

# Preverbal *d'* and its interactions with the initial consonant mutation system in Irish

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## Initial consonant mutation (ICM)

Systematic **phonological alternation** of word-initial consonants, depending on **morphosyntactic context**

- (1) a. *ní dhúnfaidh siad é* [d→ɣ]  
NEG L.close.FUT they it  
'They will not close it.' (L = "Lenition")
- b. *an gcreideann tú í?* [k→g]  
Q E.believe.PRS you her  
'Do you believe her?' (E = "Eclipsis")
- c. *d' fhágfainn* [f→∅]  
HIST L.leave.COND.1SG  
'I would leave.'

# Trigger word account of ICM

- Floating phonological material on the right edge of a trigger word

- (2)
- |    |  |           |
|----|--|-----------|
| a. | <i>ní</i> -{L} <i>dúnfaidh</i> → <i>ní dhúnfaidh</i>   | /d/ → [ɣ] |
| b. | <i>an</i> -{E} <i>creideann</i> → <i>an gcreideann</i> | /k/ → [g] |
| c. | <i>d'</i> -{L} <i>fágfainn</i> → <i>d' fhágfainn</i>   | /f/ → [∅] |

(e.g. Lieber 1983; losad 2014; Breit 2019)

- **Prediction:** conditions for insertion of trigger word cannot be sensitive to the post-mutation identity of the target
- Demonstrably fails to hold for “historic tense particle” *d'*
  - (“historic tense” = specific subset of tense/mood combinations in Irish)

# Two possible solutions

## Morphosyntactic solution: {L} separate from $d'$

- Historic tense prefix {L}- inserted first
- Historic tense particle  $d'$  inserted **after** mutation has happened

$d'$  {L}-fágfainn

## Phonological solution: {L} attached to $d'$

- Mutation-inducing material {L} inserted alongside  $d'$
- A **separate factor** prevents  $d'$  from surfacing in some contexts

( $d$ )-{L} fágfainn

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# Irish ICM: Phonological alternations

Unmutated		Lenition		Eclipsis	
p <sup>(j)</sup>	⟨p⟩	f <sup>(j)</sup>	⟨ph⟩	b <sup>(j)</sup>	⟨bp⟩
t <sup>(j)</sup>	⟨t⟩	h <sup>(j)</sup>	⟨th⟩	d <sup>(j)</sup>	⟨dt⟩
k <sup>(j)</sup>	⟨c⟩	x <sup>(j)</sup>	⟨ch⟩	g <sup>(j)</sup>	⟨gc⟩
b <sup>(j)</sup>	⟨b⟩	v <sup>(j)</sup>	⟨bh⟩	m <sup>(j)</sup>	⟨mb⟩
d <sup>(j)</sup>	⟨d⟩	ɣ <sup>(j)</sup>	⟨dh⟩	n <sup>(j)</sup>	⟨nd⟩
g <sup>(j)</sup>	⟨g⟩	ɣ <sup>(j)</sup>	⟨gh⟩	ŋ <sup>(j)</sup>	⟨ng⟩
m <sup>(j)</sup>	⟨m⟩	v <sup>(j)</sup>	⟨mh⟩	–	–
f <sup>(j)</sup>	⟨f⟩	∅ <sup>(j)</sup>	⟨fh⟩	v <sup>(j)</sup>	⟨bhf⟩
s <sup>(j)</sup>	⟨s⟩	h <sup>(j)</sup>	⟨sh⟩	–	–
l <sup>(j)</sup>	⟨l⟩	l <sup>(j)</sup>	⟨ll⟩	–	–
n <sup>(j)</sup>	⟨n⟩	n <sup>(j)</sup>	⟨nn⟩	–	–

(adapted from Iosad 2023)

- **Lenition:** Stops → fricatives; coronals lose place feature
- **Eclipsis:** Voiceless stops → voiced; voiced stops → nasal

Mutation following so-called “trigger words”:

