‹rh›	r ‹r› [8]	
frictivization of voiced stops:	b	v ‹f›	
	d	ð ‹dd›	
	g	ɣ	→ Ø
	m	µ	Mod. → v ‹f›

[5] based on King, *Modern Welsh*, some examples taken Ibid, others are my own.

[6] See Appendix vii for more details, but phonologically there is no voice-voiceless differentiation in Welsh. Rather [± spread glottis], i.e. aspiration, differentiates ‹p› and ‹b›. In the underlying form, however, the difference is treated here as [± voice]. Thus /p/ becomes [pʰ] in its phonetic realization and /b/ becomes [p] / [b̥].

[7] for a more detailed depiction of soft mutation including Welsh examples, see Appendix iii.

[8] this distinction of voiced and voiceless /r/ was not present in Middle Welsh (at least in any way determinable by the orthography) c.f Evans, *A Grammar of Middle Welsh*, p. 9. The orthographical representation of [r̥ʰ] as ‹rh› did not occur until the 16th century (LHB, p. 477).

no change to /n/, fricatives		
or vowels:	f ‹ff›	f ‹ff›
	s	s
	n	n
	V	V

Traditional treatments of Welsh grammar recognize two different types of mutation which apply to soft mutation: contact mutation and grammatical mutation. Specific words such as the definite article and prepositions trigger contact mutation. In grammatical mutation GRAMMATICALIZATION has resulted in soft mutation fulfilling particular grammatical functions, such as the formation adverbs, the marking direct objects (or anything following the subject position, including semantic subjects see section VIII.a) and in inflected verbal forms in the colloquial language.[9]

IV.a.1. CONTACT SOFT MUTATION

Contact soft mutation occurs following:

•certain simple prepositions:

dros ***b****ont* {pont}	[dros bont]	‘over a bridge’

•the feminine singular definite article

y ***g****adair* {cadair}	[ə gadɛr]	‘the chair’

- but not with / ɬ / or / r̥[10]:

y llaw	[ə ɬaʊ̯]	‘the hand’
#*y law*		

•feminine singular nouns (to adjectives):

y llaw ***f****awr* {mawr}	[ə ɬaʊ̯ vaʊ̯r]	‘the big hand’

[9] King, *Modern Welsh* p. 16

[10] in Modern Welsh the mutation is seen as “blocked”, but historically they were lenited in the stage when the final vowel yet remained, but with the loss of the final syllables became voiceless after /n/ and /r/ in the new word final position, thus there appears on the surface to be no mutation after the definite article *yr* and the complement marker *yn*. (Evans, GMW, p. 20).

– LEN can affect multiple adjectives - compare:

*y ferch **f**echan **d**los*	[ə vɛrχ vɛχan dlos]	‘the small pleasant girl’
{bechan, tlos}		

with

y bachgen bychan tlws	[ə baχgɛn bəχan tlus]	‘the small pleasant boy’
{bychan, tlws}		

•certain possessive pronouns (SG2 & SG3.MASC):

*ei **g**ath e* {cath}	[i: ga:θ ɛ]	‘his cat’
*dy **d**ŷ di* {*tŷ*}	[də di: di:]	‘your house’

•*dyna* ‘there is…’ [11]

*dyna **dd**yn* {dyn}	[dəna ði:n]	‘there is a man’

• *neu* ‘or’

*moron neu **d**ywys* {tywys}	[moron neɪ̯ dəwi:s]	‘carrots or corn’

•numbers (1 FEM, 2 MASC/FEM…)

*un **f**erch* {merch}	[i:n vɛrχ]	‘one girl’
(but *un dyn*	[i:n di:n]	‘one man’)
*dwy **f**erch*	[du^{w}i: vɛrχ]	‘two girls’
*dau **dd**yn*	[daɪ̯ ði:n]	‘two men’

•some prefixes and “prefixed adjectives”:

hen [12] ***w**lad* {gwlad}	[he:n wla:d]	‘old country’
*rhag**f**arn*	[r̥^{h}agvarn]	‘prejudice’
(from *rhag-* ‘pre-’ + *barn* ‘judgment’)		

[11] also: *dyma, dacw, yma, yna*

[12] *hen* c.f. Irish *sean* [ʃæ:nˠ] ; as in *seanbhean* [ˈʃæ:n̪ˠˌvʲæ:n̪] ‘old woman’ (in *seantír* [ˈʃæ:n̪ˠˌtʲi:ɾʲ] ‘old country’ LEN is blocked because of the homorganic consonants /n/ and /t/ coming together. See section XII.

•compound nouns:

gwreiddflewyn [gχ̟reɪ̯ðvlɛu^{w}in] ‘root-hair’

(from *gwreiddyn* ‘root’ + *blewyn* ‘hair’)

• the complement marker (connective particle) *yn*, triggering len to nouns and adjectives (but not to /ɬ/ or /r̥/) only, but never to verbal nouns:

• noun:

mae	*e’n*	***g****yfieithydd*	{cyfieithydd}	[maɪ̯ en gəvjəɪ̯θɪð]
be.PRES	SG3.M + PRT	translator		

‘he is a translator’

• adjective:

mae’r	*dyn*	*yn*	***d****ost*	{tost}	[maɪ̯r di:n ən dost]
be.PRES + DEF	man	PRT	sick		

‘the man is sick’

• - but no mutation on verbal nouns:

mae	*hi’n*	*bwrw*	*glaw*	[maɪ̯ hi:n buru glaʊ̯]
be.PRES	SG3.F	hitting/casting	rain	

‘it’s raining’ [13]

IV.a.2. GRAMMATICAL SOFT MUTATION

Grammatical soft mutation is triggered:

•after the subject on nouns, numerals, prefixed adjectives and verbal nouns (whether the subject is overtly present or not) ie. so-called “direct object mutation”[14]:

(*mi/fe) weles i* ***dd****raig* [(mi:/ve) wɛlɛs i: ðraɪ̯g] ‘I saw a dragon’ (colloquial) {draig}

gwelais ***dd****raig* [gwɛlaɪ̯s ðraɪ̯g] ‘I saw a dragon’ (literary)

rho ***l****yfr i mi* [r̥^{h}o: lɪvr i: mi:] ‘give (thou) me a book’[15] {llyfr}

[13] not *mae hi’n ***f****wrw glaw […vuru…]

[14] see section VIII for further discusion

[15] thought of as *rho di...*

*mae rhaid i'ch tad **f**ynd* [maɨ ˚^{h}aɨd i:χ ta:d vɪnd] ‘your father must go’ [16] {mynd}

•adverbs (especially temporal)

***dd**oe*	[ðoɨ]	‘yesterday’	{doe}
***dd**au fis yn ôl*	[ðaɨ vi:s ən o:l]	‘two months ago’	{dau}

•vocative

***b**lant!*	[blant]	‘(oh) children!’	{plant}

•colloquially (optionally) on inflected verbs:

*(mi/fe) **g**ollest ti*	[(mi:/vɛ) gɔɬɛst ti:]	‘you (SG) lost’	{collest}
(literary *collaist* [kɔɬaɨst])			
***g**ollest ti ddim*	[gɔɬɛst ti: ðɪm]	‘you didn’t lose’	
(literary *ni chollaist* [ni: χɔɬaɨst])[17]			
***g**ollest ti?*	[gɔɬɛst ti:]	‘did you lose?’	
(literary: *a gollaist* [a gɔɬaɨst])			

•following a word which disrupts the VSO pattern:

fe	*alla*	*i*	*weld*	*hefyd*	***dd**arn*	*o*	*bapur*	{darn}
PRT	be-able.PRES.SG1	SG1	see	also	piece	of	paper	

[vɛ ała i: wɛld hɛvɪd ðarn o: bapi:r]

‘I can also see a piece of paper’[18]

III.b. *LLAES*

Treiglad Llaes (spirant mutation, aspirate mutation) only affects the voiceless stops, which are spirantized. These spirants arise in origin from geminate consonants; see section V below on gemination for the historical phonological triggers.

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[16] even though *eich tad* ‘your father’ is not the grammatical subject (*hi* is, i.e. *mae **hi**'n rhaid i eich tad fynd* — literally “it is necessary for your father (to) go”), but it **is** the semantic subject.

[17] also *ni chollaist (ti) ddim,*

[18] From King p. 19. *hyf**e**d* ‘also’ inserted between the verb *gweld* and the object *o bapur* — basic sentence *fe alla i weld darn o bapur* [vɛ a:ła i: wɛld darn o: bapi:r] ‘I can see a piece of paper’

TREIGLAD LLAES[19]

	radical	spirantized form
frictivization of voiceless stops:		
	p	f ‹ph›
	t	θ ‹th›
	k	χ ‹ch›
no change:		
	ɬ ‹ll›	ɬ ‹ll›
	r̊ ‹rh›	r̊ ‹rh›
	b	b
	d	d
	g	g
	m	m
	f ‹ff›	f ‹ff›
	s	s
	n	n
	V	V

Y treiglad llaes, as previously mentioned, is largely ignored in colloquial speech, but here follows its common triggers in the standard literary language:

•*a* 'and':

*cath a **ch**i*	{ci}	[ka:θ a χi:]	'a cat and a dog'
*ci a **ch**ath*	{cath}	[ki: a χa:θ]	'a dog and a cat'

•*â* 'with':

â	***ch**yllell*	*fara*	{cyllell}	[a χəɬɛɬ vara]
with	knife	(of.)bread		

'with a breadknife'

*paid â **ph**oeni*	{poeni}	[paɪ̯d a foɪ̯ni:]	'don't (thou) worry' [20]

[19] for a more detailed depiction of the spirant mutation including Welsh examples, see Appendix v.

•*chwe(ch)* ‘six’:

*chwe **ph**en* {pen} [χwe fɛn] ‘six heads’

•*ei* ‘her’:

*ei **ch**yllyll (hi)* [i: χəɬɬ (hi:)] ‘her knives’

•*gyda*, *'da* ‘with’:

mae *llygoden* *gyda* ***ch**ath* [maɨ̯ ɬəgo:dɛn (gə)da χa:θ]

be.PRES mouse with cat

‘a cat has a mouse’

•*tri* ‘three’ (MASC)

*tri **dd**yn* {dyn} [tri: ði:n] ‘three men’

•*tua* ‘about, towards’

*tua **Th**ŷ Crughyweldw* [tia θi: kri:ghəwɛldu:] ‘towards Tŷ Crughyweldw’

Any of these could also be without the aspirate mutation; but in spoken Welsh it usually, but not always present, occurs with *ei* ‘her’ because the mutation provides contrast.

III.c. *TRWYNOL*

Treiglad Trwynol (nasal mutation), like Irish *urú*, originates from a historical final nasal sound which was lost. Unlike Irish however, a single unified process characterizes this mutation—nasalization. The Welsh nasal mutation affects only the oral stops, which become nasals with the same place of articulation and voicing of the radical sound. Unlike Irish, vowels avoid modification.[21]

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[20] colloquially: *paid poeni* [paɨ̯d poɨ̯ni:]

[21] This may also be due to the limited application of *treiglad trwynol*, which in Modern Welsh occurs after *fy* [və] ‘my’ (from /*men/) and *yn* [ən] ‘in’. The latter already ends in a nasal and the former is colloquially pronounced [ə] or [Ø] before consonants undergoing the nasal mutation and [ən] before vowels and unmutatable consonants such as /x/; for example, *fy chwaer i* [və xwaɨ̯r i:] or [ən xwaɨ̯r i:] ‘my sister’.

TREIGLAD TRWYNOL [22]

	radical	nasalized form
nasalization of stops:		
	p	m̊ʰ ‹mh›
	t	n̊ʰ ‹nh›
	k	ŋ̊ʰ ‹ngh›
	b	m
	d	n
	g	ŋ ‹ng›
no change:		
	ɬ ‹ll›	ɬ ‹ll›
	r̊ ‹rh›	r̊ ‹rh›
	m	m
	f ‹ff›	f ‹ff›
	s	s
	n	n
	V	V

The nasal mutation has very few triggers and like the aspirate mutation native speakers often ignore it:

•*fy* (colloquially *'yn, ø* with nasal mutation only) ‘my’:

fy ***ngh****i (f)i* {ci}	[və ŋ̊ʰi: (v)i:]	‘my dog’
*‘****nh****ad* {tad)	[n̊ʰa:d]	‘my father ’ (colloquial)

•*yn* ‘in’ (final nasal assimilate with the (new) initial consonant):

*y****ng Ngh****ymru* {Cymru}	[əŋ̊ʰəmri:]	‘in Wales’
*y****m Mh****ontypridd*	[əm̊ʰɔntəpri:ð]	‘in Pontypridd’
*y****n N****ulyn* {Dulyn}	[əni:lɪn]	‘in Dublin’

[22] for a more detailed depiction of the nasal mutation including Welsh examples, see Appendix iv.

•some words (such as *blwyddyn* [bluʷɪðɪn] 'year' with the special plural form *blynedd* [blənɛð] used after numbers instead of the normal *blynyddoedd* / *blynyddau* [blənəðoi̯ð] / [blənəðɛ]) related to time may undergo this mutation after the numbers 5-10: [23]

(*dwy flynedd*	[duʷi: vlənɛð]	'two years'	(LEN)
tair blynedd	[tai̯r blənɛð]	'three years'	(no mutation)
pedair blynedd	[pɛdɛr blənɛð]	'four years'	(no mutation))
*pum **m**lynedd*	[pɪm mlənɛð]	'five years'	
*chwe **ml**ynedd*	[χwe mlənɛð]	'six years'	
*saith **m**lynedd*	[sai̯θ mlənɛð]	'seven years'	
*wyth **m**lynedd*	[uʷi:θ mlənɛð]	'eight years'	
*naw **m**lynedd*	[nau̯ mlənɛð]	'nine years'	
*deng **m**lynedd*	[deŋ mlənɛð]	'ten years' ('ten' normally *deg* [deg])	

The negative prefix *an-* triggers nasal mutation consistently. The mutation is fixed and these words have become lexicalized.

*a**mh**osib*	[am̊ʰosib]	'impossible'	(*an* + *posib*)

III.d. MIXED MUTATION

Grammatically, Welsh also has a so-called "mixed-mutation" which uses *treiglad llaes* when it can apply (/p, t, k/) and *treiglad meddal* in other instances.

MIXED MUTATION:

	radical	mixed mutation form
frictivization of		
voiceless stops:	p	f ‹ph›
	t	θ ‹th›
	k	χ ‹ch›

[23] (chart adapted from King, p. 120)

frictivization of			
voiceless stops:	b	v ‹f›	
	d	ð ‹dd›	
	g	ɣ	→ Ø
	m	μ	Mod. → v ‹f›
voicing of voiceless			
liquids:	ɬ ‹ll›	l ‹l›	
	r̊ ‹rh›	r ‹r›	
no change to /n/, fricatives			
or vowels:	f ‹ff›	f ‹ff›	
	s	s	
	n	n	
	V	V	

Mostly employed in the literary language, the mixed mutation helps mark the negation of inflected verbs:

(*ni*) ***ch****es*[24] *i (ddim)*	[(ni:) χe:s i: (ðɪm)]	'I did not get'	(spirant mutation of *ces*)
(*ni*) ***f****ydd hi (ddim)*	[(ni:) við hi: (ðɪm)]	'she will not be'	(soft mutation of *bydd*)

In colloquial Welsh, however, soft mutation usually characterizes the negation of all inflected verbs.

g*es i ddim*	[ge:s i: ðɪm]	'I did not get'
f*ydd hi ddim*	[við hi: ðɪm]	'she will not be'

[24] the most traditional form is *ni chefais* [ni: χεvaɪs̪] - (*ni) ches i ddim* represents an intermediate form

"TOPICS" IN CELTIC CONSONANT MUTATIONS:

V. GEMINATION

Gemination (GEM), the lengthening ("doubling") of consonants, which only plays a small role in Goidelic in comparison with lenition and nasalization, corresponds in origin to the spirant mutation of Brythonic. Gemination occurred in pre-Old Irish (but evidence of GEM already waning in the Old Irish period) to the initial consonant of a word when a closely connected word immediately preceedeing it originally ended in –s or post vocalic –t and –k (LHB, p. 634; the following Goidelic gemination examples adapted from LHB, p. 634-637.):

Primitive Irish *sindās rērās → Old Irish *inna **rr**íara* [ɪn̪ʸə rʲ(:)iːarʸə]
'the wishes/demands/modulations'

Primitive Irish *u̯rit nekᵘon → Old Irish *fri **nn**ech* [frʲi n̪ʲ(:)ɛx]
'against anyone'

Old Irish orthography showed gemination inconsistently with double consonants. In an early stage the consonants were likely pronounced long, but these simplified into normal consonants; and were often written so even in Old Irish – *inna ríara* and *fri nech*. Before a vowel, this -s, had been lenited to /h/ and became transferred to the Anlaut of the following word.

*esi̯ās atīr → *esyāh aθīr → Old I. *a athair* [**h**aθərʲ] → Mod. I. *a **h**athair* [ə hæː(hə)rʲ]

This however is not shown in Old Irish orthography, for as in late Latin, an initial ‹h› before a vowel represented a mere orthographical variant and its presence of absence does not indicate whether or not the word started with hV or V. In fact, typically, its presence orthographically signifies its nonexistence phonetically, while /h/ remains orthographically unrepresented when its functions as a phoneme:

hi n-Érinn	[ɪ n̪ʲeːɾʲən̪ʲ]	'in Ireland'
inna euchu	[ɪn̪ʸə **h**ɛu̯xu]	'the horses (ACC.PL)'

Old Irish gemination, nevertheless, would have still prefixed h- to vowels. Despite not being shown by Old Irish orthography, the pronunciation of this prefixed h- can be assured by Middle and Modern Irish forms. Moreover, Old Irish orthography also failed to consistently represent geminated consonants with double consonants. Additionally, the nasalization of /l/, /r/ and /n/ was often also shown orthographically with double consonants—Old Irish *i nnim* [ɪ n̪ʲiμʲ] 'in heaven' < Primitive Irish *in neμih < Proto-Celtic *in nemisi (Stifter, p. 177).

In Welsh one refers to the SPIRANT MUTATION which shares its origin with Old Irish GEMINATION, although as seen from above, in Irish gemination ceases to affect consonants because geminates merely simplify and "disappear". In Brythonic, on the other hand, geminated consonants did not all turn to the corresponding single consonants. Voiced geminates develoed as in Irish, but in the case of voiceless stops, Brythonic turned them into voiceless fricatives in the same place of articulation:

*kk → /χ/
*tt → /θ/
*pp → /f/

Gemination/spirant mutation of Welsh arises from Common Celtic final –s, -ns, - x, and –k which triggered the doubling of the initial consonant of the following word (LHB p. 636). Geminated voiceless stops developed into voiceless fricatives, while other geminated consonants became un-geminated. Hence *y treiglad llaes* only affects voiceless stops. Additionally, the nature of the original final consonant determines what occurs before a vowel. If it were originally –s or –ns, an h- may be prefixed to the next word. If However, unlike Irish, Modern Welsh h-insertion does not closely follow this historical situation. Here follow examples adapted from LHB (p. 634-638) showing the historical development of gemination after *esi̯ās / *ei* 'her':

*esi̯ās kattos	→ *i ccatt	→ *ei chath*	'her cat'
*esi̯ās brakki̯on	→ *i bbrech´	→ *ei braich*	'her arm'
*esi̯ās ognos	→ *i hoŋn	→ *ei hoen*	'her lamb'

This did not consistently apply after an original final trigger:

*sindos kattos	→ *in(n) ccatt	→ *y cath*	'the cat'

Jackson's unclear explanation of why gemination does not occur after the masculine definite article, where it would be expected because of the final -s (except in Breton in the case of /k/ only; see below), seems to have the final –s of the article developing to –Σ [1] which then combined with the initial half-long /k/ [2] (represented as k(k) in LHB) of the noun to yield a full geminate (LHB p. 635):

*sindos kattos → ΣındəΣ k(k)attəΣ → ΣındəΣ k(k)aθəΣ → Σındə kkaθə(Σ) [3] → *in(n) kkatt

---

[1] Jackson uses Σ to denote some sound intermediate between /s/ and /h/ and speculates that it was "perhaps a strongly aspirate [ʃh] ?" (LHB, p. 517).

[2] all initial consonants considered to be "half long"

[3] Jackson gives the form Σındə kkattə(Σ), but this fails to explain why the initial kk- did not follow the same path as other geminate consonants. If this gemination took place after the period in which voiceless geminates

This gemination of half-long /k/ after -Σ must have taken place *after* voiceless geminates developed into spirants. He referrers to it as a "special case" and offers no explanation as to why its development differs from that of other words terminating in –s such as *esi̯ās.

Cath is now feminine in Modern Welsh and thus the article would cause soft mutation (*y gath*). However, in Breton, masculine singular and non-human masculine plural nouns beginning with /k-/ in Breton do mutate after the definite article, while all other masculine to not mutate (unless they are human nouns in the plural, then lenition occurs; see section VI). Perhaps the ordering of mutations differed dialectally or the same change did occur in Welsh but was later reversed by analogy. This special mutation operates in Breton after the definite article in singular masculine nouns, plural feminine nouns and non-human masculine plurals and curiously it only affects /k/. (in SG.MASC and PL.FEM this is what would be expected with the historical definite article ending in –s!) Thus (Breton from Press/ar Bihan, p.43):

kazh	[kaz]	'cat'	
ar ***c'h****azh*	[ʌʁ xaz]	'the cat'	MASC.SG
ar ***c'h****izhier*	[ʌʁ xizjɛʁ]	'the cats'	MASC.PL.non-human
kazetenn	[kazetɛn]	'newspaper'	
ar gazetenn	[ʌʁ gazetɛn]	'the newspaper'	FEM.SG (LEN)
ar ***c'h****azetennoù*	[ʌʁ xazentɛnu]	'the newspapers'	FEM.PL

For more on Breton mutation see section VI.

Old Irish gemination triggered by (examples from GOI §241-243):

• definite article *inna / na* (MASC/FEM/NEUT accusative plural; FEM genitive singular; FEM/ NEUT nominative plural):

*inna-****mm****raithemnachtae*	[ɪn̪ʸəˈmːraθʲɛmnʸaxtɛ]	'of the treachery'
*inna-****mm****accu*	[ɪn̪ʸəˈmːaku]	'the sons' (ACC.PL)
*inna-****ll****áthar*	[ɪn̪ʸəˈl̪ʸːaːθərʸ]	'the dispensations' (NOM.PL.NEUT)
*forsna-****mm****órchol*	[forʸsnʸəˈmːoːrʸxolʸ]	'on the great wickedness'

(double consonants inconsistently written to indicate gemination, but likewise optionally to show "nasalization/eclipsis" (i.e. non-lenition) of /l/,/m/,/n/ and /r/)

• *a* 'her'

*a-****mm****untar*	[aˈmːuntarʸ]	'her household'
a argat	[a **h**argəd]	'her money'

---

developed into spirants, than the initial could have remained /k/, for the spirantization of voiceless geminates fule no longer actively applied.

