

Two sources of initial consonant mutation in the Irish clause

Anna Laoide-Kemp

anna.laoide-kemp@ed.ac.uk

School of Philosophy, Psychology and Language Sciences (PPLS)

University of Edinburgh

33rd Colloquium on Generative Grammar

University of Alcalá, 17 May 2024

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; losad 2014; Breit 2019)

My claim

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

Initial consonant mutation in the Irish clause

Initial consonant mutation (ICM)

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

- (1) a. *ní dhíolfaidh siad é* [dʲíolfaidh]

NEG L.sell.FUT they it

'They will not sell it.'

(L = "Lenition")

- b. *an gcreideann tú í?* [creideann]

Q E.believe.PRS you her

'Do you believe her?'

(E = "Eclipsis")

- c. *d'fhágfainn* [fágfainn]

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* → *ní dhíolfaidh*
 - b. *an*-{E} *creideann* → *an gcreideann*
 - c. *d'*-{L} *fágfainn* → *d' fhágfainn*

- **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

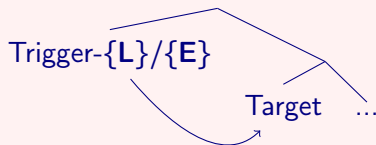
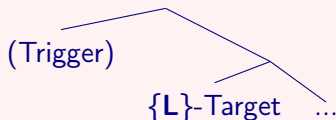


Figure 2: Type 2 mutation



Crucially: still compatible with an autosegmental model of ICM

Table of Contents

- 1 ICM in an autosegmental framework
- 2 Pre-verbal particles as mutation triggers
- 3 The puzzle of the historic tense particle
- 4 My proposal: two sources of ICM in the Irish clause
- 5 Extending the analysis: copular clauses

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 gcapall* ‘our two **E**.horses’
 - No overt trigger: *dhúisigh mé* ‘I **L**.awoke’
 - Morphosyntactic features: *muintir Sheáin* ‘**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	
<i>a^L</i>	direct relative particle	<i>a^N</i>	indirect relative particle
<i>má</i>	conditional particle	<i>go</i>	complementiser
<i>ní</i>	negative particle	<i>an</i>	interrogative particle
		<i>nach</i>	negative complementiser
<i>do/d'</i>	historic tense particle	<i>dá</i>	conditional particle
all <i>-r</i> forms of dependent particles		<i>cá</i>	'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 dtuigim*
COMP E.understand.1SG
'...that I understand' (Christian Brothers 1960:213)
- b. *hata a dh' oirfeadh dom*
hat REL.DIR L.HIST suit.COND to.me
'a hat that suited me' (Gaois.ie 2022)
- c. *go mba mhór an ónóir í*
COMP E.COP.HIST L.great the honour it
'...that it was a great honour' (Gaois.ie 2022)

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
 - Historic tense particle *d'*
 - -*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'* *fhreagair* mé ← empty consonantal slot

HIST L.answer I

'I answered.'

(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

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

⇒ 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

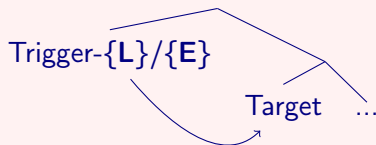
Given that insertion of d' is sensitive to the post-mutation form of the target word, it **cannot be the trigger of lenition**.

My proposal: two sources of ICM in the Irish clause

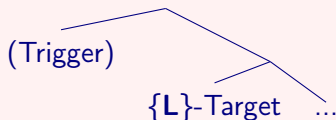
Two sources of mutation in the Irish clause:

- Mutation triggered by a pre-verbal particle (Type 1)
- Lenition triggered by a [+historic] tense prefix (Type 2)

Type 1 mutation:



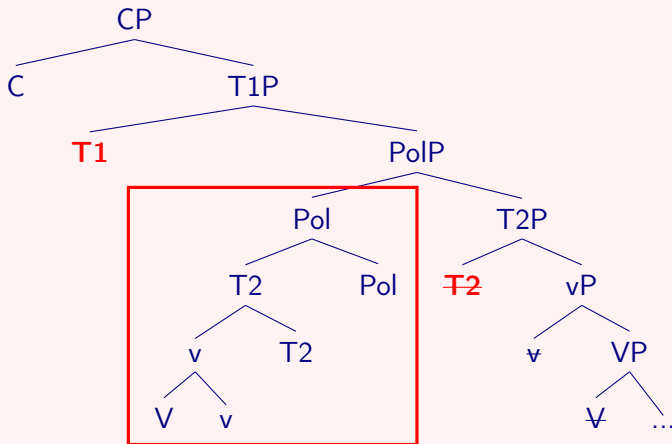
Type 2 mutation:



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} - ...