- Prepositions:
  - **Lenition:** *de* ‘from/of’, *do* ‘for/to’, *ó* ‘from’, *trí* ‘through’, ...
  - **Eclipsis:** *i* ‘in’
  - **Non-mutation:** *ag* ‘at’, *as* ‘out of’, *go* ‘to’, *le* ‘with’, ...
- Numerals:
  - **Lenition:** 1-6 (e.g. *trí bhád* ‘three L.boats’)
  - **Eclipsis:** 7-10 (e.g. *naoi mbliana* ‘nine E.years’)
- Preverbal particles:
  - **Lenition:** *a* (relative prt), *má* (cond), *ní* (neg), *d’* (tense prt), ...
  - **Eclipsis:** *go* (comp), *an* (question), *dá* (cond), *nach* (neg comp), ...



Mutation linked to morphosyntactic features on the target word:

- Adjectival agreement:
  - *bean* **b**heag **dh**ílis 'a **L**.small **L**.loyal woman'
  - *na heitleáin* **dh**earga **ch**éanna 'the **L**.same **L**.red airplanes'
- Definite possessors:
  - *bád* **S**heáin 'L.Seán's boat'
  - *bád mór* **S**heáin 'L.Seán's big boat'
  - *bád* **S**heáin **M**hóir 'L.big L.Seán's boat'
- After the definite article:
  - *an fhuinneog* 'the **L**.window' (F)
  - *an bád* 'the boat' (M)
  - *barr na fuinneoige* 'the top of the window' (F.GEN)
  - *dath an bháid* 'the colour of the **L**.boat' (M.GEN)
  - *barr na bhfuinneog* 'the top of the **E**.windows' (F.GEN.PL)
  - *dath na mbád* 'the colour of the **E**.boats' (M.GEN.PL)

# ICM in an autosegmental framework

- Morphology is fundamentally concatenative
- Phonologically defective morphemes  
(e.g. Trommer 2011; Bye & Svenonius 2012; Zimmermann 2017)

Floating phonological material + Target consonant → Mutated target

e.g. floating features (Lieber 1983)

floating elements (Breit 2019)

floating geometric structure (Iosad 2014)

Advantages:

- Compatible with strict modularity (Scheer 2010; Bermúdez-Otero 2012)
- No ad hoc diacritics (cf. Hamp 1951; Pyatt 1997)
- Captures phonological regularities (cf. Stewart 2004; Green 2006)

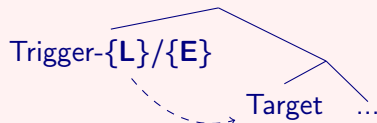
# ICM in an autosegmental framework

## Possible sources of mutation-inducing material

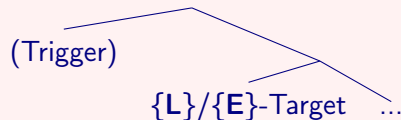
(Laoide-Kemp 2023)

- **Type 1:** Mutation material at right edge of a trigger word
- **Type 2:** Mutation material as a prefix on the target word

Type 1:



Type 2:



- **Both sources** are necessary to account for the Irish ICM data

# ICM in an autosegmental framework

In the Irish clause...

- All preverbal particles are associated with mutation on the verb

Lenition		Eclipsis	
<i>a<sup>L</sup></i>	direct relative particle	<i>a<sup>N</sup></i>	indirect relative particle
<i>má</i>	conditional particle	<i>go</i>	complementiser
<i>ní</i>	negative particle	<i>an</i>	interrogative particle
<i>d'</i>	historic tense particle	<i>nach</i>	negative complementiser
all <i>-r</i> forms of dependent particles		<i>dá</i>	conditional particle
		<i>cá</i>	'where'

- Lexical property of each preverbal particle

(contra Duffield 1995)

# ICM in an autosegmental framework

- Mutation triggered on **any** following consonant

- (3) a. *go dtuigim*  
COMP E.understand.1SG  
'...that I understand'
- b. *go mba mhór an ónóir í*  
COMP E.COP.HIST L.great the honour it  
'...that it was a great honour'

(Gaois.ie 2022)

**Hypothesis:** All preverbal particles are mutation “trigger words” (Type 1)

- But lenition-triggering “historic tense particle” *d'* is problematic!