• prepositions:

-a ‘out of’

*a-**pp**eccad*	[a:pʲ:ɛkəð]	‘out of sin’ [4]

-co ‘to’

*co-**bb**ráth*	[coˈb:rʏa:θ]	‘to Doomsday, forever’

-la ‘with’

*la **mm**accu*	[la m:aku]	‘with sons/boys’

-fri ‘to, against’

*fri **nn**ech*	[frʲi n̪ʲ:ɛx]	‘against anyone’

• certain verbal particles (if not a part of a leniting relative clause and containing no infixed pronoun):

*ní-**rr**obe*	[n̪ʲi:ˈrʏ:ovʲɛ]	‘has not been’
*ro-**ll**aad*	[rʏoˈl̪ʏ:aəð]	‘has been put’

• *na* ‘nor’

*ní·frithalim-se rucai na-**mm**ebuil*

NEG.expect.1SG.PRES.EMPH. shame nor-disgrace

[n̪ʲi:ˈfʲrʲɪθəlʲəmʲʃɛ rʏugi n̪ʏa m:ɛβʊlʲ]

‘I do not expect shame nor disgrace’

In Modern Irish the reflex of gemination only affects vowels, which have [h] prefixed to them. Consonants remain unaffected in these circumstances, but their non-lenition is significant. H-insertion occurs following [5]:

•the 3rd singular feminine possessive pronoun:

*a **h**athair*	[ə hæ:(hə)ɾʲ]	‘her father’

•the MASC/FEM/NEUT “common” plural definite article *na* and the FEM genitive definite article *na* :

*na **h**éin*	[n̪ʏə he:nʲ]	‘the birds’
*na **h**áite*	[n̪ʏə hɑ:tʲə]	‘of the place’

[4] Modern Irish *as peaca* [as pʲæ:kə]

[5] (*An Caighdeán Oifigiúil*, p. 91-92)

•the negative particle *ná* in negative commands:

ná ***h****oscail*	[n̪ʸɑ: hoskəlʲ]	‘don’t open (SG)’

•certain prepositions/particles:

le ***h****úll*	[lʲə (h)u:l̪ʸ]	‘with an apple’
go ***h****álainn*	[gə hɑ:l̪ʸən̪ʲ]	‘beautiful(ly)’
go ***h****ard*	[gə hɑ:ɾʸd]	‘highly, beautifully’
ó mhaidin go ***h****oíche*	[o: wa:ɖʲənʲ gə hi:(hə)]	‘from morning till night’

•“counting”/independent number particle *a* (also in Old Irish, but not shown):

a ***h****-ocht*	[ə hoxt]	‘eight’
a ***h****aon déag*	[ə hi:n̪ʲe:g]	‘eleven’

•certain copular forms (to pronouns only):

ní ***h****ea*	[n̪ʲi: hæ]	‘it (NEUT) is not’
cé ***h****í*	[ce: hi:]	‘who is she?’

but no /h/ added to nominals—

ní	*amadán*	*é*	‘he is not a fool’
NEG.BE	fool	SG3.M.ACC	

[n̪ʲi: a:mədɑ:n̪ʸ e:]

#*ní* ***h****amadán é*

Internal Gemination:

Related to these geminate mutations of external sandhi are word-internal changes due to gemination. Here I show the development of internal consonants which parallel the changes of intial mutations. Proto-Celtic froms adapted from PCD.

• The following exemplify the intervocalic realization of Proto-Celtic /t/ in its lenited forms in Irish /θ/ and Welsh /d/:

Proto-Celtic:	**katu-*	‘battle, war, fight’
Gaulish:	*catu-*	(as in the name *Catu-wulkos* ‘battlewolf’ [6])
Old Irish:	*cath*	[kaθ]
Modern Irish:	*cath*	[ka:(h)]
Welsh:	*cad*	[kɑ:d]

The Proto-Celtic language, too, had internal geminate consonants. In accordance with initial gemination, Irish geminates in all positions un-geminated into simple consonants, while in Welsh, voiceless geminates underwent frictivization and the voiced ones developed the same as

6 McCone (1996), p. 44

in Irish. According to Martinet (p. 200) voiced geminates word internally were rare in Brythonic, and in Goidelic they mainly arose due to the assimilation of two combining consonants— such as a nasal plus a voiceless stop (i.e. /*nt/ yielding /*dd/ – see below) or /d/ + /g/ yielding /*gg/ (*ac(c)aldam* [agaldəμ] 'address(ing)' from *ad-gládam; GOI §149.2).

• GEMINATION of /tt/: to /t/ in Goidelic and to /θ/ in Brythonic:

Proto-Celtic:	**katto-*, **kattā-* (MASC/FEM)	'cat' [7]
Gaulish:	*cattos*	
(Latin:	*catta*)	
Old Irish:	*cat(t)*	[kat]
Modern Irish:	*cat*	[kʊt]
Welsh:	*cath*	[ka:θ]

• *-nt- developed into /*dd/ which then became /d/; no change in Brythonic:

Proto-Celtic:	**kantom*	'hundred'
Old Irish:	*cét*	[ce:d]
Modern Irish:	*céad*	[ce:d]
Welsh:	*cant*	[kant]

• Finally, in both Irish and Welsh, simple voiced stops became voiced fricatives – in the case of /d/ → /ð/:

Proto-Celtic:	**budīnā-*	'army, band, troop'
Old Irish:	*buiden*	[buðʲənˠ]
Modern Irish:	*buíon*	[bʷi:(ə)n̪ˠ] (Classical Modern: *buidhean*)
Welsh:	*byddin*	[bəðɪn]

[7] loan from Latin

VI. BRETON LENITION IN MASCULINE PLURAL HUMAN NOUNS

I have largly ignored Bretion up to this point and will not go into detail concerning its (four) initial mutations. However, I will briefly look at lenition of masculine plural nouns after the definite article.

In Breton most masculine plural nouns which refer to humans undergo lenition after the definite article, while other masculine plural nouns do not mutate—except sometimes /k/, see page 38 above (Breton examples from Press / ar Bihan, p. 43):

paotr	[pɒtʁ]	'boy'
*ar **b**aotred*	[ʌʁ bɒtʁɛd]	'the boys'
martolod	[maʁtolod]	'sailor'
*ar **v**artoloded*	[ʌʁ vaʁtolodɛd] [1]	'the sailors'
tourist	[tuʁist]	'tourist'
*an **d**ouristed*	[ʌn duʁistɛd]	'the tourists'

However, some exceptions do exist- plurals formed with *–où*:

tad	[tad]	'father'
an tadoù	[ʌn tadu]	'the fathers'
#*an **d**adoù*		

This mutation does not affect non-human plurals:

penn	[pẽn]	'head'
ar pennoù	[ʌʁ pẽnu]	'the pens'
#*ar **b**ennoù*		
braog	[bʁɒg]	'sea bass'
ar braoged	[ʌʁ bʁɒg]	'the sea bass(es) (PL)'
# *ar **v**raoged*		

Adjectives, also, undergo lenition when following masculine human plural nouns (unless the noun ends in /l, m, n, r/ or a vowel, adjectives beginning with /k, t, p/ do not mutate) (Press / ar Bihan, p. 88-89) :

[1] or [vaʁtɒlɒdɛd]

*kigerien **v**at*	[kiʤɛɾjɛn [2] vat]	‘good butchers’

but:

kizhier mat	[kizjɛʁ mat]	‘good cats’

In Old Irish, all masculine plural nouns lenited after the definite article and adjectives lenited after most masculine plural nouns (-o and –io stems; c.f. GOI §232.3):

*ind **f**ír **th**ríuin* [ɪn̪ʲdʲ ɨrʲ θʲɾʲiːu̯n̪ʲ] ‘the strong men’[3]

< /*sindi wiri trewni/

(from *fer* [fʲɛrʸ] ‘man’ and *trén* [tʲrʲeːnʸ] ‘strong’)

Only Breton and Cornish have preserved lenition of masculine plural nouns into modern times, although Willis notes that in Breton this mutation in literary (1986, p. 45). However, even in Modern Irish and Scottish Gaelic lenited forms of adjectives follow plural masculine nouns which end in a slender consonant, reflecting a now-lost final - i:

*na fir **th**réana*	[n̪ʸə fʲɪɾʲ hɾʲeːn̪ʸə]	‘the strong men’ (Irish)
*na fir **th**reuna*	[n̪ʸə fiɾʲ hɾeːnʸə]	‘the brave/strong men’ (Scottish)

but

na buachaillí tréana	[n̪ʸə buːəxəl̪ʲiː tʲɾʲeːn̪ʸə]	‘the stong boys’ (Irish)
na buachaillean tréuna	[n̪ʸə b̥uːəxəl̪ʲənʸ tʰreːnʸə]	‘the strong/brave herdsmen’ (Scottish)

with out lenition.

[2] or [kigɛɾʁjɛn vat]

[3] also *thréuin* [θʲɾʲeːu̯n̪ʲ]

VII. ANALOGICAL LEVELLING

Here I expand upon the example of analogical levelling from the introduction. ANALOGICAL LEVELLING in Celtic languages can also trigger mutation, as referred to previously. For instance, in Old Irish the negative particle *ní* normally did not trigger LEN, but did elicit such a mutation when containing an "invisible" neuter infixed pronoun—compare:

ní·ceil	[nʲi:ˈcɛlʲ]	'he does not conceal'
*ní·**ch**eil*	[nʲi:ˈçɛlʲ]	'he does not conceal it (neut.)'

Whereas, in Modern Irish, *ní* triggers lenition by rule in the formation of the negative (there are no infixed pronouns in the modern language, nor a neuter gender):

*ní **ch**eileann sé*	[nʲi: çɛlʲənˠ ʃe]	'he will not conceal'
*ní **ch**eileann sé é*	[nʲi: çɛlʲənˠ ʃe e]	'he will not conceal it'

Such cases lack historical justification; the fused neuter pronoun form of *ní* which caused LEN began to replace the non-leniting (actually geminating) *ní* in contexts of simple negation. M'Caughey attributes this substitution to the fact that these active verb forms commonly occured with a neuter infixed pronoun (p. 73). Pressure from other LEN-triggering pre-verbal elements likely helped the spread of mutation in this context. For example lenition occurs after the negative *nad* in so-called LENITING RELATIVE CLAUSES:

nad·**ch**eil	[nˠaðˈçɛlʲ]	'which/whom he does not conceal'

Additionally this assimilatory process was likely further aided by the lenition which followed the extended negative form *nicon* [nʲi:konˠ] (especially common in Northern Old Irish[1]), thus:

*nicon·**ch**eil*	[nʲi:konˠˈçɛlʲ]	'does not conceal'

So, historically unjustified lenition spread to the simple declarative negative particle *ní* out of analogy with all of the other similar circumstances in which mutation occurred.[2]

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[1] hence Scottish Gaelic *cha* [xa]. In Ulster Irish negative forms based on *cha* appear as well. Has *cha* been brought to Ulster through contact and immigration from Scotland or did it develop "naturally"? Their limited use in Ulster Irish as well as appearance before a habitual present tense to denote future events (i.e. *cha bhíonn = ní bheidh.* c.f. Scottish *cha bhi(thidh)*) points to Scottish influence. However, throughout Ireland *má bhíonn* is used in place of #*má bheidh* to refer to future events.

[2] (McCone, EIV p. 174)

Indeed, by the Middle Irish period lenition spread so that it followed preverbal particles in general. The following exampled from Classical Modern Irish exemplify fixed post-preverbal particle lenition:

Old Irish			**Classical Mod. Irish** [3]		
ro·gab	[roˈgav]	'has taken'	*do* ***gh****abh*	[do ɣav]	'took'
do·beir	[doˈbʲɛɾʲ]	'gives'	*do-****bh****eir*	[doˈvʲɛɾʲ]	'gives'
do·gní	[doˈɟn̪ʲi:]	'does/makes'	*do-ní*	[doˈn̪ʲi:]	'does, makes'
			(< *do-****gh****ní*)	[doˈɟn̪ʲi:]	

The following poem from the Book of Leinster, as edited by Carney (*Éigse* 1 p. 248), shows usage of the neuter infixed pronoun after the negative in the main clause. Interestingly the lenition here was added by Carney (it does not seem to appear in the manuscript):

A Dhē t*u*c dam top*ur* ndēr [4]
do dīl mo c[h]inadh, **nī c[h]ēl**;
nī toirrt[h]*e*c[h] tal*am* cen braen,
nī naem cēn anam cen dēr.

[a ðʲe: tug daμ toburˠ n̪ʲe:rˠ
do ði:lˠ mo çinəð n̪ʲi:ˈçe:l̪ˠ
n̪ʲi: torʲθɛx talˠəμ cɛnˠ vraɲˠ
n̪ʲi: n̪ˠaɪμ ce:nˠ anam cɛnˠ dʲe:rˠ]

Carney's translation of this poem follows:

'O God give me a well of tears to atone for my sins - I shall not hide it; land is not fruitful without moisture, I am not holy while I remain without a tear.'

The Book of Leinster does not consistently mark LEN orthographically, as evidenced by Carney's frequent bracketed insertion of ‹h›. LEN is certain on *chinadh* because of the preceding *mo*ˡ, but the negative praticle *ní* does not necessarily cause lenition. Both *ní chél* 'I shall not hide it' and *ní cél* 'I shall not hide' make sense.

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[3] (SnaG, p. 408-9, 412, 415)

[4] Italicized portions of the poem indicate scribal notations and the parenthetical h's indicate lenition supplied by the editor; macrons designate long vowels not indicated in the manuscript.

Below are various third person singular forms of *ceilid* 'conceals' that show the role that mutations can play in Old Irish verbal morphology:

ceilid	[cɛlʲɪðʲ]	'he conceals'	
ceileas	[cɛlʲəs]	'which/whom he conceals	
ní·ceil	[n̪ʲiːˈcɛlʲ]	'he does not conceal'	GEM (no change)
nad·cheil	[n̪ʸaðˈçɛlʲ]	'which/whom he does not conceal'	LEN
ní·cheil	[n̪ʲiːˈçɛlʲ]	'he does not conceal it (NEUT)'	LEN
ní·ceil	[n̪ʲiːˈɟɛlʲ]	'he does not hide him/it (MASC)'	NAS
nad·ceil	[n̪ʸaðˈɟɛlʲ]	'which he does not conceal' {NAS REL clause}	NAS

Furthermore, the negative relative particle also displays the role of analogy and levelling in the mutational systems of Celtic languages. In Old Irish *nád-* [n̪ʸaːð] caused lenition, while the Modern Irish equivalent *nach* [n̪ʸaːx] causes eclipsis (NAS):

O.I.	*nád·chuirethar*	[n̪ʸaːðˈxurʲəθərʸ]	'which does not put'	LEN
Mod.I	*nach gcuireann*	[n̪ʸax gɪrʲən̪ʸ]	'which does not put'	NAS

However, the discrepancy in forms results from more than a simple switch of mutation. Middle Irish used *nach* [n̪ʸax] and *ná* [n̪ʸaː] (derived from the negative imperative particle with the same form) indiscriminately, both of which had no effect on an initial consonant, but inserted /h/ before a vowel. By the time of Late Modern Irish period (after ca. 1600), the language had three forms of this negative relative particle, whose same form functioned for negative questions and the negative conjunct particle (SnaG, p. 460):

ná H [5]	[n̪ʸaː]	h-before a vowel
nach H	[n̪ʸax]	h-before a vowel
nach N	[n̪ʸax]	followed by eclipsis

The literary language at the time favoured *nach* H. Flaithrí Ó Maolchonaire (born 1560), from *Cluain na hOíche* in County Roscommon[6], writes *nách tuigeand* [n̪ʸaːx tɪɟən̪̆] 'which does not understand' (Modern Irish *nach dtuigeann* [n̪ʸaːx d(ʲ)ɪɟən]) and *nách fuil* [n̪ʸax fʷɪlʲ] (Modern Irish *nach bhfuil* [n̪ʸaːx wɪlʲ]) in *Desiderius: Sgáthán an Chrábhaidh*, his ca. 1616 translation of the Spanish work *El Desseoso* (Ó Maolchonaire; CELT). However, his work also does contain

[5] H indicates that the form prefixes /h/ before a vowel/causes gemination.

[6] Ó Cléirigh, p. 34

some examples of the modern usage of *nach* [N]. For example, he writes *nach* ***cc****uirfè* [7] [n̪ʸa:x gɪɾʲfʲə] 'which thou wilst not put' (Modern Irish *nach* ***gc****uirfidh tú* [n̪ʸa:x gɪɾʲ(h)ə tu:]).

The stem *nach-* is a variant form of *nad* originally used before infixed pronouns in Old Irish (my examples, but see Stifter, p. 187-8).

*hóre nachim·****ch****arai*	[o:ɾʲɛ n̪ʸaxəmˈxarʸi]	'because thou dost not love me'	LEN
hóre nach·carai(m)m	[o:ɾʲɛ n̪ʸaxˈ**g**arʸəmʲ]	'because I do not love him'	NAS
*hóre nacha·****c(c)****arai(m)m*	[o:ɾʲɛ n̪ʸaxəˈk:arʸəmʲ]	'because I do not love her'	GEM
*hóre nach·****ch****aram*	[o:ɾʲɛ n̪ʸaxˈxarʸəµ]	'because we do not love it'	LEN
~ *hóre nachid·****ch****aram*	[o:ɾʲɛ n̪ʸaxəðˈxarʸəµ]		LEN

In Middle Irish, this from *nach-* with the null leniting infixed neuter pronoun became a common replacement for nad- [L] (GOI §863). This explains the form with /x/. As for the mutation, NAS in dependent form (required by *nach*) of irregular verbs became generalized (O'Rahilly (1932), p. 40), thus *nach* began to be analyzed as an NAS-triggering particle. Analogy with other verbal particles such as *go* (the positive conjunct particle) and *an* (the positive question particle) which both cause NAS likely contributed to the generalization of NAS in dependant verb froms. Scottish Gaelic, which in general does not use the NAS inherited from Old/Middle Irish, does show generalization of NAS mutation in the dependant form of irregular verbs; e.g. *thoir* [hɔɾʲ] 'give' and *na doir* [n̪ʸa d̥ɔɾʲ] 'do not give' (standard *na toir* [na tʰɔɾʲ]) versus the Irish equivalents *tabhair* [to:ɾʲ] and *ná tabhair* [n̪ʸɑ: to:ɾʲ]. See section IX.d. for more on NAS in Scottish Gaelic. Additionally, the form *nach-* with the null nasalizing infixed masculine pronoun (as in *hóre nach·carai(m)m* from above) most likely also influenced the latter form *nach* [N].

O'Rahilly ((1932), p. 39-44) traces the use of ecplipsis with *nach* through several stages, starting in the 16th century. First irregular verbs with initial /f/ and /t/ were eclipsed. This spread to all verbs beginning with /f/, /t/, /c/ and presumably the rare /p/ (mostly loan words) as evidenced by Carswell's 1567 writings, e.g. *nach* ***dt****uigeand* [n̪ʸax dɟən̪] 'which does not understand' and *nach* ***gc****uidigheand* [n̪ʸax gɪdʲijən̪ʸ] 'which does not help' (Ibid., p. 41). However, as exemplified by Ó Maolchonaire above, the process was by no means complete and forms

[7] ‹cc› sometimes used to indicate the NAS of /k/; otherwise ‹gc›

without NAS persisted - such as the *nách tuigeand* mentioned above. By the end of the 17th century eclipsis after *nach* spread to the voiced stops and vowels as well and continues to do so in the language today.

However, while the Connacht, Ulster and standard versions of the language use *nach*, modern spoken Munster Irish employs *ná* H another one the late Modern Irish options:

Munster		Other		
ná fuil	[nʸa: fʷɪlʲ]	*nach bhfuil*	[n̪ʸa:x wɪlʲ]	'which/that/who is not' 'is X not?'
ná tuigeann	[nʸa: tɪɟənʸ]	*nach dtuigeann*	[n̪ʸa:x dɪɟən̪ʸ]	'who understands' 'doesn't X understand?'

VIII. “Direct object mutation”

A traditional Welsh grammar such as Gareth King’s *Modern Welsh* states that *treiglad meddal* (soft mutation, lenition – c.f. section IV.a) occurs after the subject NP of a sentence (which has VSO order)—even if it features a covert subject pronoun (such as in imperatives): (p. 21-22; some examples adapted from King):

gwelest	*ti*	***dd****ynes*	{dynes}
see.SG2.PRET	PRON.SG2	woman	

[gwɛlɛst ti: ðənɛs]

‘you saw a woman’

gwelodd	*y*	*ddynes*	*brydferth*	*iawn*	*gyda*
see.SG3.PRET	DEF	woman	beautiful	very	with

llygaid	*gwyrddion*	***g****ŵn*	{cŵn}
eye.PL	green. PL	dog.PL	

[gwɛlɔð ə ðənɛs brədvɛrθ jaʊ̯n gədə ɬəgɛd gwirðijɔn gu:n]

‘the very beautiful woman with green eyes saw dogs’

rho	***dd****wy*	*bunt*	*i*	*mi!*	{dwy}
give.SG2.IMPER	two	pound	to	PRON.SG1	

[r̥ʰo: ðʊi bɪnt i: mi:]

‘give me £2!’

King interprets as if the subject pronoun were overtly present:

rho	*di*	***dd****wy*	*bunt*	*i*	*mi!*
give.SG2.IMPER	PRON.SG2	two	pound	to	PRON.SG1

[r̥ʰo: di: ðʊi bɪnt i: mi:]

In this way soft mutation differentiates subject from object, for soft mutation occurs on the object after the subject NP of the sentence. Compare:

gwelodd draig	[gwɛlɔð draɪ̯g]	‘a dragon saw’
gwelodd hi ***dd****raig*	[gwɛlɔð hi: ðraɪ̯g]	‘she saw a dragon’

The modern literary register still features the possibility of null subjects inherited from Middle Welsh—a pro-drop language. In such an instance without an explicit subject, a lenited noun

directly following the inflected verb would signify that it functions as the direct object and not the subject of the VP; the (pronominal) subject, in this case *hi* ‘she’, is understood:

gwelodd ***dd****raig* [gwɛlɔð ðraɨg] ‘she saw a dragon’

However, this particular PARAMETER SETTING has changed in the modern colloquial language and subjects are obligatory. We call the modern language a NON-NULL SUBJECT LANGUAGE. Soft mutation, having no clear lexical trigger, but only a syntactic one appears to operate in these circumstances. Thus, the so-called “direct object” soft mutation seems to mark ACCUSATIVE CASE (of indefinite nouns—the definite article’s mutational features overrule any other ones); however, this mutational phenomenon features more complexity than simple case marking. Roberts (1997, 2005) argues this theory. Additionally, it remains important to note that only the first direct object which immediately follows the verb can receive the soft mutation, for this mutation does not spread, unlike len on multiple adjectives following feminine singular nouns. So not

#*gwelwn*	*ni*	***l****wynog,*	***w****iwerod*	*a*	***dd****raig*
see.PL1.FUT	PL1	fox	squirrel.PL	and	dragon

‘we will see a fox, squirrels and a dragon’

{llwynog, gwiwerod, draig}

but rather

gwelwn ni ***l****wynog, gwiwerod a draig*

[gwɛlu:n ni: luwɪnog gwi:wɛrod a draɨg]

VIII.a. MODERN WELSH – ACC CASE OR XP TRIGGER?

Sometimes soft mutation appears “unexpectedly” on elements other than direct objects, while at other times direct objects fail to receive soft mutation. For example, in ‘The Syntax of Welsh "Direct Object Mutation" Revisited’, Tallerman takes an example from Morgan’s *Y treigladau a’u cystrawen* and displays soft mutation of an “extraposed subject” - one that does not have its usual placement directly after the verb (p. 1760-61, example Ibid.):

mae	*’n*	*dy*	*arwain*	[***g****wmwl*	*niwl*	*a*	*cholofn*	*dân*]	{cwmwl}
there.is	PART	POSS.SG2	guiding	cloud	mist	and	column	fire	

[maɨn də arwaɨn gʊmʊl nɪul a χolɔvn dɑ:n]

‘a cloud of mist and a column of fire is guiding you’

literally: ‘there.is to your guiding, a cloud of mist and a column of fire’

(the subject is *cwmwl niwl a cholofn dân* [kʊmʊl nɪul a χolɔvn dɑ:n])

The above exhibits a grammatical, but very literary language usage. Mutation occurs when a constituent such as *yn dy arwain* interrupts the normal VSO word order. In normal colloquial Welsh the subject would directly follow the verb and would not have soft mutation:

mae [*cwmwl niwl a cholofn dân*] *yn dy arwain*

[maɨ̯ kʊmʊl nɪul a χolɔvn dɑ:n ən də arwaɨ̯n]

‘a cloud of mist and a column of fire is guiding you’

By showing this she calls into question the notion that accusative case governed by the verb causes the mutation, but rather posits that XPs (such as the subject NPs or the VP *yn dy arwain* in this example) actually trigger the soft mutation — not abstract accusative case. I will further explore this XP Trigger Hypothesis below.