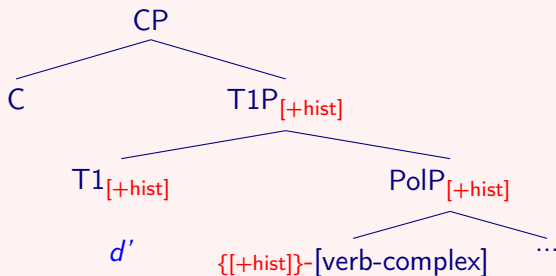
C-head:

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

T1-head:

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

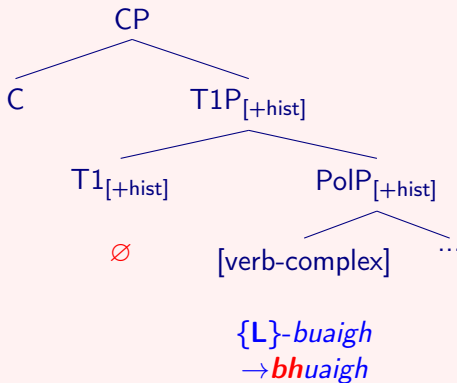
My proposal: two sources of ICM in the Irish clause



- 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)

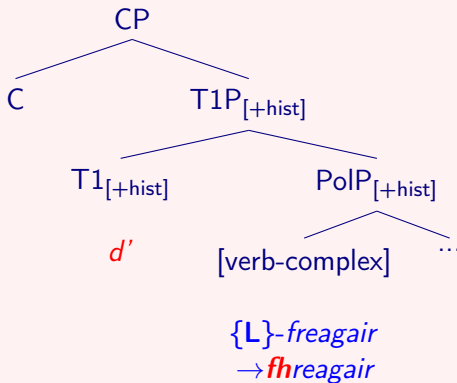
My proposal: two sources of ICM in the Irish clause

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



My proposal: two sources of ICM in the Irish clause

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



Interim summary

- 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:** unified account of historic tense lenition across finite verb and copular clauses

Extending the analysis: copular clauses

Irish copular clauses:

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

- (5)
- a. *is* *cosúil le taibhse é*
COP like with ghost he
'He is like a ghost.'
- b. *ba* *shaighdiúirí iad*
COP.HIST L.soldiers they
'They were soldiers.'

Extending the analysis: copular clauses

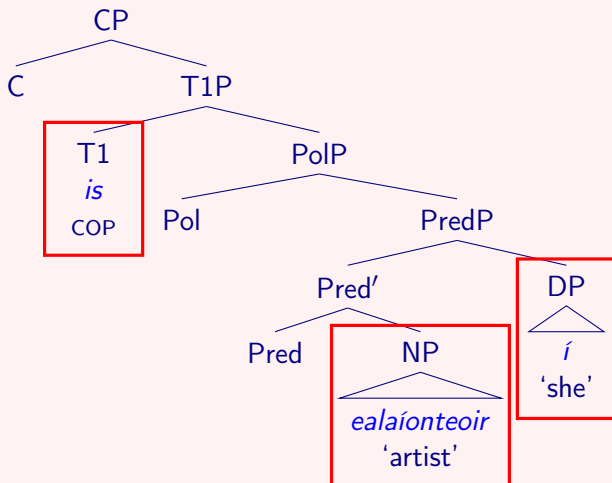
Historic copular particle *-bh*: similar pattern to *d'* (in some contexts)