# The puzzle of the historic tense particle

Two classes of tense/mood combinations:

- **Historic**: past indicative, past habitual, conditional, past subjunctive
- **Non-historic**: everything else

Markers of historic tense:

- Preverbal particles
  - **Historic tense particle  $d'$**  ( $d'-\{L\}$ )
  - $-r$  forms: *ní* vs. *níor*; *an* vs. *ar*, ... (*níor*- $\{L\}$ , *ar*- $\{L\}$ , ...)
- “Historic tense lenition”

## Hypothesis

Historic tense preverbal particles are **mutation trigger words**, carrying lenition-inducing material  $\{L\}$  at their right edge

# The puzzle of the historic tense particle

- Appears only before words that are underlyingly vowel- or *f*-initial

- (4)
- a. *d'* *ól* *mé*  
HIST drink I  
'I drank.'
- b. *d'* *fhág* *mé*  
HIST L.leave I  
'I left.'
- c. *(\*d')* *bhuaigh* *mé*  
(HIST) L.win I  
'I won.'

- Recall: *f* “deletes” under lenition:  $f^{(j)} \rightarrow \emptyset^{(j)}$

# The puzzle of the historic tense particle

- Appears only before words that are underlyingly vowel- or *f*-initial

(5) a. ***d'*** *ól* *mé* ← empty consonantal slot

HIST drink I

'I drank.'

b. ***d'*** *fhág* *mé* ← empty consonantal slot

HIST L.leave I

'I left.'

(Gussmann 1986; Ní Chiosáin 1991)

c. ***(\*d')*** *bhuaigh* *mé*

(HIST) L.win I

'I won.'

- Recall: *f* “deletes” under lenition:  $f^{(j)} \rightarrow \emptyset^{(j)}$



# The puzzle of the historic tense particle

Historic copular particle *-b*: similar pattern to *d'* (in some contexts)

- (6) a. *níor*      *-bh*      *ealaíontóir í*  
NEG.HIST L.COP.HIST artist she  
'She was not an artist.'
- b. *níor*      *-bh*      *fheirmeoir í*  
NEG.HIST L.COP.HIST L.farmer she  
'She was not a farmer.'
- c. *níor*      *(\*-bh)*      *shaighdiúir í*  
NEG.HIST (L.COP.HIST) L.soldier she  
'She was not a soldier.'

(Note: Lenition on *-b* following mutation trigger *níor*-{L})

# Evidence for the empty consonantal slot

Evidence for empty consonantal slot in vowel-initial words:

- (7) a. *ithir* /ihir<sup>ɨ</sup>/ 'soil'  
b. *an ithir* /ən<sup>ɨ</sup> ihir<sup>ɨ</sup>/ 'the soil' (Ní Chiosáin 1991:80)
- (8) a. *aois* /i:s<sup>ɨ</sup>/ 'age'  
b. *an aois* /ən<sup>ɨ</sup> i:s<sup>ɨ</sup>/ 'the age' (Ní Chiosáin 1991:81)

Evidence for empty consonantal slot following lenition of f:

- (9) a. *feoil* /f<sup>h</sup>o:ɨ/ 'meat'  
b. *an fheoil* /ən<sup>ɨ</sup> o:ɨ/ 'the L.meat' (Gussmann 1986:894)
- (10) a. *fáinne* /fan<sup>ɨ</sup>ə/ 'ring'  
b. *an fháinne* /ən<sup>ɨ</sup> an<sup>ɨ</sup>ə/ 'the L.ring' (Gussmann 1986:894)

# The puzzle of the historic tense particle

- Appears only before words that are underlyingly vowel- or *f*-initial

(11) a. *d'* *ól* *mé* ← empty consonantal slot

HIST drink I

'I drank.'

b. *d'* *fhág* *mé* ← empty consonantal slot

HIST L.leave I

'I left.'