Some problems with the soft mutation of direct objects as a way to mark accusative case include sentence pairs such as:

gwelas	*i*	***dd****raig*	vs.	*(ni)*	*welas*	*i*	***dd****im*	*draig*
see.SG1.PST	SG1	dragon		NEG	see.SG1.PST	SG1	NEG	dragon
[ewɛlas i: ðraɨ̯g]				[(ni:) wɛlas i: ðɪm draɨ̯g]				
‘I saw a dragon’				‘I did not see a dragon’				

Here the negative particle ***dd****im* (from *dim* ‘nothing’ — originally ‘anything’), co-occurring with an often covert pre-verbal *ni*, takes the soft mutation and the direct object retains its radical. In the periphrastic present tense construction using *bod* ‘to be’ and the verbal noun, the direct object is likewise unmutated:

dw	*i'n*	*gweld*	*draig* / #*ddraig*
be.SG1.PRES	SG1 + PARTICLE	seeing	dragon

[duwi:n gwɛld draɨ̯g]

‘I see/am seeing a dragon’

Draig in both of theses examples certainly does act as the grammatical object and would logically receive accusative case. How than could we explain the non-mutation of the direct object *draig* in *welas i ddim draig* and *dw i'n gweld draig*? In the case of both the negative and verbal noun, the non-mutation could be explained by positing that an abstract genitive case must

follow nominal elements such as *dim* and the verbal noun *gweld*. Irish operates this way (although erosion of the genitive commonly takes place dialectically):

tá	*sé*	*ag*	*tógáil*	*an*	*tí*
be.PRES	SG3.M	PARTICLE	building	DEF	house.GEN

[tɑ: ʃe: (ɛɟ) to:gɑ:lʲ ə tʲi:]

'he is building the house' (NOM *teach* [tʲæ:x] 'house')

Welsh has no evidence of a distinctive genitive (or accusative) form on the surface—the case terminations fell out of use early in Brythonic (see note 5 on p. 6), but the usage of possessive pronouns to indicate the object of a verbal noun does provide further support for an abstract genitive case in Welsh:

dw	*i'n*	*ei*	*weld*	*e*	{gweld}
be.SG1.PRES	SG1 + PARTICLE	POSS.SG3.M	seeing	SG3.M	

[duwi:n i: wɛld ɛ]

'I see/am seeing it/him' (literatly: "I am to his seeing")

Non-lenition hypothetically could mark this abstract genitive case and therefore explain the lack of mutation after verbal nouns and *ddim*. However, Tallerman rejects the role of abstract case in triggering mutation on nominal elements. Rather, she argues that "a constituent bears SM [soft mutation] when it is immediately preceded by some phrasal constituent, XP" (p. 1752). Essentially, the non-finite verbal nouns (i.e. verbal nouns) are not considered phrasal constituents and therefore do not trigger mutation. She supports this with examples such as (adapted from Tallerman p. 1754; originally taken from Thorne (1993)):

…yn	rhagweld	yn 1721	**d**ranc	yr	iaith	Gymraeg
PARTICLE	for-seeing	in 1721	death	DEF	language	Welsh

[ən r̊ʰagwɛld ən mi:l saɪ̯θ daɪ̯ i:n draŋk ər jaɪ̯θ gəmraɪg]

'…foreseeing in 1721 the death of the Welsh language'

This excerpt displays soft mutation of the nominal object of a verbal noun, which the temporal adjunct prepositional phrase *yn 1721* precedes. Were abstract case the cause of soft mutation, then 'death' should appear in its unmutated form *tranc* and not *dranc* because, according to the argument above, it would have genitive case which does not feature soft mutation. Hence, she proposes that the interposed PP triggers the soft mutation. Predicate-type sentences, whose the

subject has LEN if something else intervenes between it and the verb, provide further support for the XP Trigger Hypothesis:

mae	*yn*	*y*	*castell*	***dd****raig*
there.is	in	DEF	castle	dragon

[maɪ̯ ən ə kastɛɬ ðraɪ̯g]

‘There’s a dragon in the castle’

In the above sentence the intervening PP *yn y castell* displaces the subject *draig* from its normal position after the verb and for that reason it becomes mutated. *Draig* here has no reason to receive accusative case. Tallerman attributes the mutation to the XP that intervenes between the verb and the subject. The normal word order for this would be:

mae	*draig*	*yn*	*y*	*castell*
there.is	dragon	in	DEF	castle

[maɪ̯ draɪ̯g ən ə kastɛɬ]

‘There’s a dragon in the castle’

Next we will look at Middle Welsh and Old Irish data, after which we will attempt a diachronic explanation to this mutational phenomenon by analyzing the underlying representations of Proto-Celtic Insular verbs. The debate between case and XP trigger does not concern me here, for I am exploring the mutation from historical phonological grounds—the original underlying trigger for intial consonant mutations. Middle Welsh grammarians such as Evens refer to subject and object mutation and not case or XP triggers.

VIII.b. MIDDLE WELSH VARIATION

In the complex Welsh mutational system, from Old to Modern, much analogical levelling must have taken place. In Middle Welsh the systemic mutation of objects and non-mutation of subjects (with the exceptions noted above) had not yet solidified, and thus samples can exhibit variation, with the lenition of some subjects and unmutated form of direct objects without the soft mutation which often characterizes them in Modern Welsh (Evans, GMW § 21; Middle Welsh examples from the same).

Middle Welsh displays subject-lenition particularly following third singular imperfect and pluperfect verbal forms:

ny	*uynhei*	***G**aswallawn*	*y*	*lad*	*ynteu*
NEG	wish.SG3.IMPF	Caswallawn	POSS.SG3.M	slaying	CONJ.PRON.SG3.M

[nɨ vənheɨ̯ gaswɬaʊ̯n ə lað ənteʉ̯̃]

‘Caswallawn did not wish to slay him’

ny	*angassei*	***U**endigeituran*	*eiryoed*	*ymywn*	*ty*
NEG	contain.SG3.PLPF	Bendigeidfran	ever	in.a	house

[nɨ aŋaseɨ̯ vendigeɨ̯dvran eɨ̯rjoɨ̯d əmɨʊ̯n tɨ]

‘Bendigeidfran had never been contained in a house’

Less frequently, LEN can be observed after third person singular preterite and imperative forms:

a	*fan*	*welas*	***U**ranwen*	*y*	*mab*
and	when	see.SG3.PRET.	Branwen	POSS.SG3.F	son

[a fan wɛlas vranwɛn i: ma:b]

‘and when Branwen saw her son’

gwnaet	***b**awp*	*velly*	{pawp}
do.SG3.IMPER	all	likewise	

[gwnaɨ̯d baʊ̯b vɛɬɨ:]

‘let all do likewise’

An additional common trigger of LEN can be found in early Welsh poetry when a plural nominal subject follows a plural verb form rather than a singular verb form (which had become the standard in Modern Welsh):

yn	*Aber Cuawc*	*yt*	*ganant*	***g**ogeu*	{cogeu}
in	Aber Cuawc	AFFIRM.PART	sing.PL3.PRES	cuckoo.PL	

[ən aber kʉaʊ̯g əd ganant gogeʉ̯̃]

‘in Aber Cuawg cuckoos sing’

ymgetwynt	***G**ymry*	{Cymry}
see to(it).PL3.PRES	Welshman.PL	

[əmgedʊ̯ɨnt gəmrɨ]

‘the Welsh will see to it’

atchwelwynt *Wydyl* {Gwydyl}
return.PL3.PRES [1] Irishman.PL
[adχwelu̯ɨnt u̯i̯ðɨl]
‘the Irish will return’

Subjects also sometimes undergo LEN when separated from the verb (as in Modern Welsh with an intervening XP):

y *mae* *yno* [*wr* *du*] {gwr}
AFFIRM.PART there.is there man black
[ə mai̯ əno u:r dʉ]
‘there is there a black man’

but not consistently:

dybyd *Gymry* *gwarth* {gwarth}- no LEN
come.SG3.PRES Welshman.PL shame
[dəbɨð gəmrɨ gwarθ]
‘shame will come to the Welsh’

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[1] Middle Welsh had no distinct future tense. The present indicative of main verbs denoted verbal time in the simple present, “gnomic” (universal) present, consuetudinal (habitual) present, historical (narrative, “dramatic”) present and in the future. The present of verb *bot* [bod] ‘to be’ could also signify action continuing up until the present (GMW §119). Examples Ibid.

•simple:
gwir a dywedy
‘thou speakest true’
•gnomic (no definitive time reference)
dyn a wyl y brechewyn yn llygat arall ac ny wyl y trawst yn y lygat e hun
‘man sees the speck in another’s eye, but does not see the beam in his own eye’
•historical
nyt kynt yd yskynn ef ar y uarch, noc yd a hitheu hebdaw ef
‘no sooner had he mounted his horse, than she passed him by’
•consuetudinal
ef a wyl pawp o’r a del y mewn, ac nys gwyl neb efo
‘he sees everyone who enters, and no one sees him’
•future
minheu a baraf idaw ef uynet y sseghi y bwyt yn y got
‘I will make him go and tread down the food in the bag’
•*bot:* past action continuing up to present
yr hynny hyt hediw yd wyf i yma
‘from that day to this I have been here’

In Middle Welsh LEN of the direct object of a verb usually occurs, especially when it is detached from the verb (i.e. by the subject):

y	*kynhelis*	*Bendigeiduran*	***U**ranwen*
AFFIRM.PART	support.SG3.PRET	Bendigeidfran	Branwen

[ə kənhelis bendigei̯dvran vranwen]

‘Bendigeidfran supported Branwen’

However, the direct object sometimes keeps its unmutated initial consonant—in particular after the third person singular present indicative, third person singular present subjunctive and third person preterit:

ef	*a*	*geif*	*<u>march</u>*	*iach*
PRON.SG3.M	REL.PART	get.SG3.PRES	horse	healthy

[ev a gei̯v marχ jaχ]

‘he shall have a sound horse’

rather than the anticipated

*ef a geif **u**arch iach* {march}

[ev a gei̯v **v**arχ jaχ] [2]

As in Modern Welsh, lenition does not usually follow impersonal forms:

Mod.Welsh	*gwelwyd draig*	[gwɛlʊid drai̯g] ‘a dragon was seen’
	#*gwelwyd **dd**raig*	
Mid. Welsh	*gwelat dreic*	[gwelad drei̯g]
		#[gwelad **ð**rei̯g]

But in can sometimes in Middle Welsh (never in Modern):

pan	*dreithir*	***d**raethawd*	{treathawd}
when	sing.IMPERS.PRES	song	

[pan drei̯θir drai̯θau̯d]

‘when a song is sung’

[2] *caffa(e)l, cahel, cael* is an irregular verb, and thus **may** have had different endings in British and thus not mutate in the anticipated way.

Lenition of the “object of destination” occurred following verbs of motion:[3]

gwyr	*a*	*aeth*	*Gatraeth*
man.PL	REL.PART	go.SG3.PAST	Catreath

[gu̟ir a a̟i̟θ gatra̟i̟θ]

‘the men/warriors went to Catraeth’ (from *Y Gododdin*)

Since older forms of Welsh feature pro-drop and Primitive British and Common Celtic likely did as well, direct objects would have come directly after an inflected verbal form frequently—whenever the subjects were covertly “pronominal”. It is likely that a former phonological feature of some inflected verbs triggered the mutation of the next word in the phrase (viz. a vocalic ending which would trigger LEN on the word which follows it). The evidence from Middle Welsh above shows that verbs triggered mutation on subjects and nouns irregularly. N.B. – subject LEN cannot occur after verbs not in third person because any following noun would necessarily be an object. Presumably, a verb originally only triggered LEN if it terminated in a vowel, but after the loss of final syllables the once allophonic distinctions of LEN vs. non-LEN blurred and blended together because the trigger was lost. Eventually, grammaticalization could have influenced the system so that subjects keep the radical and objects mutate have soft mutation. Of course the issues of the exact trigger discussed above remain relevant and the original trigger in Brythonic and Middle Welsh may not be the same as in Modern Welsh, for analogy developed in originally phonemically conditioned system into one ruled by morphology and syntax.

Interestingly L&P notes that many of the Middle Welsh rules for lenition of the subject (and object) persisted until the end of the 16th century (well into the Modern Welsh period) (§ 237 note 4). Willis ((1986), p. 68), citing Evans (1909) notes that subjects could lenite following certain verb forms until the 18th century. The Modern language, however, never lenites subjects directly following verb forms, but of course LEN may be triggered, buy something else, such as the definite article.

[3] (c.f. “fixed” soft mutation of adverbs in Modern Welsh: *gartref* [gartrɛv] ‘at home’ from *cartref* [kartrɛv] ‘home’ —nouns used adverbially usually have *treiglad meddal*)

VIII.c. OLD IRISH SUPPORTIVE EVIDENCE

Turning to the Goidelic branch, Old Irish provides support to the Middle Welsh evidence that subjects, objects and more could be mutated following finite verb forms. Thurneysen states that, "in later sources…lenition is also found, though not consistently, after any verb, whether the following word be object, subject or attributive" (GOI §233). Examples Ibid.:

-object LEN:

do·rignius ***ch****omgnímu*
do.SG1.AUGM.PRET joint-deed.PL.ACC
[doˈrʲiɣʲnʲus xoμɣʲnʲiːμu]
'I have just done joint deeds'

con·toat ***ch****ucai*
turn.PL3.PRET.REL to.PRON.SG3.M
[konˈdoad xugi]
'who turned to him'

-subject LEN:

fúachimm ***ch****éin*
point.SG1.PRES self.SG1
[fuːaxəmʲ çeːnʲ]
'I myself point'

The subject occasionally also undergoes LEN following the predicate (GOI §233.2):

ni *gnáth* ***ch****omsuidigud*
be.NEG.3SG usual composition
[n̪ʲiː gnaːθ xoμsuðʲɪɣʲuð]
'composition is not usual'

gním *dom-sa* ***th****indnacol*
action to.sg1-emph bestowing
[gn̪ʲiːμ doμsə θʲɪn̪ʸdnʸacolʸ]
'transmitting is action for me'

GOI §233 notes that, "According to later bardic teaching, the object after the verb may be lenited or not optionally…" The traditional Irish *comardad* [koμərdəð] 'rhyme' system may have contributed to this practice of optional mutation and non-mutation. In order for consonants

to rhyme in classical Irish metrics they must agree in class and quality (palatalized or non-palatalized). These classes consisted of sounds sharing certain characteristics. Here are the six classes according to Stifter (p. 302-303) and Knott (p. 5) – note that the fricatives and lenited liquids all belong to separate classes than their unlenited counterparts:

Class	Medieval Irish name	Phonetic characteristics	Rhyming phonemes
I	*na trí chonnsuine chruidhe*	voiced stops	/b/, /d/, /g/
II	*na trí chonnsuine bhoga*	voiceless stops	/p/, /t/, /k/
III	*na trí chonnsuine gharbha*	voiceless fricatives	/f/, /θ/, /x/
IV	*na seacht gconnsuine éadroma*	voiced fricatives & lenited liquids	/v/, /ð/, /ɣ/ /l/, /r/, /n/, /µ/
V	*na cúig chonnsuine theanna*	unlenited liquids	/L/, /R/, /N/, /ŋ/, /m/
VI	*connsuine aimrid nach cóir a modh ar bioth gan .s. eile na haghaidh*	/s/	/s/

The *filid* [fʲɪlʲəðʲ] ‘poets’ could have strategically chosen to apply mutation to objects following verbs depending on the other words with which they needed to rhyme. Free mutational variation may have simply functioned as a tool of artistic language and accordingly may not have operated as a meaningful feature of the colloquial language at the time.

This type of Old Irish lenitin became generalized into fixed LEN of adverbs, preposition, etc. in Modern Irish:

Old Irish	Modern (Conamara) Irish	Gloss/Comment
fri [fʲrʲi]	*ri* [ɾʲi] (Classical Mod. Irish)	‘towards, against’ (Ø is the lenited form of /f/)
dam [daµ]	*dhom* [ɣom]	‘to/for me’
duit [dutʲ]	*dhuit* [ɣɪtʲ]	‘to/for thee’
do [do]	*do* [gə] (likely < [ɣə])	‘to, for’
cuccai [kugi]	*chuige* [xɪɟə]	‘to(wards) him’
tall [taḷˠ]	*thall* [hɑ:ḷˠ]	‘yonder’
tíar [tʲiar]	*thiar* [hiəɾˠ]	‘west’
tair [tarʲ]	*thoir* [hɛɾʲ]	‘east’
túas [tuas]	*thuas* [huəs]	‘above’

***N.B. Thurneysen (§ 6) remarks on frequent scribal spelling errors in the Milan glosses (from which the examples with *chomgnímu* and *chucai* were taken) and errors in regards to ‹c› for [x] and ‹ch› for [k] would affect the interpretation of this phenomenon. Lenition (of even the voiceless stops) appears to have been inconsistently marked orthographically in even the *topur ndér* poem from the Book of Leinster (see above, p. 45). However, seeing as Thurneysen does not mention this inconsistency in relation to LEN after verbal forms, there must be enough evidence from other more precise orthographic sources.

These trends coincide with the Welsh data and suggest that the now-lost final syllable of the verbs originally triggered the mutation still noun found on Welsh direct objects. However, we must also take into consideration that the mutation does often spread by analogy.

VIII.d. EVIDENCE FROM RECONSTRUCTED PROTO-CELTIC VERBS

Could we consider historic verbal endings terminating in a vowel the cause of this mutation, in a analogous manner to the way in which historic vowels triggered mutation in the other cases we examined? To begin, let's consider a couple of different reconstructions on what the Proto-Insular Celtic verb endings for –a stem verbs in the present indicative may have looked like:

	Stifter			**Kortlandt**	
	absolute	conjunct		absolute	conjunct
1sg	-āmi	-ām		-āmis	-āmi
2sg	-āsi	-ās		-āieis	-āiei
3sg	-āti	-āt		-ātis	-āie
1pl	-āmosi	-āmos		-āiomosis	-āiomos
2pl	-ātesi	-ātes		-āieteses	-āietes
3pl	-anti	-ant		-āiontes	-āionto

Stifter: from *Sengoídelc*, p. 67.

Kortlandt: from *Italo-Celtic origins and prehistoric development of the Irish language*, p. 159-160.

Could these two different reconstructions represent different stages of "Proto-Celtic" or would acceptance of one mean rejection of the other? If Stifter's reconstruction is right, and this were still the verbal system when lenition first occurred phonemically, then this could explain why objects and subjects were lenited after verb forms. In the absolute conjugation all forms in this particular tense end in a vocalic element, and thus lenition may have spread to the next word—like it did after the definite article, nouns and prepositions, etc.:

/pāttāti[4] k^{w}rannon/ → /āssati krannan/ →/āsaθi **x**raNan/ →/āsaθ^{j} **x**raN/ →**ásdaid* ***ch****rann*

which would later, by analogy with other forms yield the attested Old Irish form:

ásaid crann [a:səð^{j} kr^{ɣ}aṉ^{ɣ}] 'a tree grows'

A likely candidate in providing the analogy would be the corresponding negative:

/nīs·pāttāt k^{w}rannon/ → /nīs·āssat krannan/ → / nīh·āsat kkraNan/ → /nīh·āsa kraN/

which yields the Old Irish:

ní·ásа crann [ṉ^{j}i: ha:sa kr^{ɣ}aṉ^{ɣ}] 'a tree doesn't grow'

Primitive Ogam (or Ogham) Irish inscriptions, being funerary and boundary markings, contain no verbs[5], and the Ogam alphabet does not differentiate between mutated and non-mutated sounds, for at that time they were still allomorphs conditioned by phonological circumstances. Additionally the 20-25 letter alphabet adapted from Latin [6] could never adequately represent the phonemic inventory of the language. Oftentimes consonants appear doubled in Ogam inscriptions, oftentimes where a lenited consonant should be. Pederson suggested that it may have been a mark of lenition (Carney (1979), p. 419). So, lenition could have begun on nouns which followed verbal forms ending in a vowel and then later spread to following other historically unjustified forms as well. Old Irish eventually disregarded any lenition of the first indefinite noun in NPs directly following a finite verb form, but Welsh could have

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[4] In his *Indogermanisches etymologisches Wörterbuch* Pokorny attributes *ās(a)id* as a possible Old Irish reflex of the PIE root *pāt 'to feed, to nourish , to pasture' (*füttern, nähren, weiden*') combined with a -t- infix (p. 787).

[5] A typical Ogam inscription resembles  QRIMITIR RON(A)NN MAQ COMOGANN 'of the priest of Rónán, the son of Comgán' (from Mt. Brandon in County Kerry). According to Stifter, p.12 this exemplifies later Primitive Irish and would have been something like *QREMITERI RONAGNI MAQI COMAGAGNI when taken back before certain sound changes and the apocope of final syllables. In classical Old Irish the phrase would have developed to *cruimthir Rónáin maicc Comgáin.* This inscription is from Mount Bandon in county Kerry.

[6] see Appendix viii

morphologized the originally phonologically conditioned process to help distinguish between subject and object—since British lost case distinctions very early in its attested history.

Since very early Welsh still shows some lingering signs of an absolute/conjunct system similar to Old Irish (Brythonic discarded this distinction very early), we could posit a similar explanation to explain mutation following Welsh verbs—including the so-called "direct object mutation". Interestingly, according to Evens (§129.d), almost all Welsh verbal forms derive from the absolute forms of Insular Celtic, but conjunct endings won out in the 3rd singular.

Absolute vs. Conjunct in Middle Welsh[7] :

-pereid vs. *para*:

pereid	*y*	*rycheu,*
last.SG3.PRES.**ABS**	DEF	furrow.PL

ny	*phara*	*a'e*	*goreu*
NEG	last.SG3.PRES.**CONJ**	AFFIRM.REL.PART. + POSS.PL3	have-made.SG3.PRET

[pɛreɨ̯d ə rəχeʉ̯ nɨ fara aɨ̯ goreʉ̯]

'the furrows last, he who made them lasts not'

-tyuid vs. *tyf*:

tyuit	*mabon,*	*ny*	*thyf*
grow.SG3.PRES.**ABS**	infant	NEG	grow.SG3.PRES.**CONJ**

y	*gadachan*
POSS.SG3.M	swaddling-clothes

[təvɪd mabon nɨ θɨv ɨ gadaχan]

'an infant grows, his swaddling cloths do not'

Here the conjunct forms *para* and *tyf* (affected by the spirant mutation after the negative *ny*) exhibit the possibility of a vocalic or Ø ending just like Old Irish, (viz. *·móra* and *·beir* the conjunct forms of *móraid* 'magnify, glorify' and *beirid* 'carry, bear' respectively). In Middle Welsh the normal present/future form of the verb had a Ø ending, c.f *car* [ka:r] 'he loves'.

[7] (Evans GMW, §129.d)

To give an indication concerning the range of views on the origin of absolute and conjunct verb conjugations; Thurnesyen posits that absolute endings derive from Proto-Indo-European (PIE) primary endings, while the conjunct endings stem from secondary PIE ones— differing formally in that the primary endings have a final –i that the secondary ones lack[8]. In PIE the distinction between primary and secondary endings characterizes present and non-present respectively [9], although the absolute and conjunct endings in Irish carry no temporal significance. Cowgill, following Pedersen, conjectures that Proto-Insular-Celtic added *(e)s [10] to the "second place" in the clause [11]—thus either after the verb or after the first preverb[12]. In this view the verb has primary endings in both absolute and conjuct forms. The presence of the final –s allows the retention of the /t/ of the ending (→ /θ/ → /ð/). Here we see how both systems would reconstruct the SG3 PRES absolute and conjunct forms of 'to carry':

	Old Irish	**Thurneysen**	**Cowgill**
absolute:	*beirid* [bʲɛrʲəðʲ] 'he carries'	*bhereti	*bereti-s
conjunct:	*ní·beir* [n̪ʲiːˈbʲɛrʲ] 'he does not carry'	*-bheret	*nīˑs-bereti

McCone's (SnaG, p. 141, 146) and Stifter's (p. 67-8) reconstructions of absolute and conjunct endings look like Thurneysen's, although they do not attribute the differences between them to primary and secondary PIE endings. Interestingly, Stifter states that the absolute and conjunct ending system of Insular Celtic "has nothing to do with the distinction between primary and secondary endings in PIE, but is the result of a special Insular Celtic development: early loss of final inherited short *-i, but retention of the vowel before enclitic particles" and then analogy levelled the entired verbal system (p. 69). Kortlandt's forms (see chart above on p. 60) follow Pedersen and Cowgill (although he would not like to admit it) in having a final –s in the

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8 GOI §559, §562, §565; Dillon p. 253

9 Meier-Brügger E 502 (11). Also F 202 (4) „Die Primärendungen markieren die GW [Gegenwart], das Hic-et-Nunc. Die Sekundärendungen...bezeichnen die zeitliche Ungebundenheit, ferner bei bewußter Opposition zur GW die eindeutige VG [Vergangenheit]."

