How coronal blocking of initial consonant mutation reflects domain structure in Irish

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Initial consonant mutation (ICM)

Initial consonant mutation is the systematic **phonological alternation** of word-initial consonants, depending on **morphosyntactic context**

(1) ***b**róg* 'shoe' ⟶ *aon **bh**róg* 'one **L**.shoe' (initial [b] ⟶ [v]; "**L**enition")

Analysis: floating phonological material

- Floating mutation-inducing material {L} introduced in morphosyntactically defined environments (Lieber 1983; Iosad 2014; Breit 2019; Laoide-Kemp 2024)
- Latches onto an adjacent target consonant to produce the mutated output form

aon {L} ⇢ [b]*róg* ⟶ *aon* [v]*róg*

Coronal blocking of mutation (CB)

ICM is sometimes blocked **when two coronal consonants come together** at a word/morpheme boundary

(2) ***t**eanga* 'language' ⟶ *ao**n** **t**eanga* 'one language' (**aon **th**eanga*)

Analysis: "coronal fusion"

- Adjacent coronals must share their [+Cor] feature (Ní Chiosáin 1991)
- Renders target consonant inaccessible as a host for mutation-inducing material

ao[n] {L} ⇢ ⟋ [t]*eanga* ⟶ *ao*[n t]*eanga*

[+Cor]

The puzzle: what is the domain of CB?

ICM is active both between words (3) and within words (4)…

(3) a. *an **bh**róg* 'the **L**.shoe' (after F.DEF article)
b. *bróg **dh**earg* '**L**.red shoe' (F adjective agreement)
c. *bád **Ch**aoimhín* '**L**.Caoimhín's boat' (DEF possessor)

(4) a. *glan-**ch**innte* 'absolutely-**L**.certain'
b. *binn-**bh**réagadóir* 'very.good-**L**.liar' (after derivational prefixes)

…but CB is only found in a subset of these environments (5a)/(6): (Ó Curnáin 2007)

(5) a. *a**n** **t**raein* (**an **th**raein*) 'the train' (Regular CB)
b. *traein **dh**earg* (**traei**n** **d**earg*) '**L**.red train' (Regular ICM)
c. *bád **Sh**eáin* (**bá**d** **S**eáin*) '**L**.Seán's boat' (Regular ICM)

(6) a. *gla**n**-**t**irim* ~ *glan-**th**irim* 'absolutely-(**L**).dry' (CB ~ ICM)
b. *bi**nn**-**d**eicheall* ~ *binn-**dh**eicheall* 'very.good-(**L**).effort' (CB ~ ICM)

Q: What differentiates the environments where CB does and does not apply?

My analysis: CB depends on the visibility of the preceding coronal

Assumptions:

- Spell-out proceeds cyclically over **distinct spell-out domains**
- Within each domain, **morphemes inserted one-by-one** from the inside out
- **Limited phonological processing** directly after each morpheme is added (e.g. Kalin 2022)

Three cases: (T = preceding coronal consonant; {L} = mutation-inducing material)

(7) a. [domain …T-{L} Target (Regular CB)
b. …T [domain {L} Target (Regular ICM)
c. [domain …T {L} Target (CB ~ ICM)

Case 1: T and {L} inserted together (7a)

- Mutation-inducing material inserted alongside a "trigger word"
- T is **always visible** at the point of mutation
  ⇒ Mutation is blocked if the target word also begins with a coronal
- Accounts for instances of **regular CB** after **specific lexical items**

(8) a. [domain *ao**n**-*{L} *t**e**anga* ⟶ *ao**n** **t**eanga* cf. (2)
b. [domain *a**n**-*{L} *t**r**aein* ⟶ *a**n** **t**raein* cf. (5a)

- Also: *gan*-{L} 'without'; *chéad*-{L} 'first'; *don*-{L} 'to.the'; …etc.

Case 2: T and {L} separated by domain boundary (7b)

- Mutation-inducing material inserted as a prefix on the target word
- T is **never visible** at the point of mutation
  ⇒ Mutation proceeds as usual, in spite of preceding coronal

(9) a. *traein* [domain {L} *d**e**arg* ⟶ *traein **dh**earg* cf. (5b)
b. *bád* [domain {L} *S**e**áin* ⟶ *bád **Sh**eáin* cf. (5c)

- **Evidence for prefixation** from cases where "trigger" and target are non-adjacent:

(10) a. *traein **dh**earg **mh**ór* 'a **L**.big **L**.red train'
b. *bád mór **Sh**eáin* '**L**.Seán's big boat'
c. *bád **Sh**eáin nó **Mh**áire* '**L**.Seán's or **L**.Máire's boat' (Christian Brothers 1960)

Case 3: T and {L} belong to separate morphemes within a domain (7c)

In right-headed compounds…

- Coronal T and mutation-inducing {L} are in the **same spell-out domain** (cf. Case 1)
- But they belong to **separate lexical items** (cf. Case 2)

Consequence: both outcomes possible: CB ~ ICM

An analysis of variable CB within compounds

Background assumptions:

- Mutation takes place **over two steps** (cf. Swingle 1993; Iosad 2014; Breit 2019)
  - "L-linking": {L} associates itself with the target consonant
  - "L-incorporation": {L} acts on the target consonant to produce its mutated form
- Coronal fusion and L-linking occur immediately upon concatenation
- L-incorporation occurs only after a full domain has been spelt out
- Coronal fusion **precedes (and bleeds) L-linking**
- But crucially, L-linking **does not bleed coronal fusion**

Proposal:

- {L} in right-headed compounds is a **linking morpheme** (e.g. Mukai 2013; Ralli 2013)
  ⇒ {L} inserted **separately** from the preceding coronal; cf. (7c)
- Result is **competition** between L-linking and coronal fusion (see Table 1)
- Output depends on how this competition is resolved
- Possible links to stress patterns? (see Ó Curnáin 2007, 585ff)

Table 1. Right-headed compounds: CB (*gla**n**-**t**irim*) vs. ICM (*glan-**th**irim*); cf. (6a)

	Coronal blocking	Initial consonant mutation
Subcycle 1		
Morpheme insertion	*tirim*	*tirim*
Coronal fusion	–	–
L-linking	–	–
Subcycle 2		
Morpheme insertion	{L} *tirim*	{L} *tirim*
Coronal fusion	–	–
L-linking	{L}-*tirim*	{L}-*tirim*
Subcycle 3		
Morpheme insertion	*glan* {L}-*tirim*	*glan* {L}-*tirim*
Coronal fusion	*glan* {L}-*tirim*	*glan* {L}-*tirim*
L-linking	–	–
Full phonology		
L-incorporation	–	*glan **th**irim*
Output	*gla**n**-**t**irim*	*glan-**th**irim*

Implications of the analysis

A **new diagnostic** for spell-out domain boundaries in Irish:

- Regular CB or Variable CB ⟹ no spell-out domain boundary; cf. (7a)/(7c)
- Regular lenition ⟹ spell-out domain boundary; cf. (7b)

More reliable than looking at ICM patterns alone (cf. Sato 2009; Pruett 2024)
⟶ ICM does **not necessarily imply** absence of domain boundary

Evidence for **two levels of phonology**: (cf. Pak 2008; Scheer 2022)

- "Automatic" phonology: applies immediately upon concatenation
- "Full" phonology: applies after full domain has been spelt out

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