(Gussmann 1986; Ní Chiosáin 1991)

c. *(\*d')* *bhuaigh* *mé*

(HIST) L.win I

'I won.'

Context for insertion of historic tense particle *d'*

An empty consonantal slot in the **post-mutation** form of the target word

# Alternative analyses of *d'* pattern

- Surfaces to satisfy onset requirement?
  - No – see (12)
- Surfaces if syllabification does not violate phonotactic constraints?
  - No – see (13)

- (12) a. *d'* *fhliuch sí* [...] (13) a. *(\*d')* *léim sé*  
HIST L.wet she (HIST) jump he  
'She wet [...].' 'He jumped.'
- b. *d'* *fhreagair sí* b. *(\*d')* *rith sé*  
HIST L.answer she (HIST) run he  
'She answered.' 'He ran.'

# The puzzle of the historic tense particle *d'*

## Context for insertion of historic tense particle *d'*

An empty consonantal slot in the **post-mutation** form of the target word

⇒ Spell-out timing paradox!

- *d'* inserted **before** mutation?
  - cannot be sensitive to post-mutation form of the target
- *d'* inserted **after** mutation?
  - cannot be the origin of mutation-inducing material

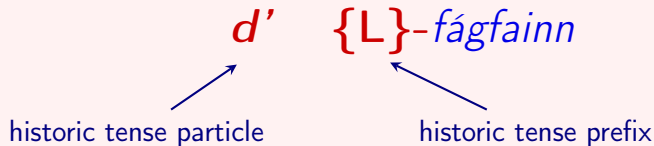
## The upshot

If insertion of *d'* is sensitive to the post-mutation form of the target word, it **cannot be the trigger of lenition**.

# Morphosyntactic solution

## Two distinct exponents of historic tense in Irish

- Historic tense prefix {L}- triggers lenition
- Historic tense particle *d'* inserted separately



**Crucially:** mutation takes place **before** historic tense particle *d'* is inserted

## Morphosyntactic solution: {L} separate from *d'*

- Historic tense prefix {L}- inserted first
- Historic tense particle *d'* inserted **after** mutation has happened

*d'* {L}-*fágfainn*

In favour of this analysis...

- **Independent evidence** for mutation-inducing prefixes in Irish
  - *bean bheag dhílis* 'a L.small L.loyal woman'
  - *ár gcapall* 'our E.horse'
  - *ár dhá gcapall* 'our two E.horses'
- **Unified treatment** of historic tense lenition

# Problem 1: Past tense impersonal forms

- Past tense impersonal forms in Irish resist mutation:

- (14)
- a. *dhúnamar* 'we L.closed' (PST)
  - b. *dhúnfaí* '(someone) would L.close' (IMPERS)
  - c. *dúnadh* (*\*dhúnadh*) '(someone) closed' (PST.IMPERS)

- Prediction: *d'* should only appear before vowel-initial verbs

- Observation: *d'* never appears

- (15)
- a. (*\*d'*) *dúnadh* '(someone) closed' (PST.IMPERS)
  - b. (*\*d'*) *óladh* '(someone) drank' (PST.IMPERS)
  - c. (*\*d'*) *fágadh* '(someone) left' (PST.IMPERS)



# Problem 1: Past tense impersonal forms

- Maybe past tense impersonal verbs lack the [+historic] feature?
- Two objections:
  - Past tense impersonal forms of some irregular verbs **do** mutate

- (16) a. *chona<sup>h</sup>thas* '(someone) L.saw' (PST.IMPERS)  
b. *thang<sup>h</sup>thas* '(someone) L.came' (PST.IMPERS)

- Also resist mutation following a **known trigger word** (e.g. *má*-{L})

- (17) a. *má dhúnaim* 'if I L.close' (PRES)  
b. *má dhúnfar* 'if (someone) will L.close' (FUT)  
c. *má dúnadh* 'if (someone) closed' (PST.IMPERS)

⇒ **Intrinsically** resistant to mutation

- But if so, **why also resistant to *d'***?