10 This *(e)s is likely related to the finals –s in Kortlandt's absolute forms, although he disagrees with Cowgill's reconstructions. Thurneyesen relates it to *est.

11 Wackernagel's law states that clitics be placed in the second position in a clause (Dillon, p. 252).

12 (1975), p.56

absolute inflection and this clitic particle positioned directly preverbally as well when an element such as the negative particle precedes the verb.

The reconstruction with the second position *(e)s could have been an earlier stage of the one without it, for /s/ often disappears in Celtic. Additionally, *ní* did originally trigger gemination and thus could have likely at some stage ended in an –s. The final –s of the absolute forms could have been lost early and then lenition apply because of the new auslauting vowel. The essential point is, that although scholars cannot agree on exact reconstructed forms or the origins of the absolute-conjunct distinction, many of the verbal forms likely did end vocalically at the time when lenition would begin to affect the language. Evidence form the Gaulish inscriptions below support this. When lenition occurred phonemically, any nominal following an inflected verbal form ending in a vowel would have LEN triggered on its initial consonant. The conclusions concerning levelling and the grammaticalization of LEN or non-LEN after verbs discussed above still hold.

VIII.e. EVIDENCE FROM GAULISH VERBS

Gaulish denotes the Continental Celtic language(s) spoken in ancient France (Gaul) before Latin came to dominate. Attestations of Gaulish date from around 300BC to 100AD (Stifter p. 3). After this, the expansion of the Roman empire and the Latin language that it brought with it became dominate in Gaul. Other attested Continental Celtic languages include Celtiberian in Spain, Lepontic in the Alps and Galatian in Turkey.

Although attested Gaulish does not exhibit any orthographically apparent evidence of consonant mutations, they do allow us to see some of the verbal endings which have to be reconstructed for the Insular Celtic languages. Many of these forms do indeed terminate with vowels.

Gaulish examples, orthography and morphemes as in Eska (p. 219-222) [13]:

- To-śo = KoTe [14] 'he gave it'

[13] capitals represent the stops which are ambiguous for voice in the Lugano script

[14] Stifter's phonological transcription,(p.5) /totsokonde/

To-	śo =	Ko	Te
CONNECTIVE PART	it	PERFECTIVE	give.SG3.PRET

(connective particle in order to infix proclitic pronoun like Old Irish *no* !)

• to-me = declai obalda natina ‘Obalda, (their) dear daughter, set me up’

to-	me =	declai
CONNECTIVE PART.	PRON.SG1.ACC	set up.SG3.PST

• MONI GNATHA ‘come, girl!’

MONI

come.SG2.IMPER

• GABI ‘take’

take.SG2.IMPER

c.f. Old Irish *gaib* [gaβʲ] ‘take’

• DVGIJONTI = JO ṾÇVETIN IN ĄLESIJA ‘who serve U. in Alesia’

DVGIJONTI =	JO
serve. PL3.PRES	REL

• regu-c cambion ‘and I (will) straighten the bent thing’

regu-	c
straighten.SG1.PRES	and

Schrijver, ((1997) p. 177-182) suggests that *regu-c* derives from *regū + k^{w}e.

Compare this *k^{w}e ‘and’ with:

-Latin *que*

-Greek τε

-Sanskrit च, ca

-Lepontic *pe*

laTumarai saPsuTai **Pe** uinom naśom

‘for Latumarus and Sapsuta—Naxion wine’

-Celtiberian –ku-e

-early Old Irish *-ch*

ba-	***ch***	*rí*	*Temrach*	(GOI §880)
COP.be.SG3.PAST	and	king.NOM	Tara.GEN.	

[bax rʲi: tʲɛɱrəx]

‘and he was king of Tara’

The following examples taken from Sims-William (p. 332) and Stifter (p. 5):

• uediíumí ‘I pray’ (Chamalières inscription)

c.f. Old Irish	*guidiu*	[guðʲu]	‘I pray’
Classical Mod. Irish	*guidhim*	[gʷi:jim]	‘I pray’
Welsh	*gweddïo*	[gwɛðijo]	‘pray’ (verbal noun)

The following taken from Schrijver, 2007 (p. 358, 363-364):

• imperative of ‘to be’

3SG	biietutu
3PL	biiontutu

Schrijver attributes the ending to < *-tōd. A 3PL form biontutuṣ is also attested, but the origin of the final –s is unclear—it could either represent a realization of the final –d in *tōd or possibly a suffixed pronoun.

• SG3 preterite endings:

δεδε	‘has given’
tomedeclai	‘placed’ (c.f. Old Irish *ro·lá*)
ieuri	‘has made, delivered, dedicated (?)’
toberte	‘he has given’
c.f. Old Irish *do·bert*	‘he gave’
	< *ber-s-t + *e

Gaulish does show some loss of final vowels:

senant u[-]eltan ‘they are ___-ing X’

< *senanti

Despite lack of clarity as to the exact nature of the endings, many attested Gaulish verbs do end in vowels. They represent and earlier stage of Celtic language than for which we have attested Old Irish. The Ogam Irish verbal system may have looked very much similar to the Gaulish. If so, the vocalic Auslauts of many verbs may have been the trigger to LEN on the immediately following constituent—if capable of undergoing mutation. Hypothetically, the possibility exisits that Gaulish did have phonologically conditioned initial mutations (see Gray for possible internal mutation in Gaulish), or they may have developed in a parallel fasion to those of the Insular Celtic languages had Latin not overtaken Gaulish.

The exact cause of the Welsh syntactic mutation sometimes known as “direct object mutation” remains unclear, yet it is likely that, like with other mutations, it occurred originally due to phonological conditions. The evidence from the various medieval and ancient languages point to the the verb being the original trigger for this lention. As the language developed and the original phonological triggers disappeared, levelling and analogy caused the mutation to become regularized. Whether abstract case or an XP or any other trigger actually causes the mutation in Welsh, its occurance results from complex historical conditions and development. Furthermore, new analogies will likely take place in the future and change the way that the current grammar applies this mutation.

IX. NASALIZATION

In a similar manner to lenition, nasalization (eclipsis, *urú*, NAS) in Irish arose through phonological processes which through time developed into purely morphophonemic ones. As with the other initial mutations, parallel phonological changes also took place word internally. In each position, certain consonants, following a nasal, assimilated to some aspect of the nasal, but the nature this assimilation differs in the Goidelic and Brythonic branches.

IX.a. PHONETIC PROCESSES

In Welsh, a nasal consonant agreeing in place of articulation and voicing replaces the original consonant (Modern Welsh orthography):

$$\begin{bmatrix} -son \\ -cont \\ (\alpha \text{ vce}) \end{bmatrix} \rightarrow \begin{bmatrix} +son \\ +nas \\ (\alpha \text{ vce}) \end{bmatrix} \text{ // } \{\text{NAS}\}\_\_\_\_$$

This results in:

C	→	N	
‹p›	/p/	‹mh›	/m̥ʰ/
‹t›	/t/	‹nh›	/n̥ʰ/
‹c›	/k/	‹ngh›	/ŋ̊ʰ/
‹b›	/b/	‹m›	/m/
‹d›	/d/	‹n›	/n/
‹g›	/g/	‹ng›	/ŋ/

(aspiration is a feature concomitant with the voicelessness of nasals)

In Irish original voiceless consonants become voiced [1]:

$$\begin{bmatrix} -son \\ -vce \end{bmatrix} \rightarrow [+vce] \text{ // } \{\text{NAS}\}\_\_\_\_$$

$$< if \ +cont >$$

$$< then \ +lab >$$

[1] Citations forms are in Old Irish orthography followed by Modern Irish where different.

This results in: Ç → Ç̊

‹p› /p/ → ‹p› ‹bp› /b/
‹t› /t/ → ‹t› ‹dt› /d/
‹c› /k/ → ‹c› ‹gc› /g/
‹f› /f / → ‹f› ‹bhf› /v/

‹s› /s/ → ‹s› /*z/ → /s/

The non-existent phoneme /z/ reverts back to /s/ except in some Modern Irish dialects which have included it by analogy and English influence; see Appendix ii concerning *urú*.

and original voiced consonants become homorganic nasals:

$$\begin{bmatrix} -son \\ +vce \end{bmatrix} \rightarrow \begin{bmatrix} +son \\ +nas \end{bmatrix} \text{ // \{NAS\} } \underline{\quad\quad}$$

$$< \text{if } +\text{dental} >$$
$$< \text{then } +\text{lab} >$$
$$< \quad +\text{ tense} >$$

This results in: Ç̊ → N

‹b› /b/ → ‹mb› /m/
‹d› /d/ → ‹nd› /N/
‹g› /g/ → ‹ng› /ŋ/

The tense dental nasal /N/ prefixes to vowels:

$$\text{Ø} \rightarrow \begin{bmatrix} -syll \\ +son \\ +cons \\ +nas \\ +ant \\ +cor \\ +tense \end{bmatrix} + \begin{bmatrix} +syll \\ +son \\ -cons \end{bmatrix} \text{ // \{NAS\} } \underline{\quad\quad}$$

This results in:

#V → ‹nV› NV

The original nasal which triggered NAS left this /N/ as a relic.

The NAS rule for consonants can be conflated into a single rule:

$$\begin{bmatrix} -son \\ \alpha\ vce \end{bmatrix} \rightarrow \begin{bmatrix} \alpha\ \text{son} \\ +\ \text{vce} \\ \alpha\ \text{nas} \end{bmatrix} \text{ // } \{\text{NAS}\} \text{ ——}$$

Thus:

‹p› /p/	→	‹p› ‹bp› /b/
‹t› /t/	→	‹t› ‹dt› /d/
‹c› /k/	→	‹c› ‹gc› /g/
‹f› /f /	→	‹f› ‹bhf› /v/
‹b› /b/	→	‹mb› /m/
‹d› /d/	→	‹nd› /N/
‹g› /g/	→	‹ng› /ŋ/

In Early Old Irish the voiced consonants likely remained after the nasal, but by the Classical Old Irish period had assimilated into it (i.e. /mb/ → /m/). The nasal, always /N/, varying in palatal and non-palatal varieties depending on the initial underlying vowel, remains/inserts (depending on viewing the process diachronically or synchronically) before a vowel.

Examples of Old Irish NAS with reconstructed Proto-Goidelic forms adapted from Stifter:

NEUT nominative/accusative singular:

Old Irish	*a **c**enn **mb**án*	[a ɟen̪ʸ **m**(b)a:nʸ]	/k/ → [g]
Proto-Goidelic	/*sosin kʷennan bānan/	‘the white/fair head’	n#b→mb→/m/

MASC accusative singular:

Old Irish	*in **n**-ech **mb**ecc*	[ɪn̪ʸ n̪ʲex **m**(b)eg]	n#V → nV
Proto-Goidelic	/*sindan ekʷan biggan/	‘the small horse’	n#b→mb→/m/
Old Irish	*in **f**er*	[ɪn̪ʸ **v**ʲeɾʸ]	/f/ → [v]
Proto-Goidelic	/*sindan u̯iran/	‘the man’	

MASC/FEM/NEUT genitive plural:

Old Irish	*inna **n**-ingen **nd**ían*	[ɪn̪ʸə n̪ʲɪnʲɣʲɛnʸ n̪ʲ(dʲ)i:ənʸ]	n#V → nV
Proto-Goidelic	/*sindān inigenan deiwanan/	‘of the swift daughters’	n#d→nd→n

Old Irish	*inna **t**úath **n**gel*	[ɪn̪ʸə **d**u:əθ **ŋ**ʲ(ɟ)ɛlʸ]	/t/ → [d]
Proto-Goidelic	/*sindān tou̯tan gelan/	‘of the bright people/tribe’ n#g→ŋg→ŋ	

preposition /in/ ‘in’:

Modern Irish	*i **d**Teamhair*	[ə **d**ʲau̯ɾʲ]	
Old Irish	*hi Temraig*	[ɪ **d**ʲɛµɾəɣʲ]	/t/ → [d]
Proto-Goidelic	/*in temurī~ē → in temurike/	‘in Tara’	

Mutation after numbers—compare these three numbers, and the three mutations which follow them, denoted by superscripted ^{L} for LEN, ^{H} for gemination and ^{N} for NAS:

	Old Irish		**Primitive Irish** [2]	
5	*cóic* ^{L}	[ko:ɟ]	*k^{w}og^{w}e	vowel
6	*sé* ^{H}	[ʃe:]	*su̯eh	h (<χs)
7	*secht* ^{N}	[ʃext]	*seχten	nasal

Examples demonstrating the mutational effects of these numerals (my examples):

LEN:	*cóic baí*	[ko:ɟ **β**aɪ̯]	‘five cows’	b→β
	cóic aidchi	[ko:ɟ aðʲçi]	‘five nights’	no change
GEM:	*sé (b)báí*	[ʃe: baɪ̯]	‘six cows’	b→bb→b
	sé aidchi	[ʃe: **h**aðʲçi]	‘six nights’	V→hV
NAS:	*secht mbaí*	[ʃext **m**(b)aɪ̯]	‘seven cows’	b→mb→m
	secht n- aidchi	[ʃext **n̪**ʸaðʲçi]	‘seven nights’	V → nV

N.B. *cóic* and *sé* cause nasalization when the NP functions in the genitive (Stifter p. 117).

cóic mbó	[ko:ɟ m(b)o:]	‘of five cows’
sé mbó	[ʃe: m(b)o:]	‘of six cows’

[2] Primitive Irish from Stifter, p. 116

IX.b. WORD-INTERNAL NASALIZATION IN GOIDELIC: [3]

Historical development:

Following a nasal the voiceless stops, /k/ and /t/, became geminated to /kk/ and /tt/. Then the nasal "coalesced" with the vowel producing a nasal vowel. Next the voiceless geminates /kk/ and /tt/ became voiced when following the nasal vowels - /gg/ and /dd/. Later nasal vowels lost their nasal qualities and became normal oral vowels; /ã/, however, merged with/ẽ/ to produce a long or short /e/. (These same phonological changes once occurred across certain word boundries, causing the nasal mutation).

Thus:

*onk → *onkk → *õkk → *õgg → *ogg → og

*ant → *ant → *ãtt → *ãdd → (*æ̃dd) → *ēdd (or *ĕdd) → ēd (or ĕd)

After syncope occurred, any new/nt/ and /nk/ did not change, for example:

cinta [cinʸta] 'faults' < *cinuth-a.

This parallels the voicing which occurs initially under the nasal mutation, which also occurs to /f/ (actually the earlier /w/ remaining: refer to: GOI §236; Cowgil (1967)) and the borrowed phoneme /p/.

Word internally, all nasals of whatever origin assimilate before /b/, /d/, /g/ to /m/, /n/, /ŋ/ respectively. However, again, this does not apply when the contact originates from syncope—further proof that the mutation was fixed before syncope took place:

náimtea/náimdea	[n̪ʸa:μʲdʲa]	'enemy ACC.PL'
	#[n̪ʸa:n̪ʲdʲa]	
< *námaitea	[n̪ʸa:μaðʲa]	

The Old Irish orthographical word ‹ingen› actually represents two different non-homophonic words and shows the limitations of Old Irish orthography. One the one hand, it can represent a word whose nasal /n/ has assimilated with the following velar:

ingen [ɪŋʲɟɛnʸ] '(finger) nail'

c.f Modern Irish *ionga* [ʊŋgə] & Latin *unguis*

On the other hand, it can also represent a word in which the /n/ and lenited /g/ have come together due to syncope. Here no assimilation of the /n/ and /ɣ/ occurs:

ingen [ɪnʲɣʲɛn] 'daughter'

---

[3] based on, and examples from, GOI §207-208

< Ogham Irish INIGENA

c.f. Modern Irish *ínían* [ɪnʲi:n̪ˠ] [4] (*inghean* in the older orthography)

Hence, nasals disappear before /t/ and /k/, which in turn become their corresponding voiced geminate (i.e. unlenited) counterparts /dd/ and /gg/, which then are de-geminated to /d/ and /g/: Examples:

•3rd plural verbal endings:

-(a)it	[əðʲ]	< *anti	(absolute)
-(a)t	[əd]	< *ant	(conjunct)

c.f. Welsh *carant* [karant] 'they love' and Latin *amant* 'they love'

•*cotlud* [kodluð] 'sleeping' < *con-tolud
(verbal noun of *con·tuili* [konˈtulʲi] 'sleeps')

•*cét* [ce:d] 'hundred' < *k̂n̥tóm / *k̂m̥tóm [5]

•*éc* [e:g] 'death' (related to Breton *ankou* < NOM.PL *ŋ̊kewes – owes)

IX.c. NASALIZATION IN BRYTHONIC

The Brythonic languages make much less use of nasalization than do the Goidelic tongues. Welsh alone in the Brythonic branch uses nasalization as an initial mutation. This likely reflects dialectal differences in Primitive British which separate Welsh from the S.W. dialects which would develop into Cornish and Breton.

According to Jackson in LHB (p. 639-43), the internal sandhi of a nasal and a voiced stop in Brythonic parallels the Goidelic treatment. Thus, /mb/, /nd/ and /ŋg/ develop into /m(m)/, /n(n)/ and /ŋ(ŋ)/. He dates this change from around the end of the 5th to end of the 6th century. Voiceless stops preceded by a nasal receive special treatment in Welsh, which contrasts to their behaviour in the other Brythonic languages and in Goidelic. During the 8th to early 9th century,

[4] *ínín* [ɪnʲi:nʲ] in Cois Fhairrge

[5] c.f Modern Irish *céad* [ce:d]; Welsh *cant* [kant]

word internal /mp/, /nt/ and /ŋk/ developed into their corresponding aspirated nasals /mh/, /nh/ and /ŋh/ through an intermediate stage of /mᵖh/, /nᵗh/ and /ŋᵏh/ (LHB, p. 506). Attested orthographical forms such as *pimphet* 'fifth' in an Old Welsh gloss dating to 820AD, presumably representing [pimᵖhɛd], point to this intermediate form between /mp/ and /mh/. Jackson does not mention it, but at some stage, in at least some dialects, the nasals became voiceless (i.e. /m̥h/) as well (see Appendix vii). Compare the different realizations of nasalization of the Brythonic cluster *mp and the Goidelic cluster *ŋk in the development of Proto-Celtic *kʷinkʷetos 'fifth' and (some forms adapted from Stifter, GOI, GMW):

Proto-Celtic	*kʷinkʷetos	'fifth'
Gaulish	PINPETOS	
Brythonic	*pinpetos > *pimpetəΣ	
Middle Welsh	*pymhet*	[pɨmhɛd]
Modern Welsh	*pumed*	[pɪmɛd]
Modern Breton	*pemp(v)et*	[pɛmp(v)ɛt]
Goidelic	*kʷōgʷeθah	
Old Irish	*cóiced*	[koːɟəð]
Modern Irish	*cúigiú*	[kuːɟuː]
Scottish Gaelic	*còigeamh*	[kʰoːg̊ʲuː]

Lewis and Pedersen (§70.2), however, takes a different view. Namely, that /mp/, /nt/ and /ŋk/ developed to /mh/, /nh/ and /ŋh/ through /mφ/, /nθ/ and /ŋx/. The reasoning for this view stems from forms such as *mathru* [maθrʉ] and *cathl* [kaθl] whose combinations /θr/ and /θl/ from original /ntr/ and /ntl/ which lost the nasal prior to the /mφ/, /nθ/, /ŋx/ stage. Thus, /ntr/ → /nθr/ → /θr/ and /ntl/ → /nθl/ → /θl/. But L&P also notes that *hanther* 'half' and *pimphet* most likely represent [hanhɛr] or [haⁿhɛr] and [pimhɛd] or [piᵐhɛd].

In Welsh similar changes occurred in external sandhi and resulted in initial nasal mutation. However, this nasal mutation does not occur in same situations in the other Brythonic languages. Jackson accounts for this by positing that the Western dialect of Late British (i.e. that would become Welsh) kept final nasals, but the South-Western dialect (which would lead to Cornish and Breton) reduced final –n "to some sort of denasalised catch" (LHB p. 640). In a footnote on the same page he further explains this as "presumably…a result of cutting of the air passage

through the nose before the *n* was complete, producing a kind of weak /^{d}/. This might be a stage in the loss of final –*n* in SW.Brit." The disappearance of the finals nasal permitted these words to generate the same effect as geminated and thus they came to cause the spirant mutation.

To illustrate this, I adapt some examples from Jackson (LHB p. 640-641) which look at the nasalization effects that the Primitive British words *ĭn 'in' and *men < *mene 'my' have on words which follow them in different periods of the linguistic development in both Welsh British and South-West British: (I change many of his phonetic symbols to IPA.)

West British:

early 5th century:

	*ɪn-tigəΣ [6]	'in a house'
	*mɪn- tigəΣ	'my house'
	*ɪn-donʲ̯ü	'in a man'
	*mɪn-donʲ̯əΣ	'my man'

early 6th century:

	*ɪn-tiɣə(Σ)	
	*mɪn- tiɣə(Σ)	
+ NAS	*ɪ-nn^{d}un^{j}i	
+ NAS	*mɪ-nn^{d}un^{j}ʲ̯ə(Σ)	

early 9th century:

+ NAS	*ɪ-nhï(ɣ)	
+ NAS	*ṽɪ-nhï(ɣ)	

[6] Jackson uses Σ to denote some sound intermediate between /s/ and /h/ and speculates that it was "perhaps a strongly aspirate [ʃh] ?" (LHB §115).

* ɪ-nïn

* ṽɪ-nïn

compare Modern Welsh:

**yn nhŷ* [7] {tŷ}

fy nhŷ

**yn nyn* [7] {dyn}

fy nyn

South-West British, in contrast, lost the nasal early and thus these words caused gemination—presumably due to the denasalized "catch":

μɪ-ttiɣə(Σ) [8] (vs. West British *mɪn- tiɣə(Σ), etc.)

μɪ-ddunʲi̯ə(Σ)

These later developed into the Cornish:

ow thy

ow den

and the Breton:

va thi (→ *va zi*)

va den

The nasal mutation in Welsh, unlike in Irish (and Scottish), does not seem to apply to vowels or other consonants, to which one might expect a prefixed -n. Although not orthographically represented as a mutation, *yn* 'in' (which was *yn* or sometimes *y* in Middle Welsh) does retain the nasal before a vowel:

yn Iwerddon [əni:wɛrðɔn] 'in Ireland'

(rather than *y nIwerddon*)

---

[7] *yn nhŷ and yn nyn* are hypothetical forms in Modern Welsh, for Modern Welsh does not permit use of *yn* with indefinite nouns, but uses *mewn* [mɛu̯n] instead: *mewn tŷ* and *mewn dyn*.

[8] presumably through μɪ[d]-tiɣəΣ

compare the Irish:

in Éirinn [əˈn̪ʲeːɾʲən̪ʲ] 'in Ireland'

(rather than *i nÉirinn*)

in which the mutation appears in writing by retaining the original final nasal on the preposition. In the case of this preposition, Modern Welsh "doubles" the nasal which results from NAS in the orthography. This assimilated nasal replaces the original /n/ of the preposition, i.e. *ym Moston* [əmostən] 'in Boston' and *yng Nghymru* [əŋ̊ʰəmriː] 'in Wales'.

