Two sources of initial consonant mutation in the Irish clause

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Introduction

Initial consonant mutation (ICM)

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

- Challenging for modular theories of grammar

- Autosegmental framework (e.g. Lieber 1983; Iosad 2014; Breit 2019)

My claim

Two distinct sources of mutation-inducing material in the Irish clause

Initial consonant mutation (ICM)

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

(1) a. **ní dh**íolfaidh siad é [**d**íolfaidh]
        NEG **L**.sell.FUT they it
        'They will not sell it.'   (**L** = "Lenition")

     b. **an gc**reideann tú í? [**c**reideann]
        Q **E**.believe.PRS you her
        'Do you believe her?'   (**E** = "Eclipsis")

     c. **d' fh**ágfainn   [**f**ágfainn]
        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. *ní*-**{L}** *díolfaidh* $\longrightarrow$ *ní* **dh**íolfaidh
     b. *an*-**{E}** *creideann* $\longrightarrow$ *an* **gc**reideann
     c. *d'*-**{L}** *fágfainn* $\longrightarrow$ *d' **fh**ágfainn*

- **Prediction**: trigger word cannot be sensitive to the post-mutation identity of the target

- Demonstrably fails to hold for "historic tense particle" *d'*

My proposal: Two sources of ICM in the Irish clause

Two sources of mutation in the Irish clause:
- Mutation triggered by a pre-verbal particle (Type 1)
- Lenition triggered by a [+historic] tense prefix (Type 2)
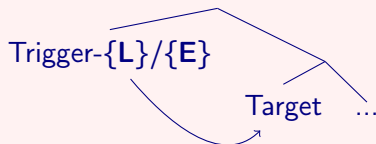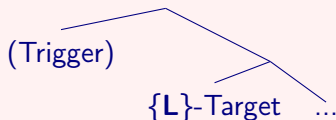
Figure 1: Type 1 mutation

Trigger-{**L**}/{**E**}

Target ...

Figure 2: Type 2 mutation

(Trigger)

{**L**}-Target ...

Crucially: still compatible with an autosegmental model of ICM

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ICM in an autosegmental framework

Floating phonological material + Target consonant $\longrightarrow$ Mutated target

e.g. floating features (Lieber 1983)
floating elements (Breit 2019)
floating geometric structure (Iosad 2014)

Advantages:

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

ICM in an autosegmental framework

Two questions:

- What is the **form** of the floating material?
- What is its **source**?

- Right edge of "trigger word"?
- Objections: (Green 2006)
  - Linear non-adjacency: *ár*[trigger] *dhá **g**capall* 'our two **E**.horses'
  - No overt trigger: ***dh**úisigh mé* 'I **L**.awoke'
  - Morphosyntactic features: *muintir **Sh**eáin* '**L**.Seán's family'

- Not necessarily homogeneous (Duffield 1995; Iosad 2014; Laoide-Kemp to appear)

Pre-verbal particles as mutation triggers

- Almost all pre-verbal particles are associated with mutation

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

- Seems to be lexical property of each pre-verbal particle

Pre-verbal particles as mutation triggers

- Mutation triggered on **any** following consonant

(3) a. *go* ***dt**uigim*
     COMP **E**.understand.1SG
     '...that I understand'

 b. *hata a* ***dh**' oirfeadh dom*
     hat REL.DIR **L**.HIST suit.COND to.me
     'a hat that suited me'

 c. *go* ***mb**a mhór an ónóir í*
     COMP **E**.COP.HIST L.great the honour it
     '...that it was a great honour'

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:

- Pre-verbal particles
    - Independent: historic tense particle *d'*
    - Dependent: *-r* forms: *ní* vs. *níor*; *an* vs. *ar*
- "Historic tense lenition"

The puzzle of the historic tense particle

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

(4) a. ***d'***   *ól*   *mé*   ⟵ empty consonantal slot
         HIST drink I
         'I drank.'

     b. ***d'***   ***fh****reagair* *mé* ⟵ empty consonantal slot
         HIST **L**.answer I
         'I answered.'   (Gussmann 1986; Ní Chiosáin 1991)

     c. ***(*d')***   ***bh****uaigh* *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