## Problem 2: Evidence from Munster Irish

- So far: standard variety of Irish (Christian Brothers 1960)
- Munster Irish: more widespread use of preverbal *d'/dh'* (Ó Sé 2000)

Standard	Munster*	Gloss
<i>ní fhásann</i>	<i>ní dh' fhásann</i>	'(it) doesn't grow'
<i>má fhanann</i>	<i>má dh' fhanann</i>	'if (he) stays'
<i>d' imigh</i>	<i>(do) dh' imigh</i>	'(he) went away'

\*Note: <dh> = [ɣ] in Munster Irish

- Preverbal *d'* no longer linked to historic tense  
→ Instead, observed in **all** lenition contexts
- However, **phonological restrictions on *dh'* are the same**

## Recall: The puzzle of the historic tense particle

- (18) a. *d'* ól mé ← empty consonantal slot  
HIST drink I  
'I drank.'
- b. *d'* fhág mé ← empty consonantal slot  
HIST L.leave I  
'I left.'
- c. *(\*d')* bhuaigh mé  
(HIST) L.win I  
'I won.'
- (Gussmann 1986; Ní Chiosáin 1991)

- **Previously:** *d'* is only inserted in a subset of phonological contexts
- **Instead:** What if *d'* is **always inserted**, but only pronounced under specific phonological conditions?

## Phonological solution: {L} attached to $d'$

- Mutation-inducing material {L} inserted alongside  $d'$
- A **separate factor** prevents  $d'$  from surfacing in some contexts

(*d*)-{L}     *fágfainn*

My proposal:

- Preverbal  $d'$  is a phonologically deficient “floating  $d'$ ”
- Only pronounced if linked to an **empty consonantal slot**
- Similar to liaison in French: *peti[ʔ] chat* vs. *peti[t] enfant*

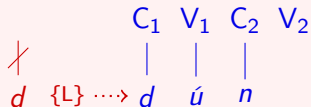
# Phonological solution

Working within a strict CV framework...

(Scheer 2012)

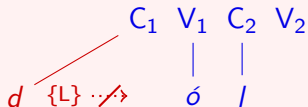
Proposed historic tense morpheme:  $[+hist] \leftrightarrow$  

Before C-initial verb: *dún* 'close'



⇒ Result: *dhún*

Before V-initial verb: *ól* 'drink'



⇒ Result: *d'ól*

# Phonological solution

Historic tense morpheme:

[+hist] ↔  $\begin{array}{c} | \\ d \quad \{L\} \end{array}$

Before *f*-initial verb: *fág* 'leave'

$\begin{array}{cccc} & C_1 & V_1 & C_2 & V_2 \\ & / & | & | & \\ d & \{L\} \cdots \rightarrow & f & á & g \end{array}$

⇒ Result: *d' fhág*

- Lenition-inducing material  $\{L\}$  deletes initial *f*
- Empty C-slot becomes available for floating (*d*) to link to

⇒ Derives observed distribution of preverbal *d'*

# Phonological solution

- Resolves the “spell-out timing paradox”
- Consistent with autosegmental approach to phonology
- Irish already has a rich system of prevocalic consonantal prefixes
  - **t-prefixation** after M.SG definite article  
*an t-éan* ‘the bird’
  - **n-prefixation** in many eclipsis environments  
*ár n-athair* ‘our father’
  - **h-prefixation** after a range of particles/prepositions  
*go hÉireann* ‘to Ireland’
- Only difference here is the interaction with the mutation system

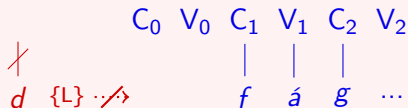
# Phonological solution: Past tense impersonal forms