In southern dialects of Modern Welsh 'my' displays the retained historical nasal in the form *(f)yn* [(v)ən] alongside than the standard *fy* [və]. Speakers employ this variant especially before vowels and consonants which do not participate in the nasal mutation:

fyn (or *'yn*) *enw*	[(v)ən ɛnuː]	'my name'
fyn chwaer	[(v)ən ʍaːr]	'my sister'
fyn llygad	[(v)ən ɬəgad]	'my eye'

This form displays the (expected) presence of a nasal before vowels.

IX.d. SCOTTISH GAELIC INNOVATIONS IN NASALIZATION

In Scottish Gaelic [9] the nasal mutation does not operate the same way as it does in Irish. Overall Scottish Gaelic has not preserved the historical *urú* as it developed Irish. Some petrified forms can be found, such as *a(m) bheil* [ə(m) vɛlʲ] the question form of the present tense of the substantive verb 'to be' (for *a(m) bhfèil* compare Irish *an bhfuil* [ə wɪlʲ]) and *a-bhos* 'over here' = **a-bhfos*. Furthermore, nasalization sometimes has persisted, but before vowels only, compare:

Scottish Gaelic	*ar* ***n****-athair*	[aɾˠ n̪ˠahəɾʲ]	'our father'
Irish	*ár* ***n****-athair*	[aːɾˠ n̪ˠæː(hə)ɾʲ] [10]	

with

Scottish Gaelic	*ar bàta*	[aɾˠ b̥aːʰtʰə]	'our boat'
Irish	*ár* ***mb****ád*	[aːɾˠ mɑːd]	

[9] For Scottish Gaelic transcriptions, whether my own or adapted from other sources, I use IPA following Akerbeltz: http://www.akerbeltz.org/fuaimean/fuaimean.htm

[10] ár 'our' often pronounced [ə] in Conamara

Three systems of Scottish Gaelic nasalization due to dialectal variation (adapted from Gillies, p. 168-9):

radical	orthography	ScG1	ScG2	ScG3
p	-m p-	/mp/	/mh/	/mb^{h}/
t	-n t-	/nt/	/nh/	/nd^{h}/
k	-n c-	/ŋk/	/ŋh/	/ŋg^{h}/
f	-m f-	/mf/	[11]	[11]
b	-m b-	/mb/	/m/	/mb/
d	-n d-	/nd/	/n/	/nd/
g	-n g-	/ŋg/	/ŋ/	/ŋg/

ScG1 represents a system in which the final nasal and initial consonant did not merge into a single sound (like they regularly due in Irish NAS) (Ball / Müller, p. 49). Gillies posits that ScG1 was an early Scottish system, still preserved in some dialects, but which also developed further into the ScG2 and ScG3 systems. In all of the these the nasal assimilation must have taken place after the loss of final syllables, for Scottish NAS applies in circumstances which lack historical justification according to normal NAS. Consequently, this contrasts with Irish, whose nasal mutation applies not after nasals in the modern language, but to final nasals of the Primitive Irish period:

Scottish (ScG1)		**Irish**		
an cat	[əŋ ka^{h}t]	*an cat*	[ə(n̪^{ʏ}) kʊt]	'the cat'
nan cat	[nəŋ ka^{h}t]	*na gcat*	[n̪^{ʏ}ə gʊt]	'of the cats'

Hence, Scottish nasalization is a surface level phonetic phenomenon and in many ways allomorphic variation characterizes nasalization in Scottish Gaelic just like it did in Archaic

[11] Gillies states that the modern language general omits /f/ from the nasalization mutational system However, he notes that in Perkshire it does become voiced (as /s/ does in this dialect) (p. 169). Thus, -m f- → /mv/. In Borgstrøm (1940 &1941) it seems as if there is no nasal mutation of /f/, but that the nasal /m/ of the standard language does not appear before it; for example, *nam faoileag(an)* 'of the seagulls' would be pronounced [n^{ʏ}ə fɯ:ʲak(ən^{ʏ})] in Barra without the /m/ (1940, p. 183). Compare the Irish *na bhfaoileán* [n̪^{ʏ}ə wi:ʲɑ:n̪^{ʏ}]. However, I did find something in Borgstrøm (1940) that suggested a mutation similar to the Irish one the Gaelic place name (an island in the Outer Hebrides) that English borrowed as Benbecula, is spelled *Beinn nam faoghla* or *Beinn-a'-bh-faoghla* and always pronounced with the nasalized (voiced) /f/: [b̥e(i) n̪^{ʲ}ə^{l}ʏɤ:l̪^{ʏ}ə]. *Beinn na Faoghla* is the form that appears on modern maps such as the *Tìr Chaluim Chille* all-Gaelic map of Ireland and Scotland - http://www.colmcille.net/map-intro.html.

Irish, being dependent on the phonetic environment only. A visible trigger exists. However, at least in some dialects mutation carries grammatical meaning with it. In East Sutherland Gaelic (a now all-but, if not completely, extinct dialect), definiteness of masculine singular nouns can be shown by this nasal mutation alone. The article *an* which caused NAS may sometimes drop in speech (see below), leaving the mutation alone to signifiny definiteness and masculine gender. The mutation here does not look like any of the systems proposed by Gillies, but rather similar to the Irish one (examples adapted from Dorian, p. 46 & 72):

tìr	[tʃ^{h}i:r]	‘land’
an tìr	[(ən) **dʒ**i:r]	‘the land’
peann	[p^{h}ɛ̃n]	‘pen’
am peann	[(əm) **b**ɛ̃n]	‘the pen’
burn	[pu:rn^{ɣ}]	‘water’
am burn	[əm **b**u:rn^{ɣ}]	‘the water’
geata	[kɛt^{h}]	‘gate’
an geata	[ən **g**ɛt^{h}]	‘the gate’

Dorian sometimes omits the definite in the transcriptions and does not comment on its actual absence or presence in speech. So the mutation *may* be enough to signify definiteness.

On the basis these forms which presents another variation of Scottish nasalization, I add “ScG4” the chart (ScG 4 Sutherland nasalization from Dorian, p. 71-2):

radical	orthography	ScG1	ScG2	ScG3	**ScG4**
p	-m p-	/mp/	/mh/	/mb^{h}/	/(m)b/
t	-n t-	/nt/	/nh/	/nd^{h}/	/(n)d/
k	-n c-	/ŋk/	/ŋh/	/ŋg^{h}/	/(ŋ)g/
f	-m f-	/mf/	[1]	[1]	/nØ/ ~ /f/
b	-m b-	/mb/	/m/	/mb/	/mb/
d	-n d-	/nd/	/n/	/nd/	/nd/
g	-n g-	/ŋg/	/ŋ/	/ŋg/	/ŋg/
s	-n s-				/s/ ~/nd/
ʃ	-n s-				/nʃ/ ~ /ndʒ/ (verbs only)

To exemplify the unique optional changes to /f/, /s/ and / ʃ/ (examples from Dorian, p. 72):

fear	[fɛrʸ]	‘fellow’	
am fear	[ənʸ ɛrʸ] ~ [ə fɛrʸ]	‘the fellow’	/nØ/ ~ /f/
solas	[sɔl̪ʸəs]	‘light’	
an solas	[ənʸ dɔl̪ʸəs] ~ [ə sɔl̪ʸəs]	‘the light’	/s/ ~/nd/
seòlaidh	[ʃoːl̪ʸi]	‘X will sail’	
an seòl?	[ənʸ ʃoːl̪ʸ] ~ [ənʸ ʤoːl̪ʸ]	‘will X sail?’	/nʃ/ ~ /nʤ/

Gillies also provides an example of nasal mutation functioning as an optional marker for definiteness of masculine singular nouns in the ScG2 system of Lewis and parts of Skye (Ball/Fife, p. 169)—

am balach	[(ə) **m**al̪ʸəx]	‘the boy’

In the East Ross dialect (Watson, SnaG, p. 675):

am pòg	[**b̥**oːg]	‘the kiss’ (*pòg* [pʰoːg] ‘(a) kiss’)
am bò	[**b̥**oː]	‘the cow’ (*bò* [b̥oː] ‘(a) cow’)

Regarding this ScG2 system found in Lewis, parts of the Isle of Skye and in the West of Sutherland (i.e the North Hebrides and North-West mainland), Seosamh Watson’s transliterations in SnaG (p. 675) imply that some of the stop does survive—here in the speech of Lewis:

an toll	[ə **n̪ʸᵗʰ**ɔul̪ʸ]	‘the hole’
an gille	[ə **ŋʲᵍ**il̪ʲə] [12]	‘the lad’
an cuala	[ə **ŋᵍʰ**uəl̪ʸə]	‘did X hear?’
am bàta	[ə **m**ᵇɑːʰtə]	‘the boat’

Borgstrøm’s (1940) account of Lewis Gaelic agrees with Watson’s transcriptons of nasalized consonants. Additionally he notes that speakers often omit the [ə] of the definite article; the mutation alone can serve to indicate the definiteness. However, in the dialects of the Southern Outer Hebrides, such as Barra, he states that in contrast to Lewis the stop dominates rather than

[12] Watson has [ə ŋʲᵍʰil̪ʲə], but I take the aspiration to be an error here.

the nasal in these dialects; namely ^{N}C in Barra rather than N^{C} (p. 131). The corresponding Barra forms of the above would be (I transcribed *an cuala* following his system; p. 131 for the rest):

an toll	[ə ᴺd̥ʰn̥ul̪ʸ]	'the hole'
an gille	[ə ᵑg̊ʲiL̪ʲɔ̆] [13]	'the lad'
an cuala	[ə ᵑg̊ʰuəl̪ʸɔ̆]	'did X hear?'
am bàta	[ə ᵐb̥ɑ:htɔ̆]	'the boat'

A similar type of active assimilation can happen in Cois Fhairrge Irish as well where /n/ becomes /ŋ/ before velars (de Bhaldraithe (1975), p. 51):

an ghaoth [əŋ ɣi:] 'the wind'

Typically the nasal of the definite article drops completely:

an ghaoth [ə ɣi:]

This dropping of the definite article's final nasal is obligatory in Scottish Gaelic when the article triggers lenition—in this case after the nominative singular feminine:

a' ghaoth [ə ɣɯ:] 'the wind'

de Bhaldraithe (p. 51) exemplifies that in Cois Fhairrge Irish this external sandhi assimilation that takes whenever contact occurs between a nasal and a velar at word boundries:

thug	*sé*	*móin*	*go*	*Gaillimh*
give.PST	SG3.NOM	turf	to	Galway

[hug ʃe mu:ŋ gə ga:l̪ʲə]

'He brought the turf to Galway

Here the final [nʲ] of *móin* [mu:nʲ] becomes the velar [ŋ] and is depalatalized due to the influence of the following [g]. In Irish this represents a very surface level rule of natural colloquial speech and does not exhibit a significance to meaning like *urú* does in Irish or SG – NAS after the definite article does in Scottish Gaelic.

Returning to the Scottish phenomenon, Jackson (LHB p. 500-1) describes the ScG2 nasalization and notes variation in how scholars have transcribed them. What does the /mp/ combination in *am port* really sound like? — /mh/, /mᵖh/, /mm̊h/ or /m̊h/? Interestingly, the progression from

[13] [ɔ̆] represents a schwa sound which has been retracted to low back, and which is not round. It represents a distinctive feature of the Barra accent and is only used "in pausa" (Borgstrøm (1940) p. 151).

/mp/ of ScG1 to the /mʰh/ ~ /mh/ of ScG2 looks remarkably like the development he proposed of the nasal mutation of voiceless stops in Welsh! In fact, Ó Máille (1927) treats them as as '*fá anáil*' (voicless) rather than aspirated nasals—e.g. [ə n̊ʲɛm] for *an ceum* 'the footstep' transcribing the speech of a man from the Isle of Skye (p. 22)—paralleling some of the variations in the treatment of the Welsh "voiceless" nasals; see discussion above and Appendix vii.

Not generally recognized by the standard language, dialectically some irregular Scottish Gaelic verbs preserve a fossilized nasalization of the dependant verbal form: [14]

	Standard	**Skye**	**Ross-shire**	**East Sutherland**	
tháinig	[ha:nʲəg̊ʲ]	[ha:nikʲ]	[hɛ:nikʲ] [15]	[hã:nig]	'came'
cha tàinig [16]	[xa tʰa:nʲəg̊ʲ]	[xa d̥a:nikʲ]	[ha d̥ɛ:nikʲ]	[(x)a t̃ã:nig]	'did not come'
thig	[hɪg̊ʲ]	[hikʲ]	[hikʲ]	[hig]	'will come'
cha tig [16]	[xa tʃʰɪg̊]	[xa d̥ʲʒikʲ]	[ha d̥ʲikʲ]	[(x)a tʃʰig] *	'will not come'

	Barra	**Bernera, Lewis**	
tháinig	[ha:nikʲ]	[ha:nikʲ]	'came'
cha tàinig	[xa d̥a:nikʲ]	[xa d̥a:nikʲ]	'did not come'
thig	[hikʲ]	[hɪg̊ʲ]	'will come'
cha tig	[xa d̥ʲʒikʲ]	[xa d̥ʲig̊ʲ]	'will not come'

* Note that the form [(x)a tʃʰig] does not display nasalization as evidences by the presence of aspiration. This form corresponds to the "standard" language upon which the orthography is bases. If this were nasalized, one would expect a form such as [(x)a tʃig] or [(x)a ʤig].

The fact that Skye, Ross-shire, Barra and Lewis have [d̥] (i.e. unapsirated [t], the normal reflex of ‹d› /d/) in the dependent forms of this verb after the negative particle *cha* contrasts with the

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[14] (Skye and Ross-shire transcriptions adapted from Borgstrøm 1941, p. 56 & 122; Sutherland transcriptions adapted from Dorian, 1978, p. 120 & 125; Lewis and Barra transcriptions from Borgstrøm 1940, p. 117 & 197).

[15] [hɛ:nikʲ] in Red Point (*An Ruadha Dearg*); [ha:nikʲ] in Aultbea (*An t-Allt Beithe*)

[16] The Scottish Gaelic Orthographical Conventions 2005, published by *Ùghdarras Theisteanas na h-Alba*, support these orthographical forms.

typical aspirated [t^h] found, supported by the orthography, in the standard language. Sutherland Gaelic (represented in Dorian's study by speakers from the North East coast of Scotland), a practically dead dialect, exhibits more variation with aspiration of the /t/ in *tig* but not in *tàinig*. In this dialect the fixed nasalization only operates in the past tense form.

The dependent forms are sometimes spelled *dig*, *d'tig* or *d'thig* and *dàinig* or *d'tàinig* dialectally in Scottish to reflect this remnant of eclipsis after *cha*. c.f. Ulster Irish :

*cha **dt**anaic*	[ha danʏəc]	'did not come'
*cha **dt**ig(eann)*	[ha dʲɪɟ(əɲ̈ʏ)]	'does not come/ will not come' [17]

(Ó Baoil, p. 48-49)

versus Conamara:

*ní(or) **th**áinic*	[ɲ̈ʲi:(ɾʏ) hɑ:nʲəc]	'did not come'
*ní **th**eagann*	[ɲ̈ʲi: hæ:gəɲ̈ʏ]	'does not come'

(Ó Murchú, *An teanga bheo*, p. 47 & Ó Siadhail, *Learning Irish* p. 150-151)

and the Caighdeán (standard) / Munster forms:

*níor **th**áinig*	[ɲ̈ʲi:ɾʏ ha:nʲəɟ]	'did not come'
*ní **th**agann*	[ɲ̈ʲi: hagənʏ]	'does not come'

Manx follows Scottish Gaelic:

*cha **d**aink*	[xa dæ:ŋʲc]	'did not come'
*cha **j**ig*	[xa ʤiɟ]	'will not come'

(SnaG, Willaims, p. 727)

Old Irish for comparison [18]:

ní·tánai(c)c	[ɲ̈ʲi:ˈta:nʏəɟ]	'did not come'
ní·ti(c)c	[ɲ̈ʲi:ˈtʲiɟ]	'does not come'

[17] The Scottish Gaelic future tense (i.e. *thig* here) derives from the original present tense (*tig*). In Ulster Irish the present tense negated by *cha* rather than *ní* can optionally stand for the future tense. Thus *ní thig(eann)* [ɲ̈ʲi: hɪɟ(əɲ̈ʏ] only means 'does not come'. Of course, Ulster Irish may also have *ní(or) thanaic* [ɲ̈ʲi:(ɾʏ) hanʏəc] 'did not come' and a distinct future *ní thioca* [ɲ̈ʲi: hjʊkə] 'will not come' (in the standard orthography *ní thiocfaidh*) as well (Ó Baoil, p. 48-49). This use of *cha* and the *cha* + present to mean future occurs in Tory especially.

[18] Old Irish had GEM, not LEN, after *ní* for LEN had yet to become a general marker of the past tense.

X. LOAN WORDS AND LENITION

Everyone knows that Saint Patrick, of Romano-British heritage, is the patron saint of Ireland [1] (died 461 or 493 AD according to the Annuls of Ulster (CELT), although scholars debate the accuracy of this and to exactly what period he belonged). But what is the history of his name, especially considering that Irish originally had no native words with an initial /p/ until later loan words? The name 'Patrick' originates from the Latin *Patricius* meaning 'noble' and in Modern Irish the name is *Pádraig* [pɑːrəc] / [paːdrəɟ]. But how did Saint Patrick pronounce his own name? How did the Irish to whom he brought the Gospel say it? How did the name develop over time? After looking at issues surrounding the name *Patrick* in Irish, we will consider its broader implications for Latin loan words into Irish, the influence of Brythonic, and mutations in both Brythonic and Goidelic.

X.a. *COTHRAIGE* VERSUS *PATRAIC*

The Old Irish language possessed two forms of *Patrick*—namely *Cothraige* [2] [k(ʷ)oθrəɣʲɛ] and *Pátraic* [paːdrəɟ]. Scholarship debates the accuracy of the versions of *Cothraige* / *Coithirche* and whether or not they actually reflect the Latin *Patricius*. Ó Riain's article 'When and why *Cothraige* was first equated with *Patricius*?' argues that *Cothraige* was a native Irish place/tribal name which later in the Middle Ages became associated with the saint and assumed to be the earliest Irish version of the Latin *Patricius*.

All in all, the plethora of forms of the name indicate, at the very least, that scribes in the later manuscript tradition were unfamiliar with *Cothraige* as connected to *Pátraic* and *Patricius*. For example, the 15th century *Betha Phatraic* [3] 'Life of Patrick' from *An Leabhar Breac*, considers *Pátraic* and *Cothraige* as two separate and unrelated names for Saint Patrick:

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[1] see O'Rahilly, *The Two Patricks: A Lecture on the History of Christianity in Fifth-Century Ireland* for more on Saint Patrick and the time in which he lived, and the possibility that were two men who became confused as one.

[2] with many variants (some presumably purly orthographical) such as *Quotirche* and *Quagrige* in Colgan's *Secunda Vita Patricii* (GOI §920); *Co(i)thirche*, *Caithirche*, *Cotirche*, the Latinized *Quadriga(e/m), Cottihrge*, *Cotthirge*, *Co(n)t(h)irge*, *Choytirge* and *Contice*, *Kothraige*, *Codrige*, *Coathraige*, *Cathirge*, *Cothrige*, *Cotraige* and *Codraidi* (Uhlich). *Cothraige* and *Coithirche/Cothairche* seem to be the most commonly assumed Early Old Irish forms.

[3] the language contained in the manuscript is actually Middle Irish (10th-12th centuries), pointing to an earlier source.

> Do fhognad tra Patraic don rig & dia triur bráthar. Conid aire sin tuccad fair in n-ainm is **Cothraige .i. mog cethrair**. Batar *din*o .íiiií. h-anmand fair .i. Succait a ainmm *o thustidib*. **Cothraige dia m-boi oc fognum don cethrur**. Magonius .i. magis agens a ainm ic German. **Patricius .i. pater ciuium** .i. athair na catharda a ainm ic *c*omorba Petair .i. Celis*tinus*.
>
> (http://www.ucc.ie/celt/published/G201009/index.html)
>
> *Betha Phatraic (LB p. 24b-29b)* (Author: [unknown]) CELT: The Corpus of Electronic Texts

As translated by Stokes:

> Now Patrick served the king and his three brothers, wherefore there was given unto him the name **of Cothraige, that is, the slave of four persons**. Now four names had he, to wit, Succet, his name from his parents: **Cothraige, when he served the four persons:** Magonius (i.e.magis agens, his name with Germanus: **Patricius (that is, "father of citizens")** his name with Peter's successor, Celestinus.
>
> *On the Life of St. Patrick (Leabhar Breac)* (Author: Translated by Whitley Stokes) CELT: The Corpus of Electronic Texts
>
> (http://www.ucc.ie/celt/published/T201009/index.html)

Folk-etymology likely connected *Cothraige* to the story of Patrick's captivity because of its apparent similarity[4] to the number 'four' *cethair* [cɛθəɾʲ].

X.b. A PREHISTORY OF LENITION

First, in order to explain how *Patricius* could ever lead to a form such as *Cothraige,* one must take the historical development of Irish into account. Among other factors such as vowel changes, apocope, and lack of the phoneme /p/ in native words [5], internal LEN affected loan words in a similar manner to native ones. Thus loan words can actually help determine the period in time in which the consonant mutations occurred. In order for *Patricius* to participate in internal consonant mutation, it must have been borrowed before the mutation (in this case only LEN

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[4] probably connected with the popularity of folk-etymology for place names as evidenced by the extent of *DINDS(H)ENCHAS* [dʲiɲ̟ʲʃɛnˠəxəs ~ dʲiɲ̟ʲhɛnˠəxəs] 'typographical lore' in Medieval Irish literature.

[5] Celtic treatment of PIE */p/ according to Pederson (L&P § 25, 29-33): it first became the voiceless bilabial fricative */φ/, which in turn became /x/ before /s/ and /t/ and ø (through */h/) elsewhere. PIE */ph/ developed the same as */p/. Examples: internal PIE */p/ → Proto-Celtic ø : PIE **pə₂tr-* 'father' → OI *athair* [aθəɾʲ] 'father'. Intervocalically, *qapero- → OI *cáera* [kaɪ̯ra] 'sheep'. */pt/ → Goidelic /xt/: *septm̥- → OI *secht* [ʃɛxt] 'seven' (c.f. Gaulish *sextametos* 'seventh' & MidW *seith* [seɪ̯θ] 'seven' – here the /x/ was lost, but diphthongized the vowel). */ps/ → Proto-Celtic */xs/ → Goidelic /s/, Brythonic /χ/: *wops- → OI *ós, úas* [o:s, u:əs] 'above, over'; MidW *uch* [ʉχ] 'above, over'. For combinations with other consonants and vocalic changes associated with the loss of /p/, see L&P. Proto-Celtic */kʷ/ became /p/ in Brythonic and eventually /k/ in Goidelic; hence the P-Celtic / Q-Celtic designation for Brythonic and Goidelic languages.

applies) took place—or at least before the variation of lenited and unlenited consonants ceased to be allomorphic. When Primitive Irish borrowed *Patricius* [patrikiu̯us], the /p/ would have been "treated" as the native /kʷ/ [6], thereby retaining labial feature of the phoneme→ *[kʷatrikiu̯us]. (It seems unusual that the much closer sound /b/ was not reverted to instead; perhaps a correspondence between the Brythonic /p/ from /kʷ/ and the Irish /kʷ/ played a role.[7]) The languages would have been quite close during the 4th-5th centuries [8], and Saint Patrick and his British missionaries would have been speakers of both Brythonic and Goidelic—many of the Irish too who raided Britain and took British slaves would have likely been familiar with Brythonic, c.f. GOI §920.) The record shows correspondence of Latin /p/ and Goidelic /kʷ/ word initially. Since the normal reflex of /p/ in this position is Ø, Old Irish words beginning with /p/ must be loan words.