The puzzle of the historic tense particle

Context for insertion of historic tense particle *d'*

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

$$\implies \text{Spell-out timing paradox!}$$

- *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

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

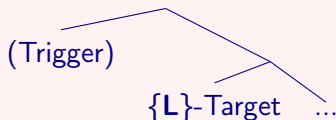# My proposal: two sources of ICM in the Irish clause

Two sources of mutation in the Irish clause:
- Mutation triggered by a pre-verbal particle (Type 1)
- Lenition triggered by a [+historic] tense prefix (Type 2)
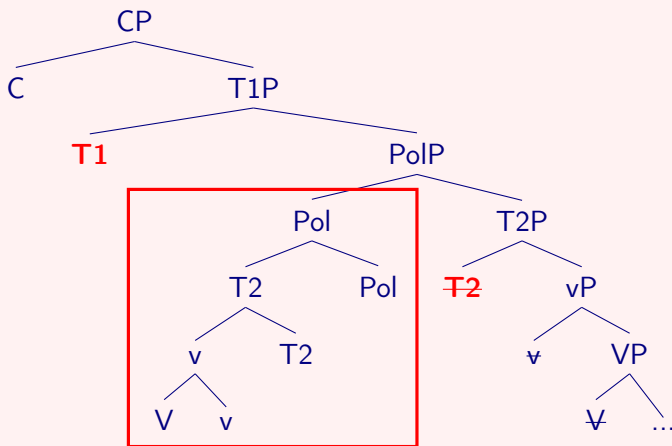
Type 1 mutation:

Trigger-{**L**}/{**E**}

Target ...

Type 2 mutation:

(Trigger)

{**L**}-Target ...
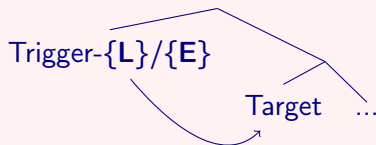
My proposal: two sources of ICM in the Irish clause

Structure of the Irish finite verb clause: (McCloskey 2017)

T1: historic/non-historic; **T2:** finer tense distinctions
Verbal complex: {V-v-T2-Pol}

My proposal: two sources of ICM in the Irish clause

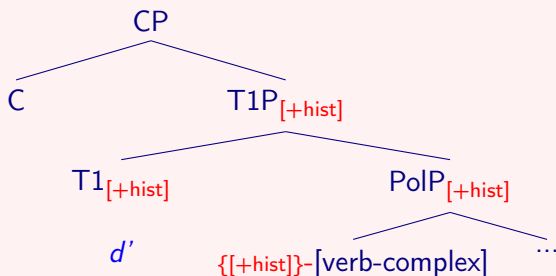After linearisation: **C** - **T1** - {verbal complex} - ...

C-head:

- Hosts all pre-verbal particles *other* than *d'*
- Associated with **Type 1** mutation (trigger word)

T1-head:

- Expresses historic/non-historic distinction
- Hosts historic tense particle *d'*
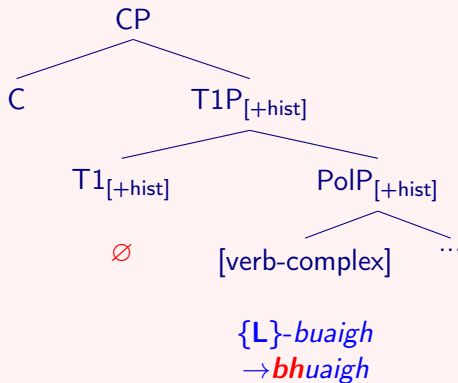- Associated with **Type 2** mutation (prefixation on verb)