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

Extending the analysis: copular clauses

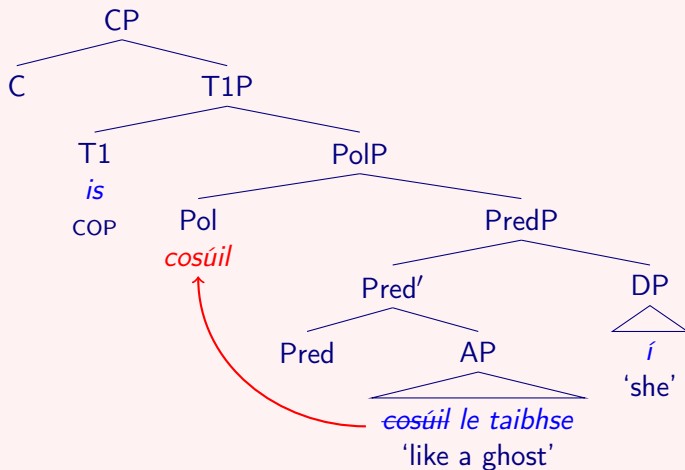
Structure of the Irish copular clause (NP predicate):



(Doherty 1996; McCloskey 2005)

Extending the analysis: copular clauses

Structure of the Irish copular clause (AP predicate):



(Doherty 1996; McCloskey 2005)

Extending the analysis: copular clauses

Copular clause with **AP** predicate:

- Adjective moves to Pol-head
- Directly analogous to finite verb clause

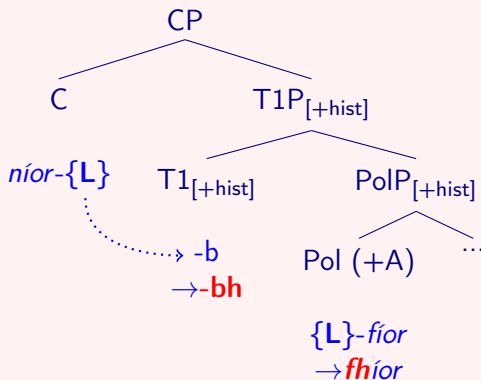
Copular clause with **NP** predicate:

- entire NP remains in situ
- Pol-head is empty
- Historic tense lenition **not observed** in all dialects (Ó Siadhail 1991:116)
- Dialects with lenition → historic “prefix” inserted directly into Pol

Extending the analysis: copular clauses

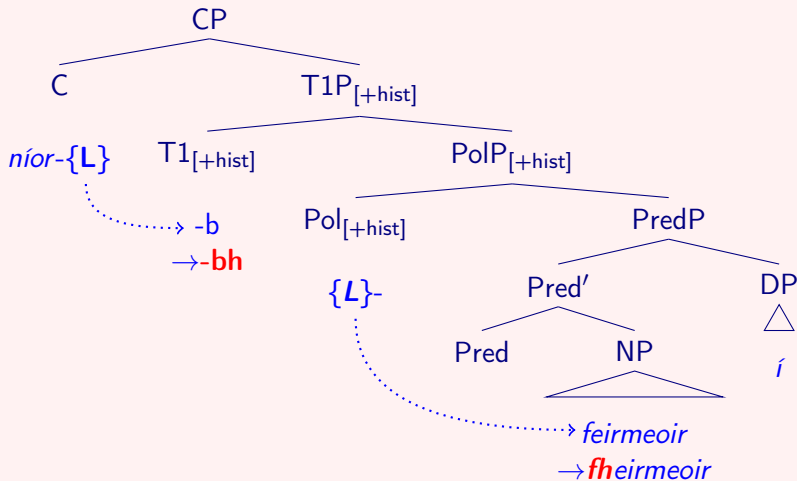
- Example: *níor-bh fhíor é* 'it was not true'

(*fhíor*)



Extending the analysis: copular clauses

- Example: *níor-bh fheirmeoir í* 'she was not a farmer' (*fheirmeoir*)



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!

References I



Ackema, Peter and Ad Neeleman (2020). “Unifying nominal and verbal inflection: Agreement and feature realization”. In: *Nominalization: 50 Years on from Chomsky’s Remarks*. Ed. by A Alexiadou and H Borer. Oxford: Oxford University Press, pp. 29–52.