Furthermore, if the word *Patricius* were borrowed before LEN took place, it would fully participate in internal mutation just like any native word. This explains the /θ/ and /x/ in place of /t/ and /k/. Apocope caused the loss of final syllables from Primitive Irish to Old Irish, so

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[6] L&P §83.4, c.f. Ogam Irish QRIMITIR [kʷriμiθir], OI *cruimther* [krʸuμʲθərʸ] 'priest' vs. Early Welsh *primter* [priμdɛr]; all from Latin *presbyter*. (GOI (§223) states that Cormac's Glossary (211) notes that Old Irish modeled *cruimther* on Old Welsh *premter* [prɛμdɛr] ("Cruimther .i. gōidelg indī as prespiter. Premther di*diu* a combrec sidie…Nī tintūd cōir dondī as prespiter annī as c[h]ruimther. Is tintūd cōir dondī as premter indní as c[h]ruimther" (Meyer, p. 19)), which was from the Latin. DIL notes that the variant with an unlenited /m/ exists—*cruim(m)ther* [krumʲθʲərʸ]).

[7] GOI §920: "It may be assumed that in earlier borrowings *p* was as a rule replaced by *q* because of the old correspondence between Irish *q* and the *p* of native Britannic words."

Ex. Old Irish *cía* [ci:ə] vs. Welsh *pwy* [puʷi] 'who'; OI *cách* [ka:x] vs. W *pawb* [pau̯b] 'everyone'; OI *cenn* [cɛn̯ʸ] vs. W *pen* [pɛn] 'head'; OI *cethair* [cɛθərʲ] vs. W *pedwar* [pɛdu̯ar] 'four'; OI *cíall* [ci:əl̯ʸ] vs. W *pwyll* [puʷɨɬ] 'sense'. The /k/ was likely still [kʷ] during the time when these early borrowings occured and thus distinguished from the [k] that Welsh and Irish held in similar, c.f. OI *cú* [ku:] & W *ci* [ki:] 'dog, hound' and OI *cét* [ce:d] & W *cant* [kant] 'hundred'.

[8] as an example of the close similarity of Goidelic and Brythonic, take the oath of Saint Patrick *mo Dē Brōth* [mo ðʲe: bro:θ] 'by the judgment of God!', the Early Old Irish equivalent of the Old Welsh *muin Duiu Braut* [mʉu̯n (d)ʉu̯ʉ brau̯d]. Koch hypothesizes that the original Brythonic oath that Saint Patrick swore was /*mon·dẹ̄wəΣ brǫtəΣ/ [mondẹ:wəΣ brǫ:ḍəΣ] which was borrowed into Primitive Irish as /*mo·dẹ̄wəs brotə/ [moðẹ:wəΣ bro:ḍəΣ] which became *[moðẹ:wə bbro:θəh] in Late Primitive Irish (again with Σ representing some sort of stage between /s/ and /h/ as in LHB) (Koch, p. 180-181). Jackson in LHB (p. 633), contrasts and hypothesizes that Patrick spoke [μın dẹ̄wəΣ brǭdoΣ] in Late British, which Irish borrowed and Gaelicized the Primitive Welsh [*μı nᵈẹ̄w bbrǭd] into *mo Dé Bróth*. Cormac Úa Cuileannáin, in his glossary states that the original form Patrick said was *muin Duiu braut* which the Irish incorrectly say ("quod Scoti corrupte dicunt" / "is trūaill*ech* aderaid na Scoitica hé") as *modebroth* (Meyer, p. 72). It is fasincating how knowledge of the Brythonic could have persisted so long (into the 10th century).

now we should be at /*kʷaθrixiu̯e/ → later changes such as palatalization, vowel reduction, the replacement (voicing) of /xʲ/ with /ɣʲ/ in unstressed intervocalic syllables[9], the loss of labialization in /kʷ/ and the change from /a/ to /o/ [10] need not concern us here as they do not relate to consonant mutation. Thus, the normal development of Primitive Irish to Old Irish can derive /koθrəɣʲə/ from /patrikiu̯us/. As per Koch (p. 182-3), Harvey argues that a pre-LEN borrowing of *Patricius* into Primitive Irish should have yielded **Cothairche* (because of syncope and epenthesis), as if it had been from Proto-Celtic *kʷatrikjos. Koch (p. 183) postulates that it may have been the strong penultimate stress of Brythonic, in contrast to the strong initial stress of Goidelic, which blocked syncope and led to the from *Cothraige*. If Brythonic had its penultimate stress during Patrick's lifetime, this would have likely affected Brythons' pronunciation of Latin. If *Patricius* were pronounced /*patˈrikiu̯us/ in early (pre-lenition) British Latin—it may have kept its "strange" stress in Primitive Irish: /*kʷoθˈrixiu̯ah/ (Koch sites as "Archaic" *[kʰoθríχ'e]); which would cause Old Irish to keep the second syllable which would normally be susceptible to syncope (but likely reverting the stress to the first syllable post syncope—[ˈkoθrəɣʲɛ]). *Cothairche* [ˈkoθərʲçɛ] (with a "new" second syllable added to prevent the consonant combination /θrx/) could have still existed as a possible pronunciation as well.

The form *Pátraic* must have entered the Irish language in another manner and in another time. One must assume that the same LEN that happened in Brythonic also happened in British Latin and that the *Patricius* re-entered the Irish language through British Latin or Brythonic after the period of Irish LEN. Brythonic lenition (different from Goidelic LEN, see section IV.a), which voices voiceless stops, means that *Patricius* would probably have been pronounced /*pa(:)driu̯uh/ in British Latin (adapted from Koch, p. 67 & Uhlich, p. 63). When Irish which permits initial /p/, borrows this Brythonic influenced name it surfaces as the familiar [pa:drəɟ]. Internal lenition in Irish must have already ceased to be productive, for Irish lenition does not apply. Otherwise *[pa:ðrəɣʲ] would result.

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[9] c.f GOI §129 (also see §128 & §130)

[10] the labio-velar properties of the /k/ transferred to the vowel and thus the rounding (and raising) of /a/ occurred: [a] → [o] (probably through [ɒ]). „Dieses erklärt sich durch den Einfluß des labialen Elements des unmittelbar vorangehenden Labiovelars und kann als Labiovelarumlaut bezeichnet werden, also *kᵘa- > *kᵘo- " (Uhlich, p. 72).

X.b.1. KOCH

What implications do these forms have for lenition in Irish and Brythonic? Following Koch's attempts to unite the lenition in both branches of Insular Celtic languages, the British Latin pronunciation of *Patricius* would produce /*pa(:)d̥riǧiu̯uh/ rather than /*pa(:)drigiu̯uh/. Here follows a synopsis of his account of the stages of lenition (p. 198-199):

• "Old Celtic" LEN:

- stops had fortis (absolute initial position) and lenis (intervocalic and some other positions) allomorphs:

/k^w, k, t, b, d, g/ → fortis → /k^{wh}, k^h, t^h, b, d, g/

/k^w, k, t, b, d, g/ → lenis → /$ǧ^w$, ǧ, d̥, β, ð, ɣ/

-The opposition is basically between aspiration/non-aspiration in the case of formerly voiceless stops and between plosive and fricatives in the case of former voiced stops.

-In Brythonic /k^w/ : [k^{wh}, $ǧ^w$] → /p/ [p^h, b̥]

• "Late Primitive Irish Spirantisation":

-the voiceless lenis are even further lenited into fricatives:

[$ǧ^w$, ǧ, d̥] → [x^w, x, θ]

-Koch claims that they lost their [–cont] feature around the mid to late 5th century.

After apocope, the lenes/fortes allomorphs became phonemicized because they now contrasted. For example, /x/ could now occur in non-intervocalic positions—such as word-final position: c.f. Old Irish *líach* [l̪ʲi:əx] 'pain, sorrow, woe; ladle' [11] < Proto-Celtic *leika- (my reconstruction). Thus, /x/ was no longer an allomorphic variant of /k/, but could contrast and form a near minimal pair with *lecc* [l̪ʲɛk] 'slab of rock' (Modern *leac* [l̪ʲæ:k]) < *likkā, *l̥p-kā (MacBain, p. 225). Furthermore, the Old Irish forms *liacc* [l̪ʲiəg], genitive of *lie/lia* [l̪ʲie/l̪ʲia] 'stone' < *lēwink (MacBain p. 228) and *liaig* [l̪ʲi:əɣʲ] 'physician, leech' < *lī(φ)agi- (PCD) provide the contrast of the voiced velar phonemes. (I have adapted the Proto-Celtic reconstructions, unless otherwise notes, from MacBain.)

[11] Modern Irish distinguishes *liach* [l̪ʲi:əx] 'woe, sorrow, pain' and *liach* [l̪ʲi:əx] 'ladle' by their genitives and genders: *liaich* [l̪ʲi:əç] (masc.) and *léiche* [l̪ʲe:çə] (fem.) respectively. *Líach* 'ladle' varied with *líag* [l̪ʲi:əɣ] in Old Irish.

Thus, "Old Celtic lenition" was responsible for the form /*pa(:)d̥riǧ̊iuh/ in Welsh, which later then became [p^{h}a:drəɟ] in Irish. Although Koch does not mention it, his theory holds that /patrikiius/ became /*k^{w}ad̥riǧ̊ius/ on its way to *Cothraige* at some point in early Primitive Irish before "Late Primitive Irish Spirantisation" occurred and /d̥/ and /ǧ̊/ became /θ/ and /x/.

When Old Irish, in a post "Late Primitive Irish Spirantisation" stage, borrowed words from British Latin already affected by "Old Celtic lenition", the /d̥/ of British Latin sounded much closer to the native Irish /d/, which had newly developed from /*nt/, than to /θ/. All /d̥/'s in Irish had already changed to /θ/ and the change no longer productively affected the language word-internally. One might think that a voiceless /d̥/, i.e. /t/, would stay /t/, but in Koch's model the fortis version of Proto-Celtic *t was a distinctively aspirated /t^{h}/. Therefore, /d/ seemed a closer approximation. It is interesting to note that voiceless stops are still aspirated in Modern Irish, Scottish Gaelic and Welsh and in most Welsh and Gaelic dialects the "voiced stops" are actually unaspirated voiceless stops. In Irish "voiced stops" are semi-voiced or voiced.

Reflecting on Koch's arguments, the question of exactly when Patrick was borrowed for the second time in Old Irish, yielding *Pátraic*, still remains. If it was borrowed during the active LEN phase ("Late Primitive Irish Spirantisation") then there would have been allomorphic variation between /d̥/ and /θ/ and /ǧ̊/ and /x/ in that stage of Irish and one would expect 'Patrick' to participate in any sound change in a similar manner to native words. Since *Pátraic* obviously did not participate in this (which would have yielded the unattested /*paθrix/), is it possible that speakers of the time assumed that 'Patrick' contained voiced geminate stops /dd/ and /gg/ (because the variation between /d̥/ & /θ/ and /ǧ̊/ & /x/ was obviously absent), such as those resulting from *nt and *nk? A hypothetical /*pa:ddriggiiah/ would still produce [pa:drəɟ] though degemination. Or alternatively, if borrowed after the active internal operation of LEN in both Brythonic and Goidelic (both Old Celtic LEN and Late Prim. Irish spirantization), it would have simply transferred the /d̥/ to /d/ and /ǧ̊/ to /g/ as described above. Or, if Koch's threory is wrong and /d̥/ and /ǧ̊/ never existed, the form /pa:drəg^{j}/ could have kept the /d/ and /g/ found in the Brythonic pronunciation.

X.b.2 JACKSON

Jackson's earlier view of the prehistory of LEN (based upon his revised account in *Historical Phonology of Breton*, as given in Koch, p. 197-198) differs from Koch's and forces the

divergent lenitions of the Goidelic and Brythonic branches to develop independently during the same time period:

• Common Old Celtic LEN:

- Envitionmentally conditioned phonetic opposition of fortis (to which he only assignes an abstract phonetic value using uppercase letters) and lenis (no LEN in either the Brythonic or Goidelic sense involved):

/k^{w}, k, t, b, d, g/ → fortis → /K^{w}, K, T, B, D, G/
/k^{w}, k, t, b, d, g/ → lenis → /k^{w}, k, t, b, d, g/

• Around the late 5th century AD LEN occurred in both Goidelic and Brythonic to the lenis stops, but this mutation manifested itself in different ways in the case of original voiceless stops in the two branches:

– Late Primitive Irish:

/k^{w}, k, t, b, d, g/ → unlenited → /K^{w}, K, T, B, D, G/
/k^{w}, k, t, b, d, g/ → lenited → /**x^{w}, x, θ, β, ð, ɣ**/

– Late British (with /k^{w}/ → /p/):

/k^{w}, k, t, b, d, g/ → unlenited → /**P**, K, T, B, D, G/
/k^{w}, k, t, b, d, g/ → lenited → /**b, g, d, β, ð, ɣ**/

When /p/ became a phoneme of Irish, it followed the pattern and became /f/ under lenition. Koch does not mention it, but Jackson's theory must have the unlenited series realized as "normal" stops: /p, k^{w}, k, t, b, d, g/. Thus in Jackson's timeline, loans of the *Cothraige* type of loan words would have been borrowed before lenis consonants took different paths in the later part of the 5th century.

Approximate basic/combined stages in the two derivations of Patrick's Old Irish names (based on Koch's theory of LEN):

Changes (highlighting those relavant to LEN)	***Cothraige* (not assuming *Cothairche*)**	**Changes (highlighting those relavant to LEN)**	***Pátraic***
•Latin (British stress)	/patrikiu̯s/	•British Latin ("Old Celtic LEN)	/*p^{h}a(:)d̥riǥiu̯uh/
• "Old Celtic" LEN • /s/→ /h/ ·vowel change	/*k^{w}ad̥^{l}riǥiu̯ah/	•vocalic change	/*p^{h}a:d̥riǥiu̯ah/
• "Late Prim. Irish Spirantization"	/*k^{w}aθ^{l}rixiu̯ah/	•+vce: /Ç/ → /C/ •apocope •palatalization	/*p^{h}a:drɪg^{j}/
•transfer of +lab from /k/ to V: a→o •palatalization •vocalic change	/*k(^{w})oθ^{l}rix^{j}eu̯ah/	→ late classical OI	[p^{h}a:drəɟ]
•apocope	/koθ^{l}rɪx^{j}e/		
•Goidelic stress •vowel reduction	/^{l}koθrəçɛ/		
•voicing of voiceless fricative in unstressed syllables →classical OI	[^{l}k(^{h})oθr^{ɣ}əɣ^{j}ɛ]		

X.c. OTHER LOAN WORDS

This "pairing" of loan words in Old Irish was not limited to 'Patrick', but rather represents a much larger process in which loan words assimilated into Irish. Depending on when the borrowing took place, different phological changed took place. Old Irish sometimes developed different versions of the same Latin word as it did with 'Patrick'. The situation is complicated by the

fact many later loan words were in fact modelled on the earlier ones and by the fact that the sound and mutational changes affect the language gradually. Thus, it is difficult to date when loan words entered the language and when the phonological processes occurred. Still, one can assemble Latin to Old Irish loan words into generally "earlier" and "later" groups. Here is a chart, adapted from Uhlich (p. 58) which shows the trends of loan words which related to mutation (my transcriptions):

Earlier			**Later** (+ Brythonic LEN influence)		
•Latin /p/ → Prim. Irish /k^{w}/ → Old Irish /k/:			• Latin /p/ → Old Irish /p/:		
Patricius	→	***C**oithirche* / ***C**othraige*	*Patricius*	→	***P**átraic*
/patrikiu̯s/		[k(^{w})oθ^{j}əɾ^{j}çɛ]/[k(^{w})oθɾəɣ^{j}ɛ]	/p^{h}ad̥riᵭiu̯h/ [12]		[pa:drəɟ]
'Patrick'			'Patrick'		
apostolus	→	*axal* (‹x› = /xs/)	*pāce(m)*	→	*póc*
/apostolus/		[a**xs**əl^{ɣ}]	/pa:gɛ(m)/		[po:**g**]
'apostle'			'peace'		'kiss'
					(from 'kiss of peace')
•Latin /t, k/ lenited to → Irish /θ, x/:			•Latin /p, t, k/ → (Bryth. LEN →) Old Irish [b,d,g]:		
baculu(m)	→	*ba**ch**all*	*apostolus*	→	*apstal*/*abstal*
/bakulu(m)/		[baxəl̪^{ɣ}]	/abostoluh/		[a**b**stəl^{ɣ}]
'staff'			'apostle'		
presbyter	→	*cruimt**h**er*	*nota*	→	*not*
/prɛsbytɛr/		[kruμ^{j}θ^{j}əɾ^{ɣ}]	/noda/		[n̪^{ɣ}o**d**]
'priest'			'sign'		
puteus	→	*cuit**h**e*			
/puteu̯s/		[kuθ^{j}ə]			
'pit, well'					

[12] Latin transcriptions here approximate British Latin pronunciation.

• Latin /f/ → Prim. Irish /sᵩ/ [13] → Old Irish /s/:

fenestra	→	***s**enester*
/fɛnestra/		[ʃɛnʲəstəɾʸ]
'window'		

• Latin /nt, ŋk/ → Old Irish /nd, ŋg/:

planta	→	*cla**nd***
/planta/		[klʸaɲʸd]
'plant, shoot'		'offspring, family

uncia	→	*u**ng**ae*
/uŋkiia/		[uŋgɛ]
'ounce'		

• Latin /f/ → Old Irish /f/:

firmāmentu(m)	→	***f**irmimint*
/firma:mɛntu(m)/		[fʲirʲmʲəmʲəɲʲtʲ]
'heaven'		

• Latin /nt, ŋk/ → Old Irish /nt, ŋk/:

gentēs	→	*ge**nt**i*
/gɛnte:h/		[ɟɛɲʲtʲɪ]
'gentiles'		

punctu(m)	→	*po**nc***
/puŋktu(m)/		[poŋk]
'point'		

As a further example of a single Latin word borrowed into Old Irish twice, take **orthu* [oɾʸθu] and *oróit* [oɾʸo:ɖʲ] 'prayer' from Latin *orātiō*. According to McCone ((1996), p. 30-31) the earlier borrowing took the path: Latin *orātiō* /orɔ̄t-/ > *oraθiyu > Old Irish **orthu* [oɾʸθu] > Middle Irish *ortha* [oɾʸθə] and the later the path: Latin *orātiō* /orɔ̄d-/ >Old Irish *oróid* [oɾʸo:ɖʲ]. Later in Old Irish, probably out of analogy with the Latin, the vowel reverted back to /a:/ *oráit* [oɾʸa:ɖʲ], c.f (Classical) Modern Irish *oráid* [oɾʸa:ɖʲ].

One most note that some scholars, such as Ó Riain (p. 698-703), however, do suggest that *Cothraige* did *not* develop from Latin *Patricius*, but rather originates from the name of several Irish tribes (*Cothraige*, *Cathraige*, *Cat(t)raige, Coithrige*) and later place names associated with them which subsequently became linked with Saint Patrick as another name. One of the supposed names of the saint in the work of Tíreachán is the 7th century form *Coithirthaicus*, which, Ó Riain claims, was close to enough to *Cothraige* that some later authors substituted the latter for the former.

[13] Primitive Irish originally had no phoneme /f/, but it arose natively from the LEN of /sᵩ/, through /hᵩ/ (i.e. the devoicing of /ᵩ/, parallel to the general development of initial /ᵩ/ into /f/; *fer* < *wirah). This restored form results from the "delenition" of the borrowed Latin word, i.e. /f/ was considered to originate from /s(ᵩ)/. (Koch, p. 63)

The motivation behind this was to establish the primacy of Armagh and the North over Munster, for one of the *Coithrige*/*Cathraige* tribes were subjects of the King of Cashel. Other earlier Irish tribes shared a similar name, that is to say, the *Coithrige* of Uisneach and the *Catraige* of Delbna (a tributary tribe of *Uí Maine*).

However, the phonological changes needed to derive *Cothraige* from *Patricius* do seem to parallel internal changes in the Irish language and the treatment of other loan words from Latin. So although it was similar to native tribal names, *Cothraige* as a name for Saint Patrick very likely did come from Latin *Patricius*. Perhaps the amount of variation of forms can be attributed to confusion with the tribal names.

XI. /t/ BEFORE /s/

The "eclipsing" of /s/ to /t/ originates from lenition. The /t/ actually originally compromised a part of the definite article which transferred to the noun. We can see this by looking at how Old Irish represented this mutation.

In Modern Irish 'the father' is:

*an **t**-athair* [əˈtæ:(hə)ɾʲ] 'the father (NOM.)'

Compare Old Irish, which links the /t/ directly with the definite article:

int athair [ɪn̪ˠt aθəɾʲ]

Pokorny reconstructs the pre-history of *an t-athair* from Goidelic → Primitive Irish → Old Irish in *Altirische Grammatik* (§85):

*sindos aθer > *sindahaθerʲ > *(s)indhaθʲirʲ > *int ath(a)ir*

{/dh/→/t/}

One can see that the underlying form of the Celtic definite article can be reconstructed to */sind-/. The /d/ of the stem (usually assimilated with the /n/ in most other forms) became devoiced as a result of the /h/— a product of lenited /s/ —from either the end of the definite article itself (i.e. /*sindos/) or from the /s/ at the beginning of the word that the article modifies. Thus Modern Irish *an tsúil* [ə(n̪ˠ) tu:lʲ] 'the eye' can be explained by (Pokorny §85):

the Old Irish form *int súil* [ɪn̪ˠt hu:lʲ] < *(s)indhuˈl < *sindahūlis < *sindā sūlis

{/dh/→/t/}

It might be better from a historical perspective to view the form as *ant shúil* or *an tshúil* in Modern Irish, as this form clearly shows that the mutation is a special case of lenition, but due to lenition nonetheless.

XII. LEN-BLOCKING

Certain circumstances cause the non-application of lenition or de-lenition, depending on if one takes a synchronic or diachronic viewpoint of the phenomenon. Lenition "blocking" occurred in Old Irish when a word that would normally trigger lenition terminated in a consonant that was homorganic, that is have the same place of articulation, with the initial consonant of the word due to oundergo lenition (Stifter, p.31). Thus, it is clear that lenition blocking developed after the loss of final syllables, for it is the attested Old Irish forms, not earlier ones or underlying abstract forms, which matter here. Delentition operates as a surface rule in Old Irish. In essence three groups are affected: the large and important class of dentals (/d, t, n, l, s/), the labials (/p, b, m)/ and the velars (/g, k/) (of course their lenited variants may appear in word final position as well). To exemplify:

cach céitbuid [kax ce:dʲβuðʲ] 'every feeling' (GOI §231)

and not :

cach **chéitbuid*

The /k/ of *céitbuid* does not lenite to /x/, because it shares the same place of articulation (velar) with the final /x/ of *cách*. Pre-apocope this must have been something like /kaxa x–/, but after the final syllables dropped the LEN rule no longer triggered mutation because two guttural consonants came into contact. Compare with:

*ó cach **th**armmorcnib* [o: kax θarmorˠkn̪ˠəvʲ] 'from all endings' (GOI §490)

where /t/ lenites to /θ/ because /x/ and /t/ do not agree in place of articulation.