- Historic tense feature originates on T1
- T1P marked as [+hist]
- Inherited by PolP via concord   (Ackema & Neeleman 2020)
- Realised as prefix on leftmost element   (Bermudez-Otero & Payne 2011)
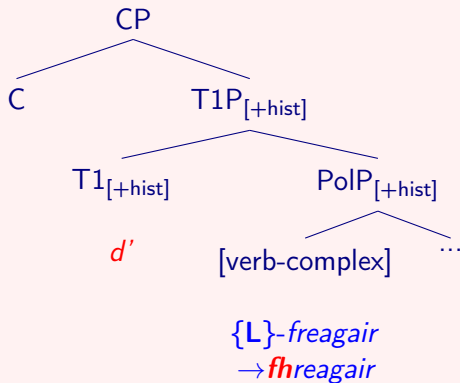- Pre-verbal *d'* inserted (if phonological conditions met)

- **Example:** *(*d')* **bh**uaigh mé 'I won'   (unlenited form: *buaigh*)

- **Example:** *d'fhreagair mé* 'I answered'   (unlenited form: *freagair*)

```
                    CP
                   /  \
                  C    T1P[+hist]
                      /        \
                 T1[+hist]      PolP[+hist]
                                /      \
                   d'      [verb-complex]   ...

                           {L}-freagair
                           →fhreagair
```

Historic tense lenition

- Two distinct exponents of historic tense:
  - Historic tense prefix {**L**}- triggers lenition
  - Historic tense particle *d'* inserted separately

- Spell-out timing paradox is resolved

- Retains all advantages of autosegmental account

- **Further advantage:** possible extension to copular clauses?

Historic tense lenition

Extending the analysis: copular clauses

- Structure: Copular particle – Predicate – Subject
- Only distinguish historic vs. non-historic tense
- Historic tense $\longrightarrow$ lenition on predicate

(5)   a.   *is   cosúil le   taibhse é*
           COP like   with ghost   he
           'He is like a ghost.'

        b.   *ba   **sh**aighdiúirí iad*
           COP.HIST **L**.soldiers   they
           'They were soldiers.'

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**   **fh**eirmeoir *í*
          NEG.HIST **L**.COP.HIST **L**.farmer   she
          'She was not a farmer.'

   c.   *níor*   *(*-bh)*   **sh**aighdiúir *í*
          NEG.HIST (**L**.COP.HIST) **L**.soldier   she
          'She was not a soldier.'

(**Note:** Type 1 lenition on *-b* following mutation trigger *níor*-**{L}**)

Summary and conclusions

Two sources of mutation in the Irish clause:
- Mutation triggered by a pre-verbal particle (Type 1)
- Lenition triggered by a [+historic] tense prefix (Type 2)

- Resolves spell-out timing paradox for *d'* and *-b*

- Unified treatment of historic tense lenition

- Retains all advantages of autosegmental model

Go raibh míle maith agaibh! – Thank you!

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Appendix A: Phonology of mutations

Phonological alternations:

Radical	*p*	*t*	*k*	*b*	*d*	*g*	*f*	*s*	*m*	*n*	*l*	*r*
Lenited	*f*	*h*	*x*	*v*	*ɣ*	*ɣ*	*∅*	*h*	*v*	–	–	–
Eclipsed	*b*	*d*	*g*	*m*	*n*	*ŋ*	*v*	–	–	–	–	–

Evidence for empty consonantal slot in vowel-initial words:

(7)   a.   *ithir*   /ihir^j/   'soil'
      b.   *an ithir*   /ən^j ihir/   'the soil'   (Ní Chiosáin 1991:80)

(8)   a.   *aois*   /iːs^j/   'age'
      b.   *an aois*   /ən iːs/   'the age'   (Ní Chiosáin 1991:81)

Evidence for empty consonantal slot following lenition of *f*:

(9)   a.   *feoil*   /f^{j}oːl^j/   'meat'
      b.   *an **fh**eoil*   /ən^j oːl^j/   'the meat'   (Gussmann 1986:894)

(10)   a.   *fáinne*   /fan^{j}ə/   'ring'
       b.   *an **fh**áinne*   /ən an^{j}ə/   'the ring'   (Gussmann 1986:894)

Appendix C: alternative analyses of *d'* insertion

- Inserted to satisfy onset requirement?
    - No – see (11)

(11)   a.   ***d'*** ***fh****liuch sí* [...]
    HIST **L**.wet she
    'She wet [...].'

      b.   ***d'*** ***fh****reagair sí*
    HIST **L**.answer she
    'She answered.'