- **Recall:** Past tense impersonal forms resist mutation **and** *d*-prefixation

- (19)
- |    |                                  |                       |
|----|----------------------------------|-----------------------|
| a. | <i>dúnadh</i> '(someone) closed' | (* <i>dhúnadh</i> )   |
| b. | <i>óladh</i> '(someone) drank'   | (* <i>d'óladh</i> )   |
| c. | <i>fágadh</i> '(someone) left'   | (* <i>d'fhágadh</i> ) |

- **Solution:** these forms carry additional structure at their left edge

(e.g. Breit 2019; Scheer 2012)



⇒ Result: *fágadh*



# Phonological solution: Munster Irish

- **Recall:** Munster Irish makes more widespread use of preverbal *d' / dh'*

Standard	Munster	Gloss
<i>ní fhásann</i>	<i>ní dh' fhásann</i>	'(it) doesn't grow'
<i>má fhanann</i>	<i>má dh' fhanann</i>	'if (he) stays'
<i>d' imigh</i>	<i>(do) dh' imigh</i>	'(he) went away'

\*Note: <dh> = [ɣ] in Munster Irish

- **Solution:** Floating (ɣ) found in **all** lenition-triggering environments

	Standard	Munster
Preverbal particles	<i>ní</i> -{L} <i>má</i> -{L}	<i>ní</i> -(ɣ){L} <i>má</i> -(ɣ){L}
	...	...
Historic tense marker	<i>(d)</i> {L}	<i>do</i> -(ɣ){L} / <i>(ɣ)</i> {L}

# Comparison: Morphosyntactic vs. phonological solution

## Morphosyntactic solution:

$d'$  {L}-*fágfainn*

- Simpler phonology
- More complex morphosyntax
- Struggles with past tense impersonal
- Can't account for Munster data

## Phonological solution:

( $d$ )-{L} *fágfainn*

- More complex phonology
- Simpler morphosyntax
- Easily accounts for past tense impersonals
- Easily extends to Munster data

# Comparison: Morphosyntactic vs. phonological solution

## Morphosyntactic solution

*d'* {L}-*fágfainn*

- Simpler phonology
- More complex morphosyntax
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## Phonological solution:

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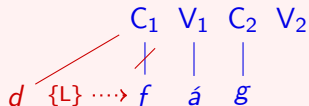
## Further questions and reflections

- ① Why no lenition of *d'*?
- ② What about *fr-* and *fl-* clusters?
- ③ What exactly **are** {L} and {E}?



# Q1: Why no lenition of *d'*?

Before *f*-initial verb: *fág* 'leave'



⇒ Result: ***d'*** *fhág* (*d'* + lenition)

Before V-initial verb: *ól* 'drink'



⇒ Result: ***d'*** *ól* (only *d'*)

Alternative answer (two parts):

- 1 Irish mutation-inducing material constrained to dock **rightward only**
  - cf. leftward docking of mutation material in Breton (Iosad 2014)
- 2 **Intrinsic ordering** of subsegmental components of morphemes
  - but note Munster ***dh'****ól* (initial [ɣ]) → source of dialectal variation?

## Q2: What about *fr-* and *fl-* clusters?

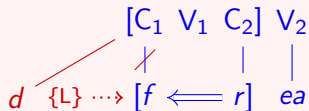
- (20) a. *d'* *fhliuch sí* [...] (21) a. *(\*d')* *léim sé*  
HIST L.wet she (HIST) jump he  
'She wet [...].'  
b. *d'* *fhreagair sí* b. *(\*d')* *rith sé*  
HIST L.answer she (HIST) run he  
'She answered.'