This parallels internal delenition when homorganic consonants come into contact because of syncope:

ad·comaltar	[aðˈkoμəlˠtəɾˠ]	'is joined'	(GOI §139)
Proto-Irish:	/*·komLatar/		
-LEN→	/*·koμləθəɾ/		
-SYNC→	/*·koμlθəɾ/		
-DE-LEN→	/*·koμl̪təɾ/		
-EPENTH→	/*·koμəltəɾ/		
Old Irish	[·koμəlˠtəɾˠ]		

Modern Irish does not observe this mutation prevention rule as strictly. The system is falling apart, for the phonetic changes are no longer active. It is impractical to refer to lenition and de-

lenition in Modern Irish, but rather to lenition and lenition blocking for the exceptions in which LEN does not occur. LEN-blocking occurs mostly with dentals only, but even these contexts have many exceptions. Ó Siadhail, in *Modern Irish,* states that LEN is sometimes blocked by homorganic dentals (p. 113):

an diabhail	[ə dʲaʊ̯lʲ]	'of the devil'
an **dhiabhail*		
aon teach	[eːn̪ˠ tʲæːx]	'any house'
an **theach*		
an-socair	[ˈan̪ˠˈsokəɾʲ]	'very sturdy'
an-sh**ocair*		
bean slachtmhair	[bʲæːn̪ˠ sl̪ˠaːxtwəɾʲ]	'a handsome woman'
bean **shlachtmhair*		

Lenition, however, often *does* operate in the same contexts with attributive adjectives and attributive genitives as well as with compounds (forms from Ó Siadhail (1989), p.113 unless otherwise noted):

*caol**sh**eans*	[kiːl̪ˠçæːn̪ˠs]	'slender chance'

but on the other hand:

caoldroim	[kiːl̪ˠdɾˠiːm]	'small of the back'
caoldh**roim*		(Ó Siadhail (1989), p. 118)
*móin **dh**ubh*	[muːnʲ ɣu]	'black peat'
*sloitín **dh**raíocht* [1]	[sl̪ˠɛtʲiːn̪ʲ ɣɾˠiː(ə)xt]	'a wand'
stick.DIMIN magic.GEN		

versus the standard:

saighead draíochta	[saɪ̯d dɾˠiː(ə)xtə]	'magic arrow'
arrow magic.GEN		(Caighdeán Oifigiúil, p. 84)

[1] Cois Fhairrge Irish drops the final –a that appears in the standard language in the genitive case of this noun; thus standard *draíochta* [dɾˠiː(ə)xtə]

Although LEN-blocking occurs much less frequently with homorganic labials and velars than with dentals, it nevertheless does occur. The infrequently used preposition *um* [ʊm] 'about, around, at', for example, usually triggers LEN:

*um **Ch**áisc* [ʊm xɑ:ʃc] 'at Easter'

but fails to do so before /b, p, m/ (Mac Congáil, p. 83; Bräsicke):

um bosca [ʊm boskə] 'around a box'

Some Munster dialects such as Clear Island (*Cléire*) in County Cork have this lack of LEN in other contexts as well:

Standard:		**Gaeilge Chléire** [2]		
*i mo **bh**éal*	[ə m(ə) vʲe:l̪ˠ]	*"im béal"*	[ɪmʲ bʲe:lˠ]	'in my mouth'
*i mo **ph**óca*	[ə m(ə) fo:kə]	*"im póca"*	[ɪmʲ po:kə]	'in my pocket'

Here, in the Clear Island dialect, the form *i* 'in' + *mo* 'my' coalesce as *im* and lenition of /b/ and /p/ does not occur, or more likely /v/ and /f/ were delenited. Something strange happens to words beginning with /m/ in this dialect. Clear Irish treats these as if they actually began with /b/. Thus, this suggests that delenition occurred. The lenited form of both /b/ and /m/ is [v], and hence both were delenited to /b/ probably to avoid the two /m/'s that would have otherwise resulted—

Standard:		**Gaeilge Chléire**		
*i mo **mh**eon*	[ə m(ə) vʲo:n̪ˠ]	*im mheoin* [3]	[ɪmʲ **b**ʲo:nʲ]	'in my mind'

The velars, in surnames, display a degree of lenition constraint as well. *Nic* [4], the feminine unmarried equivalent of *mac* 'son (of)', causes LEN unless the following element begins with /k/ and /g/ (Mac Congáil, p. 199; Ó Dónaill, p. 910-911) [5]:

Mac Dónaill	[(m)ək du:n̪ˠəl̪ʲ]	*Nic **Dh**ónaill*	[n̪ʲɪc ɣu:n̪ˠəl̪ʲ]

but:

Mac Conraoi	[(m)ək konˠrˠi:]	*Nic Conraoi*	[n̪ʲɪc konˠrˠi:]
		*#Nic **Ch**onraoi*	

and:

Mac Gearailt	[(m)ək ɟæ:rˠəlʲtʲ]	*Nic **G**earailt*	[n̪ʲɪc ɟæ:rˠəlʲtʲ]

(In some cases /g/ may undergo LEN :

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[2] all Clear Irish from Ó Buachalla (2003), p. 8

[3] following prepositions, Munster dialects use *meoin,* the dative case of *meon.*

[4] a contraction of *iníon mhic* 'daughter of the son (of)'

[5] similarly with *mhic* [(vʲ)ɪc], the form used for married women

Mac Gearailt [(m)ək ɟæːrʸəlʲtʲ] *Nic **Gh**earailt* [n̪ʲɪc jæːrʸəlʲtʲ]

but this is not standard. Like with the dentals, many LEN-block rules operate optionally in the contemporary spoken language.)

Even Old Irish has examples of this constraint in surnames. McCone ((1996), p. 89-90) transcribes the pronunciation of the Ogham inscription (mentioned in section VIII, footnote 5) QRIMITIR RONANN MAQ COMAGANN as /kʷriṽiθirʹ rōnānʹ ṽa**k'** **x**oṽoɣānʹ/. Here the final vowel once present in MAQ(I) triggered LEN on the initial /k/ of COMAGANN. However, now two labial consonants have come together and delenition should occur. He provides the Old Irish form *cruimthir Róná(i)n maic Comgá(i)n*, undoubably representing [krʸi μʲθʲəɾʲ rʸoːnʸaːnʲ μac koμɣaːnʲ]; not *#...maic **Ch**omgáin* […μac **x**oμɣaːnʲ].

Surprisingly this LEN-blocking accounts also for instances in which NAS does not always occur when expected. Most combinations of preposition and singular definite article trigger NAS, except in Ulster where they usually trigger LEN (LEN almost all the time in Scottish Gaelic). However, in the standard language (*Caighdeán*) and Conamara dialects, nasalization does not operate on /t/ and /d/ in these contexts, but it does in Munster Irish:

Standard/Conamara		**Munster**		
*ag an **mb**ó*[6]	[ɛɟ ə(n̪ʸ) moː]	*ag an **mb**ó*	[ɛɟ ə(nʸ) moː]	'at the cow'
ag an doras	[ɛɟ ə(n̪ʸ) doɾʸəs]	*ag an **nd**oras*	[ɛɟ ə(nʸ) nʸoɾʸəs]	'at the door'
ag an teach	[ɛɟ ə(n̪ʸ) tʲæːx]	*ag an **dt**each*	[ɛɟ ə(nʸ) d̪æx]	'at the house'

The surface presence of the homorganic nasal /n/ does not impede NAS in other circumstances where it should occur, such as following the question particle *an*:

*an **dt**uigeann tú?*	[ə(n̪ʸ) dɪɟən̪ʸ tuː]	'do you understand'
*an **nd**únfadh tú?*	[ə(n̪ʸ) n̪ʸuːnʲ(h)əx tuː]	'will you close?'

Thus something other than the /n/ of the definite article causes NAS-block in the case of *ag an doras* and *ag an teach*, etc.

Actually, the rule of non-nasalization after the preposition-definite article combination, traditionally described as an exception to nasalization rules, is actually non-lenition from a historical viewpoint. After the loss of a distinct accusative case (which featured NAS in the singular), the cases used after prepositions became confused, and different dialects redistributed the NAS

[6] the standard language also optionally permits LEN here, as Ulster does by rule: *ag an bhó* [ɛɟ ə woː] 'at the cow'

associated with accusative case and the LEN associated with dative case in different ways. Therefore, almost any preposition and singular definite article combination can cause either mutation in some dialect. For some reason, although the Conamara dialects (and standard) chose eclipsis for most of these cases (such as with *ag* 'at' above), in the case of words beginning with /t/ and /d/, lenition still applied instead. Thus, the blocking rule that had existed for lenition persisted, even though nasalization occurrs on other consonants in the same contexts. Thus it is #*ag an* ***dh****oras* and #*ag an* ***th****each* which are blocked (i.e. impossible in Irish) and not the eclipsed Munster versions (*an an ndoras* and *ag an dteach*). Most preposition and singular article combinations trigger LEN in Ulster Irish so this dialect would also reflect the standard forms in the case of /t/ and /d/. In Munster Irish NAS fully pervaded the system and operates on all mutatable consonants including /t/ and /d/. Hence in Conamara and *Caighdeán* Irish prepositions and the singular definite article cause a "mixed-mutation", with LEN applying to dental plosives and NAS to everything else.

It seems counterintuitive that such a rule exists in Modern Irish. Especially since many speakers would not pronounce the /n/ of the definite article in many circumstances, but even more so because lenited /t/ and /d/ and no longer dentals in Irish! The segments /n#ɣ/ (standard *an ghaoth* [ənˠ ɣi:] 'the wind') and /n#h/ (*an hata* [ən̪ˠ hæ:tə] 'the hat') are perfectly acceptable in Modern Irish, so what causes the persistence of the lenition blocking? Hypothetically lenintion had occurred, but later reversed after the homorganic consonants came in contact due to syncope. Thus, in Old Irish the combinations /nð/ and /nθ/ reverted back to the unlenited /nd/ and /nt/ – see the *ad·comaltar* example above (p. 96). Therefore, the rule affecting /t/ and /d/ must be viewed as a relic of the time when interdental fricatives existed in Irish. Underlyingly, /ð/ and /θ/ still represent lenited /d/ and /t/ and these then become [ɣ] and [h] on the surface by a later rule.

In cases where lenition would be expected after the definite article such as the feminine singular nominative and masculine genitive singular, and in combination with certain prepositions (in the standard language only with feminine nouns in this case) /t/ appears before, and in pronunciation replaces, /s/: ‹ts› /t/. This shares an origin with lenition, for the /t/ represents a /d/ (originally part of the article) devoiced due to the /h/ which resulted from lenited /s/. See section XI.

Modern Welsh likewise has some small semblance of lenition blocking. The phoneme /d/ sometimes does not mutate following /s/, (King, p. 19):

wythnos diwetha	[uwiθno:s]	'last week'
wythnos **ddiwetha*		
nos da	[no:s da:]	'good night'
nos **dda*		

compare:

*noswaith **dd**a*	[no:swaɨ̯θ ða:]	'good evening'

but sometimes /d/ *does* lenite following /s/ (Morgan, p. 60):

*pais **dd**u*	[paɨ̯s ði:]	'black coat'
*nos **dd**istaw*	[no:s ðistaʊ̯]	'silent night'

He remarks that this lenition can be "appropriate in occasional syntactic situations" (my approximate paraphrase of the his Welsh). Perhaps relative commonality and frequency of phrases such as *nos da* and *wythnos diwetha* allowed a petrified phonological rule to operate, while in other phrases such as *nos ddistaw* and *pais ddu* where the adjective is less "connected" to the noun, the regular LEN rule persists.

Morgan (p. 61) provides further evidence of petrified LEN blocking/delenition in Welsh. He states that the place name *Y Garreg Coch* (which one would expect to be *Y Garreg **G**och* ('the red rock') with lenition of the adjective following a feminine singular noun) actually represents [ə garɛ**k k**oχ]. Where lenition blocking occurs and both consonants become voiceless. However, this phenomenon no longer appears to be active in Modern Welsh. Now I believe the place name to have yielded to paradigmatic pressure, thus it must be *Y Garreg **G**och* [7] [ə garɛg goχ]. Although, dialectically other non-standard pronunciations likely exist.

[7] the only place name I could find on the BBC Wales' "What's in a name" site was *Carreg Goch*. http://www.bbc.co.uk/wales/whatsinaname/

XIII. CONCLUSION

These in-depth looks into Celtic consonant mutations reveal that the mutations are more than an arbitrary relic of sound changes, but have had a profound impact on the development of the Celtic languages and continue to play an active role in grammar. At one stage mutations occurred word-internally as well, but they became non-productive internally, and now only occur word-initially and in compounds. New words and even new sounds (wigwam, x-ray, zebra) are adapted into the system of initial mutations, and innovation still occurs.

Understanding the historical development, both as seen in the oldest attested forms of the languages and in reconstructions, helps to clarify operations of the initial mutations. For a learner of the modern languages, the mutations, at first glance, seem to be an illogical and impossible-to-learn feature of the Celtic languages. Exploring and understanding their historical linguistic background makes the systems seem much more natural and logical. In fact initial mutations due to assimilation are not all that strange. Even in spoken English ‘in Boston’ can actually sound something like [ɪmbɔstɪn]. Significantly, in Celtic languages the sounds which triggered the mutations have been lost and the changes themselves carry grammatical information.

Forms of the same word such as *ci*, *chi*, *gi* & *nghi* and *cú*, *chú* & *gcú* make much more sense when one sees the system and how formerly phonological alterations, due to assimilation to the phonetic environment, developed into an important grammatical feature of the languages.

By the way – the Welsh *nghath* is pronounced as [ŋ̊ʰaːθ] and the Irish *bhfuil* as [wɪl̪ʲ].

APPENDICES

i. *SÉIMHIÚ* - MODERN CONAMARA IRISH

PHONEME	IRISH	PHONOLOGICAL TRANSCRIPTION	ENGLISH GLOSS	PHONEMIC REPRESENTATION
Labial Series:				
p´	*peann*	[pʲɑ:n̪ʸ]	'pen'	/p´aN/ [1]
	a pheann	[ə fʲɑ:n̪ʸ]	'his pen'	/a f´aN/
p	*póg*	[po:g]	'kiss'	/po:g/
	a phóg	[ə fo:g]	'his kiss'	/a fo:g/
b´	*beach*	[bʲæ:x]	'bee'	/b´ax/
	a bheach	[ə vʲæ:x]	'his bee'	/a v´ax/
b	*bó*	[bo:]	'cow'	/bo:/
	a *bhó*	[ə βo: ~ wo:]	'his cow'	/a vo:/
f´	*feall*	[fʲɑ:l̪ʸ]	'treachery'	/f´aL/
	a fheall	[(ə) ɑ:l̪ʸ]	'his treachery'	/a Ø ´aL/
f	*fuinneo(i)g*	[fʷɪn̪ʲo:ɟ]	'window'	/fiN´o:g(´)/
	a fhuinneo(i)g	[(ə) ɪn̪ʲo:ɟ]	'his window'	/a Ø iN´o:g(´)/
m´	*mic*	[mʲɪc]	'sons'	/m´ik´/
	a mhic	[ə vʲɪc]	'his sons'	/a ṽ´ik´/
m	*madadh*	[ma:də]	'dog	/madəɣ/
	a mhadadh	[ə wa:də]	'his dog'	/a ṽadəɣ/
Dental Series:				
t´	*teach*	[tʲæ:x]	'house'	/t´ax/
	a theach	[ə hʲæ:x]	'his house'	/a h´ax/

[1] C´ is a traditional notation for a palatalized consonant.

	tí	[tʲi:]	‘houses’	/t´i:/
	a thí	[ə hi:]	‘his houses’	/a h´i:/
t	*talamh*	[ta:l̪ˠə]	‘land’	/taləv/
	a thalamh	[ha:l̪ˠə]	‘his land’	/a haləv/
d´	*deoch*	[dʲox]	‘drink’	/d´ox/
	a dheoch	[ə jox]	‘his drink’	/a ɣ´ox/
d	*doras*	[dorˠəs]	‘door’	/dorəs/
	a dhoras	[ə ɣorˠəs]	‘his door’	/a ɣorəs/
s´	*síoda*	[ʃi:də]	‘silk’	/s´i:də/
	a shíoda	[ə hi:də]	‘his silk’	/a h´i:də/
	seol	[ʃo:l̪ˠ]	‘sail’	/s´o:l/
	a sheol	[ə ço:l̪ˠ]	‘his sail’	/a h´o:l/
s	*súil*	[su:lʲ]	‘eye’	/su:l´/
	a shúil	[ə hu:lʲ]	‘his eye’	/a hu:l´/

s(´)C:

/sk-/, /sp-/, /st-/, /sm-/: no lenition (sometimes /sm-/ in Munster, i.e. *do shmaoiníos* [də hmi:nʲi:s] ‘I thought’)

scéal	[ʃce:l̪ˠ]	‘story’	/s´k´e:l/
a scéal	[ə ʃce:l̪ˠ]	‘his story’	/a s´k´e:l/

/sn-/, /sr-/, /sl-/: **lenition**

sliabh	[ʃl̪ʲi:əw]	‘mountain’	/s´L´i:əv/
a shliabh	[ə hlʲi:əw]	‘his mountain’	/a h´l´i:əv/
L´ *leon*	[l̪ʲo:n̪ˠ]	‘lion’	/L´o:n/
a leon	[ə lʲo:n̪ˠ]	‘his lion’	/a l´o:n/
L [2] *laoch*	[l̪ˠi:x]	‘hero’	/Li:x/
a laoch	[ə l̪ˠi:x]	‘his hero’	/a li:x/

[2] non-palatal /L/, /R/, /N/ do not lenite in Conamara Irish. They did in Old Irish and still can in Mayo, Ulster and Scottish dialects. See appendix viii. on /l, r, n/ in Goidelic.

R´	*rí*	[ɾʸi:]	‘king’	/R´i:/
	a rí	[ə ɾʲi:]	‘his king’	/a r´i:/
R	*rothar*	[ɾʸohəɾʸ]	‘bike’	/Rohər/
	a rothar	[ə ɾʸohəɾʸ]	‘his bike’	/a rohər/
N´	*neart*	[n̪ʲæ:ɾʸt]	‘strength’	/N´art/
	a neart	[ə nʲæ:ɾʸt]	‘his strength’	/a n´art/
N	*náisiún*	[n̪ʸɑ:ʃu:n̪ʸ]	‘nation’	/Na:s´u:n/
	a náisiún	[ə n̪ʸɑ:ʃu:n̪ʸ]	‘his nation’	/a na:s´u:n/

Velar Series:

k´	*ceol*	[co:l̪ʸ]	‘music’	/k´o:l/
	a cheol	[ə ço:l̪ʸ]	‘his music’	/a x´o:l/
k	*cú*	[ku:]	‘hound’	/ku:/
	a chú	[ə xu:]	‘his hound’	/a xu:/
g´	*geata*	[ɟæ:tə]	‘gate’	/g´atə/
	a gheata	[ə jæ:tə]	‘his gate’	/a ɣ´atə/
g	*gabhar*	[gaʊ̯ɾʸ]	‘goat’	/gavər/
	a ghabhar	[ə ɣaʊ̯ɾʸ]	‘his goat’	/a ɣavər/

Vowel:

jV	*eolas*	[o:l̪ʸəs]	‘knowledge’	/jo:ləs/
	a eolas	[(ə) o:l̪ʸəs]	‘his knowledge’	/a jo:ləs/
V	*úll*	[u:l̪ʸ]	‘apple’	/u:L/
	a úll	[(ə) u:l̪ʸ]	‘his apple’	/a u:L/

ii. *URÚ* - MODERN CONAMARA IRISH

PHONEME	IRISH	PHONOLOGICAL TRANSCRIPTION	ENGLISH GLOSS	PHONEMIC REPRESENTATION
Labial Series:				
p´	*peann*	[pʲɑ:n̪ʸ]	‘pen’	/p´aN/
	a bpeann	[ə bʲɑ:n̪ʸ]	‘their pen’	/a b´aN/
p	*póg*	[po:g]	‘kiss’	/po:g/
	a bpóg	[ə bo:g]	‘their kiss’	/a bo:g/
b´	*beach*	[bʲæ:x]	‘bee’	/b´ax/
	a mbeach	[ə mʲæ:x]	‘their bee’	/a m´ax/
b	*bó*	[bo:]	‘cow’	/bo:/
	a mbó	[ə mo:]	‘their cow’	/a mo:/
f´	*feall*	[fʲɑ:l̪ʸ]	‘treachery’	/f´aL/
	a bhfeall	[ə vʲɑ:l̪ʸ]	‘their treachery’	/a v´aL/
f	*fuinneo(i)g*	[fʷɪn̪ʲo:ɟ]	‘window’	/fiN´o:g(´)/
	a bhfuinneo(i)g	[ə βɪn̪ʲo:ɟ]	‘their window’	/a viN´o:g(´)/
m´	*mic*	[mʲɪc]	‘sons’	/m´ik´/
	a mic	[ə mʲɪc]	‘their sons’	/a m´ik´/
m	*madadh*	[ma:də]	‘dog’	/madəɣ/
	a madadh	[ə ma:də]	‘their dog’	/a madəɣ/
Dental Series:				
t´	*teach*	[tʲæ:x]	‘house’	/t´ax/
	a dteach	[ə dʲæ:x]	‘their house’	/a d´ax/
	tí	[tʲi:]	‘houses’	/t´i:/
	a dtí	[ə dʲi:]	‘their houses’	/a d´i:/
t	*talamh*	[ta:l̪ʸə]	‘land’	/taləv/
	a dtalamh	[ə da:l̪ʸə]	‘their land’	/a daləv/

d´	*deoch*	[dʲox]	‘drink’	/d´ox/
	a ndeoch	[ə n̪ʲox]	‘their drink’	/a N´ox/
d	*doras*	[doɾˠəs]	‘door’	/dorəs/
	a ndoras	[ə n̪ˠoɾˠəs]	‘their door’	/a Norəs/
s´	*síoda*	[ʃi:də]	‘silk’	/s´i:də/
	a síoda	[ə ʃi:də]*	‘their silk’	/a s´i:də/
	seol	[ʃo:l̪ˠ]	‘sail’	/s´o:l/
	a seol	[ə ʃo:l̪ˠ]*	‘their sail’	/a s´o:l/
s	*súil*	[su:lʲ]	‘eye’	/su:l´/
	a súil	[ə su:lʲ]*	‘their eye’	/a su:l´/
L´	*leon*	[l̪ʲo:n̪ˠ]	‘lion’	/L´o:n/
	a leon	[ə l̪ʲo:n̪ˠ]	‘their lion’	/a L´o:n/
L	*laoch*	[l̪ˠi:x]	‘hero’	/Li:x/
	a laoch	[ə l̪ˠi:x]	‘their hero’	/a Li:x/
R´	*rí*	[ɾˠi:]	‘king’	/R´i:/
	a rí	[ə ɾˠi:]	‘their king’	/a R´i:/
R	*rothar*	[ɾˠohəɾˠ]	‘bike’	/Rohər/
	a rothar	[ə ɾˠohəɾˠ]	‘their bike’	/a Rohər/
N´	*neart*	[n̪ʲæ:ɾˠt]	‘strength’	/N´art/
	a neart	[ə n̪ʲæ:ɾˠt]	‘their strength’	/a N´art/
N	*náisiún*	[n̪ˠɑ:ʃu:n̪ˠ]	‘nation’	/Na:s´u:n/
	a náisiún	[ə n̪ˠɑ:ʃu:n̪ˠ]	‘their nation’	/a Na:s´u:n/

Velar Series:

k´	*ceol*	[co:l̪ˠ]	‘music’	/k´o:l/
	a gceol	[ə ɟo:l̪ˠ]	‘their music’	/a g´o:l/
k	*cú*	[ku:]	‘hound’	/ku:/
	a gcú	[ə gu:]	‘their hound’	/a gu:/

g´	*geata*	[ɟæ:tə]	‘gate’	/g´atə/
	a ngeata	[ə ŋʲæ:tə]	‘their gate’	/a ŋ´atə/
g	*gabhar*	[gau̯ɾˠ]	‘goat’	/gavər/
	a ngabhar	[ə ŋau̯ɾˠ]	‘their goat’	/a ŋavər/

Vowel:

jV	*eolas*	[o:l̪ˠəs]	‘knowledge’	/jo:ləs/
	a n-eolas	[ə n̪ʲo:l̪ˠəs]	‘their knowledge’	/a Njo:ləs/
V	*úll*	[u:l̪ˠ]	‘apple’	/u:L/
	a n-úll	[ə n̪ˠu:l̪ˠ]	‘their apple’	/a Nu:L/