(12)   a.   *(*d')* *léim sé*
    (HIST) jump he
    'He jumped.'

      b.   *(*d')* *rith sé*
    (HIST) run he
    'He ran.'

- Inserted if syllabification does not violate phonotactic constraints?
    - No – see (12)

Appendix D: Vocabulary items

Two distinct effects of [+historic] feature:

- Historic tense **prefix** on verbal complex
- Historic tense **particle** in T1-head

(13) **Historic tense prefix:**
      [Pol,+hist] ↔ {**L**}-

(14) **Historic tense particle:**
      a. [T1,+hist,+indep] ↔ /d/ / ___ {empty consonantal slot}
      b. [T1,+hist,+indep] ↔ ∅ (elsewhere)

Appendix D: Vocabulary items

Two distinct effects of [+historic] feature (copular clauses):

- Historic tense **prefix** on predicate
- Historic tense **copular particle** in T1-head
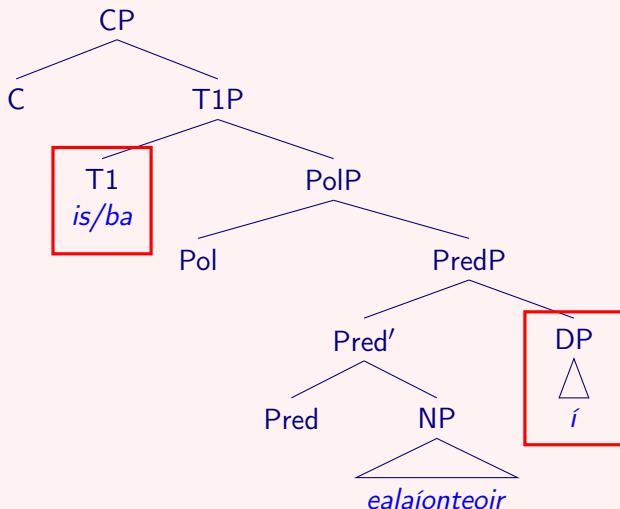
(15)   **Historic tense prefix:**
       [Pol,+hist] ↔ {***L***}-

(16)   **Historic tense copular particle:**
       a.   [T1,+hist,+dep,+cop] ↔ /b/ / ___ {empty consonantal slot}
       b.   [T1,+hist,+dep,+cop] ↔ ∅ (elsewhere)

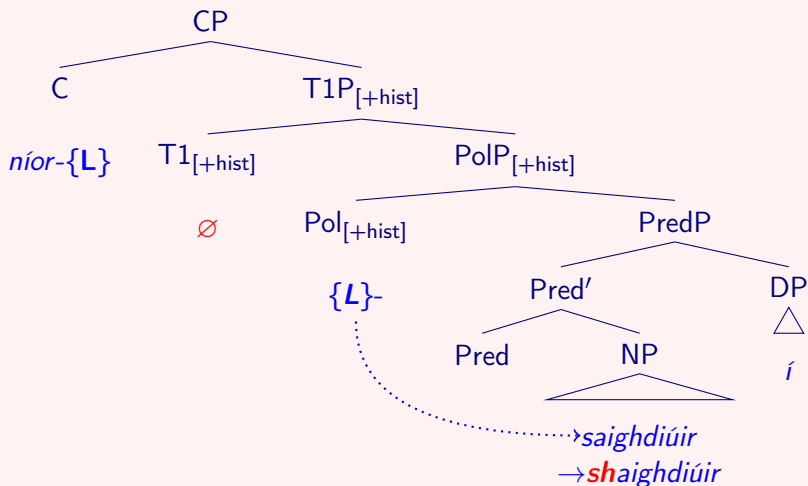# Appendix E: Extending the analysis to copular clauses

Structure of the Irish copular clause: (Doherty 1996; McCloskey 2005)

- **Example:** *níor*(***-bh**) *sh**aighdiúir í* 'she was not a soldier' (*saighdiúir*)

- **Example:** *níor-**bh** **fh**eirmeoir í* 'she was not a farmer' (*feirmeoir*)