- In both cases, surface form of verb is *l-/r*-initial
- However,
  - in (20), empty C-slot remains following deletion of word-initial *f*
  - in (21) there is no such empty slot

## Q2: What about *fr*- and *fl*- clusters?

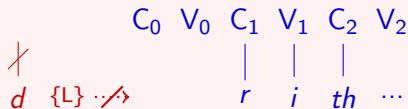
- Assume infrasegmental government relationship (IG;  $\Leftarrow$ ) between consonants in a cluster (Scheer 1998)

Initial *fr*- cluster: *freagair*



$\Rightarrow$  Result: *d' fhreagair*

Initial *r*- (PST.IMP): *ritheadh*



$\Rightarrow$  Result: *ritheadh*

- Q: How does lenited *fr*- cluster differ from empty CV before *r*?
- Looks like IG structure is retained following lenition



### Q3: What exactly **are** {L} and {E}?

The phonological representations discussed so far have included...

- “Traditional” segments: *k, a, t, tʲ, ...*
- Floating segments: *(t), (n), (h), (d), (b)*
- Empty CV units
- Floating mutation-inducing material: {L} and {E}

Irish words are built from combinations of these basic elements:

- M.SG definite article: segmental content *ən* + floating *(t)*
  - *an fear* ‘the man’; *an t-éan* ‘the bird’
- Preverbal NEG particle: segmental content *ní:* + floating {L}
  - *ní dhúnaim* ‘I don’t L.close’
- Historic tense morpheme: floating *(d)* + floating {L}
  - *d’ fhág mé* ‘I L.left’

### Q3: What exactly **are** {L} and {E}?

Unmutated		Lenition		Eclipsis	
p <sup>(j)</sup>	⟨p⟩	f <sup>(j)</sup>	⟨ph⟩	b <sup>(j)</sup>	⟨bp⟩
t <sup>(j)</sup>	⟨t⟩	h <sup>(j)</sup>	⟨th⟩	d <sup>(j)</sup>	⟨dt⟩
k <sup>(j)</sup>	⟨c⟩	x <sup>(j)</sup>	⟨ch⟩	g <sup>(j)</sup>	⟨gc⟩
b <sup>(j)</sup>	⟨b⟩	v <sup>(j)</sup>	⟨bh⟩	m <sup>(j)</sup>	⟨mb⟩
d <sup>(j)</sup>	⟨d⟩	ɣ <sup>(j)</sup>	⟨dh⟩	n <sup>(j)</sup>	⟨nd⟩
g <sup>(j)</sup>	⟨g⟩	ɣ <sup>(j)</sup>	⟨gh⟩	ŋ <sup>(j)</sup>	⟨ng⟩
m <sup>(j)</sup>	⟨m⟩	v <sup>(j)</sup>	⟨mh⟩	–	–
f <sup>(j)</sup>	⟨f⟩	∅ <sup>(j)</sup>	⟨fh⟩	v <sup>(j)</sup>	⟨bhf⟩
s <sup>(j)</sup>	⟨s⟩	h <sup>(j)</sup>	⟨sh⟩	–	–
l <sup>(j)</sup>	⟨l⟩	l <sup>(j)</sup>	⟨⟨l⟩⟩	–	–
n <sup>(j)</sup>	⟨n⟩	n <sup>(j)</sup>	⟨⟨n⟩⟩	–	–

(adapted from Iosad 2023)

- **Lenition:** Stops → fricatives; coronals lose place feature
- **Eclipsis:** Voiceless stops → voiced; voiced stops → nasal

### Q3: What exactly **are** {L} and {E}?

- Mutations are phonologically regular in many ways...
- ...but difficult to capture through a single (set of) featural change(s)
- One solution: phonologically conditioned allomorphy

(cf. Iosad (2014) on Breton; Breit (2019) on Welsh)

$$\text{negation particle} \longleftrightarrow \begin{cases} n\acute{i}\text{-}\{L_1\} & \text{in phon env 1} \\ n\acute{i}\text{-}\{L_2\} & \text{in phon env 2} \\ \dots & \dots \text{ etc.} \end{cases}$$

- But why are mutation effects so consistent across the language?
- Do {L} and {E} have an independent existence in the linguistic knowledge of Irish speakers?

*Go raibh míle maith agaibh!*

Thank you!



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