***** in some East Galway and Clear Island (in Cork) dialects there is an eclipsis of [s]→[z], [ʃ]→[j] (or [ʒ] ~ [ʤ]):

(Ó Siadhail, *Modern Irish* p. 114; also see Ó Tuathail 1939, p. 283-284)

a síoda	[ə ji:də]	‘their silk’	/a z´i:də/
a seol	[ə jo:l̪ˠ]	‘their sail’	/a z´o:l/
a súil	[ə zu:lʲ]	‘their eye’	/a zu:l´/

iii. *TREIGLAD MEDDAL*– MODERN (SOUTH-WESTERN) WELSH

PHONEME	WELSH	PHONOLOGICAL TRANSCRIPTION	ENGLISH GLOSS	PHONEMIC REPRESENTATION
Labial Series:				
p	*penn*	[pɛn]	'head'	/pen/
	ei benn (e)	[i: bɛn (ɛ)]	'his head'	/i: ben (e)/
b	*brawd*	[braʊ̯d]	'brother'	/brawd/
	ei frawd (e)	[i: vraʊ̯d (ɛ)]	'his brother'	/i: vrawd (e)/
f	*ffarm*	[farm]	'farm'	/farm/
	ei ffarm (e)	[i: farm (ɛ)]	'his farm'	/i: farm (e)/
m	*mam*	[ma:m]	'mother'	/mam/
	ei fam (e)	[i: va:m (ɛ)]	'his mother'	/i: vam (e)/
v	*fideo*	[videjo:]	'video'	/video:/
	ei fideo (e)	[i: videjo: (ɛ)]	'his video'	/i: video: (e)/
Dental Series:				
t	*tad*	[ta:d]	'father'	/tad/
	ei dad (e)	[i: da:d (ɛ)]	'his father'	/i: dad (e)/
d	*dinas*	[dinas]	'city'	/dinas/
	ei ddinas (e)	[i: ðinas (ɛ)]	'his city'	/i: ðinas (e)/
sj	*siop*	[ʃop]	'store'	/ʃop/
	ei siop (e)	[i: ʃop (ɛ)]	'his store'	/i: ʃop (e)/
s	*saeth*	[saɪ̯̂θ]	'arrow'	/saiθ/
	ei saeth (e)	[i: saɪ̯̂θ (ɛ)]	'his arrow'	/i: saiθ (e)/
l̥	*llyfr*	[ɬɪvr]	'book'	/l̥ɪvr/
	ei lyfr (e)	[i: ɬɪvr (ɛ)]	'his book'	/i: l̥ɪvr (e)/

l [3]	*larwm*	[larʊm]	‘alarm’	/larum/
	ei larwm (e)	[i: larʊm (ɛ)]	‘his alarm’	/i: larum (e)/
ɬ	*rhieni*	[ɬ̊ʰi:jɛni:]	‘parents’	/ɬi:eni:/
	ei rieni (fe)	[i: ri:jɛni: (vɛ)]	‘his parents’	/i: ri:eni: (e)/
r [3]	*roced*	[rokɛd]	‘rocket’	/roked/
	ei roced (e)	[i: rokɛd (ɛ)]	‘his rocket’	/i: roked (e)/
n	*nadredd*	[nadrɛð]	‘snakes’	/nadreð/
	ei nadredd (e)	[i: nadrɛð (ɛ)]	‘his snakes’	/i: nadreð (e)/

Velar Series:

k	*ci*	[ki:]	‘dog	/ki:/
	ei gi (fe)	[i: gi: (vɛ)]	‘his dog’	/i: gi: (ve)/
g	*gwlad*	[gwla:d]	‘land	/gwlad/
	ei wlad (e)	[i: wla:d (ɛ)]	‘his land’	/i: wlad (e)/
x	*chwaer*	[χwaɪ̯r] [4]	‘sister’	/χwair/
	ei chwaer (e)	[i : χwaɪ̯r (ɛ)]	‘his sister’	/i: χwair (e)/

Vowel:

jV	*iaith*	[jaɪ̯θ]	‘language’	/jaiθ/
	ei iaith (e)	[i: jaɪ̯θ (ɛ)]	‘his language’	/i: jaiθ (e)/
V	*afal*	[a:val]	‘apple’	/aval/
	ei afal (e)	[i: a:val (ɛ)]	‘his apple’	/i: aval (e)/

Other:

h	*heddwch*	[hɛðuχ]	‘peace’	/heðuχ/
	ei heddwch (e)	[i: hɛðuχ (ɛ)]	‘his peace’	/i: heðuχ (e)/

[3] loan words only

[4] also [ʍa:r]

iv. *TREIGLAD TRWYNOL* - MODERN (SOUTH-WESTERN) WELSH

PHONEME	WELSH	PHONOLOGICAL TRANSCRIPTION	ENGLISH GLOSS	PHONEMIC REPRESENTATION
Labial Series:				
p	*penn*	[pɛn]	'head'	/pen/
	fy mhenn (i) [5]	[və m̊^{h}ɛn (i:)]	'my head'	/və m̊en (i:)/
b	*brawd*	[braʊ̯d]	'brother'	/brawd/
	fy mrawd (i)	[və mraʊ̯d (i:)]	'my brother'	/və mrawd (i:)/
f	*ffarm*	[farm]	'farm'	/farm/
	fy ffarm (i)	[və farm (i:)]	'my farm'	/və farm (i:)/
m	*mam*	[ma:m]	'mother'	/mam/
	fy mam (i)	[və ma:m (i:)]	'my mother'	/və mam (i:)/
v	*fideo*	[videjo:]	'video'	/video:/
	fy fideo (i)	[və videjo: (i:)]	'my video'	/və video: (i:)/
Dental Series:				
t	*tad*	[ta:d]	'father'	/tad/
	fy nhad (i)	[və n̊^{h}a:d (i:)]	'my father'	/və n̊ad (i:)/
d	*dinas*	[dinas]	'city'	/dinas/
	fy ninas (i)	[və ninas (i:)]	'my city'	/və ninas (i:)/
sj	*siop*	[ʃop]	'store'	/ʃop/
	fy siop (i)	[və ʃop (i:)]	'my store'	/və ʃop (i:)/
s	*saeth*	[saɪ̯θ]	'arrow'	/saiθ/
	fy saeth (i)	[və saɪ̯θ (i:)]	'my arrow'	/və saiθ (i:)/
l̥	*llyfr*	[ɬɪvr]	'book'	/l̥ɪvr/
	fy llyfr (i)	[və ɬɪvr (i:)]	'my book'	/və l̥ɪvr (i:)/

[5] *fy* [və] colloquially pronounced [ə] or Ø. Before a vowel or unmutatable consonants it becomes [ən]

l [6]	*larwm*	[larʊm]	'alarm'	/larum/
	fy larwm (i)	[və larʊm (i:)]	'my alarm'	/və larum (i:)/
ŕ	*rhieni*	[ŕʰi:jɛni:]	'parents'	/ŕi:eni:/
	fy rhieni (fi)	[və ŕʰi:jɛni: (vi:)]	'my parents'	/və ŕi:eni: (i:)/
r [3]	*roced*	[rokɛd]	'rocket'	/roked/
	fy roced (i)	[və rokɛd (i:)]	'my rocket'	/və roked (i:)/
n	*nadredd*	[nadrɛð]	'snakes'	/nadreð/
	fy nadredd (i)	[və nadrɛð (i:)]	'my snakes'	/və nadreð (i:)/

Velar Series:

k	*ci*	[ki:]	'dog	/ki:/
	fy nghi (fi)	[və ŋ̊ʰi: (vi:)]	'my dog'	/və ŋ̊i: (ve)/
g	*gwlad*	[gwla:d]	'land	/gwlad/
	fy wlad (i:)	[və ŋwla:d (i:)]	'my land'	/və ŋwlad (i:)/
x	*chwaer*	[χwaɪ̯r] [7]	'sister'	/χwair/
	fy chwaer (i:)	[və(n) χwaɪ̯r (i:)] [8]	'my sister'	/və(n) χwair (i:)/

Vowel:

jV	*iaith*	[jaɪ̯θ]	'language'	/jaiθ/
	fy iaith (i:)	[və jaɪ̯θ (i:)] [8]	'my language'	/və jaiθ (i:)/
V	*afal*	[a:val]	'apple'	/aval/
	fy afal (i:)	[və(n) a:val (i:)] [8]	'my apple'	/və(n) aval (i:)/

Other:

h	*heddwch*	[hɛðuχ]	'peace'	/heðuχ/
	fy heddwch (i:)	[və hɛðuχ (i:)]	'my peace'	/və heðuχ (i:)/

[6] loan words only

[7] also [ʍa:r]

[8] *fy* may be pronounced [(v)ən] before vowels and unmutatable consonants. The final /n/ may originate, like the Irish prevocalic /n/ of *urú* to the nasal mutation.

v. *TREIGLAD LLAES*- MODERN (SOUTH-WESTERN) WELSH

PHONEME	WELSH	PHONOLOGICAL TRANSCRIPTION	ENGLISH GLOSS	PHONEMIC REPRESENTATION
Labial Series:				
p	*penn*	[pɛn]	'head'	/pen/
	ei phenn (hi)	[i: fɛn (hi:)]	'her head'	/i: fen (hi:)/
b	*brawd*	[braʊ̯d]	'brother'	/brawd/
	ei brawd (hi)	[i: braʊ̯d (hi:)]	'her brother'	/i: brawd (hi:)/
f	*ffarm*	[farm]	'farm'	/farm/
	ei ffarm (hi)	[i: farm (hi:)]	'her farm'	/i: farm (hi:)/
m	*mam*	[ma:m]	'mother'	/mam/
	ei mam (hi)	[i: ma:m (hi:)]	'her mother'	/i: mam (hi:)/
v	*fideo*	[videjo:]	'video'	/video:/
	ei fideo (hi)	[i: videjo: (hi:)]	'her video'	/i: video: (hi:)/
Dental Series:				
t	*tad*	[ta:d]	'father'	/tad/
	ei thad (hi)	[i: θa:d (hi:)]	'her father'	/i: θad (hi:)/
d	*dinas*	[dinas]	'city'	/dinas/
	ei dinas (hi)	[i: dinas (hi:)]	'her city'	/i: dinas (hi:)/
sj	*siop*	[ʃop]	'store'	/ʃop/
	ei siop (hi)	[i: ʃop (hi:)]	'her store'	/i: ʃop (hi:)/
s	*saeth*	[saɪ̯θ]	'arrow'	/saiθ/
	ei saeth (hi)	[i: saɪ̯θ (hi:)]	'her arrow'	/i: saiθ (hi:)/
l̥	*llyfr*	[ɬɪvr]	'book'	/l̥ɪvr/
	ei llyfr (hi)	[i: ɬɪvr (hi:)]	'her book'	/i: l̥ɪvr (hi:)/

l [9]	*larwm*	[larʊm]	'alarm'	/larum/
	ei larwm (hi)	[i: larʊm (hi:)]	'her alarm'	/i: larum (hi:)/
r̊	*rhieni*	[r̊^{h}i:jɛni:]	'parents'	/r̊i:eni:/
	ei rhieni (hi)	[i: r̊^{h}i:jɛni: (hi:)]	'her parents'	/i: r̊i:eni: (hi:)/
r [3]	*roced*	[rokɛd]	'rocket'	/roked/
	ei roced (hi)	[i: rokɛd (hi:)]	'her rocket'	/i: roked (hi:)/
n	*nadredd*	[nadrɛð]	'snakes'	/nadreð/
	ei nadredd (hi)	[i: nadrɛð (hi:)]	'her snakes'	/i: nadreð (hi:)/

Velar Series:

k	*ci*	[ki:]	'dog	/ki:/
	ei chi (hi)	[i: χi: (hi:)]	'her dog'	/i: χi: (hi:)/
g	*gwlad*	[gwla:d]	'land	/gwlad/
	ei gwlad (hi:)	[i: gwla:d (hi:)]	'her land'	/i: gwlad (hi:)/
x	*chwaer*	[χwaɪ̯r] [10]	'sister'	/χwair/
	ei chwaer (hi:)	[i: χwaɪ̯r (hi:)]	'her sister'	/i: χwair (hi:)/

Vowel:

jV	*iaith*	[jaɪ̯θ]	'language'	/jaiθ/
	ei hiaith (hi:)	[i: hjaɪ̯θ (hi:)]	'her language'	/i: hjaiθ (hi:)/
V	*afal*	[a:val]	'apple'	/aval/
	ei hafal (hi:) [11]	[i: ha:val (hi:)]	'her apple'	/i: haval (hi:)/

Other:

h	*heddwch*	[hɛðuχ]	'peace'	/heðuχ/
	ei heddwch (hi:)	[i: hɛðuχ (hi:)]	'her peace'	/i: heðuχ (hi:)/

[9] loan words only

[10] also [ʍa:r]

[11] *ei* 'her' also prefixes [h] to vowels

vi. LENITION FOLLOWING THE COPULA

Old Irish

Leniting forms of the Old Irish copula, adapted from Stifter, p. 386

	Present (Conjunct)	Past (preterit & imperfect)	Augmented past	Future	Conditional
1SG	-ta / -da[12]				
2SG	-ta/ da				
3SG	*	-bu, -bo[13]	-robo, -robu, -rbo, -rbu		bed, robad, -bad
3SG REL.	as?			bes, bas	
1PL	-tan /-dan				
2PL	-tad / -dad				
3PL	-tat / -dat				
3PL REL.				beta,bat	

Copular LEN continued…

	Imperative	Present subjunctive	Past subjunctive
1SG		-ba	
2SG	ba		
3SG	bed, bad, -bad		bed, bad, bid -bed, -bad
3SG REL.			
1PL	baan, ban		
2PL	bed, bad, -bad		
3PL	(-) bat	robat -bat	
3pl REL.			

*no LEN with the negative *ní*, but in certain combinations it does lenite, e.g. comninations with *cía* 'although' - *cesu, ceso, ciasu, ciaso, ceto, cetu*; and *má* 'if' - *maso, masu, matu*

[12] t / d variation is simply orthographic

[13] ‹p› also found in place of ‹b› throughout the copula; [b] is still meant

A few examples (GOI §495):

*do rétaib ata **ch**osmaili* {cosmaili} [do ʳʲe:təvʲ ada xosɯəlʲɪ]
'of things that are similar'

*nech bed **char**e* {car(a)e} [n̪ʲɛx bɛð xarʸɛ]
'anyone that was a friend'

Variation does exist, compare (from GOI §233.1):

*bés ni-bat **ch**utrummi* {cutrummi} [bʲe:s n̪ʲiːˈbad xudrʸumʲɪ]
'perhaps they are not equal'

vs.

ni-tat cosmili [n̪ʲiːˈtad cosɯəlʲɪ]
'they are not alike'

Middle Welsh

Soft mutation occurs after the following forms of the verb 'to be' in Middle Welsh:
(from Evans GMW, §21; examples Ibid.)

3SG present indicative	oes [oî̯s] yssit [əsid]
3SG consuetudinal present	bit, byd (rare) [bid] / [bɨð?]
3SG imperfect	oed [oî̯ð]
3SG consuetudinal past	bydei [bəðeî̯]
3SG preterit	bu [bʉ]
3SG present subjunctive	bo [bo](rare)
3SG imperfect subjunctive	bei [beî̯]

A few examples:

*nyt oes **bont** arnei hitheu* {pont} [nɨd oî̯s bont arneî̯ hiθeʉ̯]
'there is not a bridge over it'

*gwaeth uu **drafferth** y deu hynny* {trafferth} [gwaî̯θ vʉ drafɛrθ ə ðeʉ̯ hənɨː]
'worse was the plight of those two'

vii. NOTES ON THE TRANSCRIPTIONS

Irish:

The transcriptions of Modern Irish generally follow the Conamara Irish, often drawing from the *Cois Fhairrge* dialect (west of Galway city from *Bearna* to *Cuan Chasla*) from the works of Ó Siadhail and de Bhaldraithe. My own transcriptions reflect this dialect and the dialect of neighbouring *An Cheathrú Rua* (from *Cuan Chasla* to *Cuan an Fhir Mhóir*). I occasionally use non-standard forms which better reflects the dialectal pronunciation and grammar.

Irish distinguishes between palatalized and non-palatalized consonants; natively referred to as *caol* [kiːlʸ] 'slender' and *leathan* [l̪ʲæː(hə)n̪ʸ] 'broad' respectively. Non-palatal phonemes (with the exception of /l/, /r/ and /n/; see below) are unmarked for velarization. In a stricter transcription they would be marked $C^{ɣ}$ or in some cases C^{w}. Celticsits traditionally denote palatal consonants by C′. I have usually marked them, using IPA as C^{j}, except for the velars for which I have transcribed as palatals rather than as palatalized velars, i.e. [c], [ɟ], and [ç] rather than [k^{j}], [g^{j}] and [x^{j}]. Free variation exists across dialects between the two. Additionally, the palatalized dental stops [$t̪^{j}$] and [$d̪^{j}$] of Connacht commonly correspond to the affricates [ʧ] and [ʤ] in Ulster and Mayo and to the alveolar stops [t̪] and [d̪] in Munster (as opposed to the dental broad consonants—[t̪(ʸ)] and [d̪(ʸ)] everywhere). [ʃ] represents the palatal counterpart of [s].

Liquids and nasals in Irish have tense (unlenited) and lax (lenited) variants. In the traditional system for Irish capitals signify unlenited tense consonants:

/L/	/L′/	/l/	/l′/
[l̪ʸ]	[l̪ʲ]	[lʸ]	[lʲ]
/R/	/R′/	/r/	/r′/
[rʸ]	[rʲ]	[ɾʸ]	[ɾʲ]
/N/	/N′/	/n/	/n′/
[n̪ʸ]	[n̪ʲ]	[nʸ]	[nʲ]

(C̪ʲ represents an alveo-palatal)

Modern Irish/Scottish dialects reduce this system to varying extents. The Conamara dialect used here, for example, does not distinguish between lenited and tense of the non-palatal phonemes—the non-tense one becomes tense. Additionally, in the case of r, only [ɾˠ] and [ɾʲ] exist and initially only [ɾˠ], unless under lenition, in which case it becomes [ɾʲ] if originally /Rʲ/; thus:

/L/	/L′/	/l/	/l′/
[l̪ˠ]	[l̪ʲ]	**[l̪ˠ]**	[lʲ]

/R/	/R′/	/r/	/r′/
[ɾˠ]	**[ɾˠ]**	[ɾˠ]	[ɾʲ]

/N/	/N′/	/n/	/n′/
[n̪ˠ]	[n̪ʲ]	**[n̪ˠ]**	[nʲ]

(bold signifies the change from the inherited Old Irish system)

This system of transcriptions of the fortis/lenis sonorants is based on de Bhaldraithe (1966).

Other systems (such as Akerbeltz) would transcribe the dental sonorants as follows:

[l̪ˠ]→[l̪]	[l̪ʲ]→[ʎ]	[lˠ]→ [ɬ]	[lʲ]→[l̩]
[ɾˠ]→[ɾ]	[ɾʲ]→? [14]	[ɾˠ]→[ɾ]	[ɾʲ]→[ɾʲ]
[n̪ˠ]→[n̪]	[n̪ʲ]→[ɲ]	[nˠ]→[n]	[nʲ]→[n]

Some Celticists, including Thurneysen and Stifter, employ lowercase Greek letters to represent the lenited consonants. Thus (palatalization ignored here):

/L/	l
/l/	λ
/R/	r
/r/	ρ

[14] not ever given because [rʲ] has not survived in any Irish or Scottish dialect.

/N/	n
/n/	ν

Similarly for other lenited consonants:

/ð/	δ
/θ/	θ
/v/	β [15]
/ṽ/	μ [15]
/f/	φ [15]
/ɣ/	γ
/x/	χ

Welsh:

My Modern Welsh transcriptions seek to roughly imitate a general South-Western dialect.

I have transcribed the Welsh stops with an opposition between voiced and unvoiced: [p] vs. [b] whereas in reality they both feature [–voice] and aspiration [± spread glottis] distinguishes between them, thus [p^h] vs. [b̥] / [p] . Additionally, dialectal variation does also play a role [16]. The difference of whether consonants are differentiated by voice or aspiration holds little significance in synchronic application of mutation in Modern Welsh. However, it may lead to insights on the pre-history and development of Celtic lenition in both the Goidelic and Brythonic branches – see section X.b.

This paper represents the nasal mutation of the voiceless stops /p, t, k,/ as voiceless aspirated nasals [m̥^{h}, n̥^{h}, ŋ̊^{h}]; however, they are often phonetically voiced nasals plus the voiceless glottal fricative: [mh, nh, ŋh] (Willis 1986, p. 2).

[15] In reality in Old Irish these sounds probably were bilabial. Modern Irish varies between true bilabials and labio-dentals. Thus I occasionally use these Greek symbols as well; especially with μ.

[16] Scottish Gaelic also shares the same phenomenon of pre- and post- aspiration rather than voicing, which can possibly indicate the underlying influence of Brythonic and Pictish, or maybe Scandinavian influence brought by the Vikings (Modern Icelandic, for example, employs [± spread glottis] to distinguish between /p/ and /b/).

Old Irish / Middle Welsh:

Obviously no spoken data exists upon which to draw for transcribing the pronunciation of these medieval languages, so the transcriptions are approximate. The irregular orthography further complicates matters, especially since oftentimes initial mutations have no special marking. In general, I have drawn from Stifter for the Old Irish pronunciations and have followed the basic guidelines set by Evans in GMW for Middle Welsh. In cases of ambiguous orthographical forms, the modern languages assist in formulating an educated guess.

viii. FIXED *RO* (EARLIER) VS. MOVEABLE (PROCLITIC) *RO*

(GOI §527-8, 234.2)

Depending on its position, the augment particle *ro* may trigger lenition. It does so when it comes immediately before the main stress of the verb; the so-called "moveable *ro*". The fixed *ro* is typically located after the preverbs and immediately before the verb-stem. The forms in parentheses I constructed by analogy, the others are from GOI. My forms are hypothetical and unattested.

do·gáetha, ·togaítha 'to deceive'

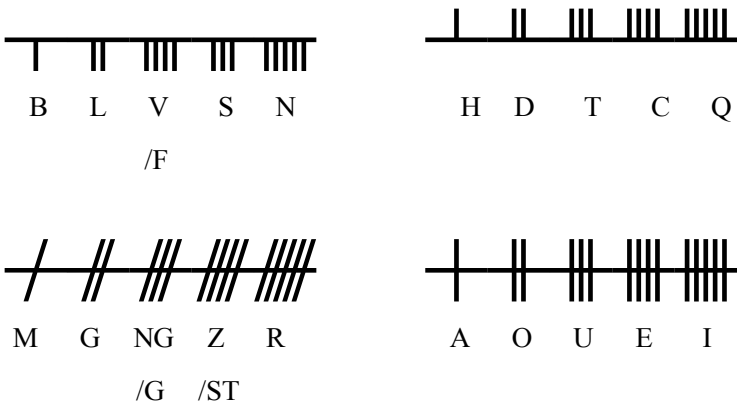
fixed *ro*	**moveable *ro***	
(ni·to-r-gaítsam)	*ni-ru·tho-gaítsam*	'we have not deceived'
[n̪ʲi:ˈtorˠgaɻdsəμ]	[n̪ʲi:rˠoˈθoɣaɻdsəμ]	
ni-m·tho-r-gaíth	*(ni-ro-m·thogaíth*	'has not deceived me'
[n̪ʲi:mˈθorgaɻθ]	/ *ni-m·ro-thgaíth*)	
	[n̪ʲi:rˠomˈθoɣaɻθ] / [n̪ʲi:mˈɾˠoθɣaɻθ]	
ni·to-r-gaítha	*(ni-ro·thogaítha)*	'should have deceived'
[n̪ʲi:ˈtorˠgaɻθa]	[n̪ʲi:rˠoˈ θoɣaɻθa]	(SUBJUNCTIVE)

Both of these parallel forms of *do·intaí,* 'to translate' are attested:

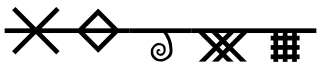
do·intarráe	*do·r-int-aí*	'has turned/translated'
(-ro-śoí)		
[doˈn̪ˠtarˠaɻ]	[doˈrˠn̪ˠtaɻ]	

ix. OGHAM ALPHABET

(McManus 1991, p. 2, 142; Ziegler, p. 8)



forfeda (many variations)*:*



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Abbreviations:

EIV McCone, *The Early Irish verb*
GMW Evans, *A grammar of Middle Welsh*
GOI Thurneysen, *A grammar of Old Irish*
L&P Lewis / Pedersen, *A concise comparative Celtic grammar.*
PCD Proto-Celtic – English dictionary
SnaG *Stair na Gaeilge*