Bermúdez-Otero, Ricardo and John Payne (2011). “There are no special clitics”. In: *Morphology and its interfaces*. Ed. by Alexandra Galani, Glyn Hicks, and George Tsoulas. Vol. 178. Amsterdam: John Benjamins.



Breit, Florian (2019). “Welsh mutation and strict modularity”. Doctoral dissertation. University College London.



Christian Brothers (1960). *Graiméar Gaeilge na mBráithre Críostaí*. Baile Átha Cliath: MH Mac an Ghoill agus a Mhac.



Doherty, Cathal (1996). “Clausal structure and the Modern Irish copula”. In: *Natural Language & Linguistic Theory* 14.1, pp. 1–46.



Duffield, Nigel (1995). *Particles and projections in Irish syntax*. Dordrecht, The Netherlands: Kluwer Academic Publishers.



Gaois.ie (2024). *Corpus of Contemporary Irish*. Accessed 17-February-2024. URL: <https://www.gaois.ie/en/corpora/monolingual/>.



Green, Antony D (2006). “The independence of phonology and morphology: the Celtic mutations”. In: *Lingua* 116.11, pp. 1946–1985.

References II



Gussmann, Edmund (1986). “Autosegments, linked matrices, and the Irish lenition”. In: *Linguistics across historical and geographical boundaries*. Ed. by Dieter Kastovsky and Aleksander Szwedek. Vol. 2. Berlin: Mouton de Gruyter, pp. 891–907.



Hamp, Eric P (1951). “Morphophonemes of the Keltic mutations”. In: *Language* 27.3, pp. 230–247.



Iosad, Pavel (2014). “The phonology and morphosyntax of Breton mutation”. In: *Lingue e linguaggio* 13.1, pp. 23–42.



Laoide-Kemp, Anna (to appear). “Irish initial consonant mutation: disentangling phonology from morphosyntax”. In: *Proceedings of the Thirty-Fifth Western Conference on Linguistics*. Vol. 29. California State University, Fresno. to appear.



Lieber, Rochelle (1983). “New developments in autosegmental morphology: consonant mutation”. In: *Proceedings of the West Coast Conference on Formal Linguistics*. Vol. 2. Stanford Linguistics Association (Stanford University, Department of Linguistics), pp. 165–175.



McCloskey, James (2005). “A note on predicates and heads in Irish clausal syntax”. In: *Verb first: On the syntax of verb initial languages*. Ed. by A Carnie, H Harley, and S.A. Dooley-Collberg. John Benjamins Publishing Company, pp. 155–174.



— (2017). “Ellipsis, polarity, and the cartography of verb-initial orders in Irish”. In: *Elements of comparative syntax: Theory and description*. Ed. by Enoch Aboh et al. Vol. 127. Boston and Berlin: de Gruyter Mouton, pp. 99–151.

References III



Ní Chiosáin, Máire (1991). "Topics in the phonology of Irish". Doctoral dissertation. University of Massachusetts, Amherst.



Ó Siadhail, Mícheál (1991). *Modern Irish : grammatical structure and dialectal variation*. Cambridge: Cambridge University Press.



Pyatt, Elizabeth (1997). "An integrated model of the syntax and phonology of Celtic mutation". Doctoral dissertation. Harvard University.



Scheer, Tobias (2010). *A guide to morphosyntax-phonology interface theories*. Berlin/New York: De Gruyter Mouton.



Stewart, Thomas W (2004). "Mutation as morphology: Bases, stems, and shapes in Scottish Gaelic". Doctoral dissertation. The Ohio State University.

Appendix A: Phonology of mutations

Phonological alternations:

(adapted from Green 2006)

Radical	<i>p</i>	<i>t</i>	<i>k</i>	<i>b</i>	<i>d</i>	<i>g</i>	<i>f</i>	<i>s</i>	<i>m</i>	<i>n</i>	<i>l</i>	<i>r</i>
Lenited	<i>f</i>	<i>h</i>	<i>x</i>	<i>v</i>	<i>ɣ</i>	<i>ɣ</i>	∅	<i>h</i>	<i>v</i>	—	—	—
Eclipsed	<i>b</i>	<i>d</i>	<i>g</i>	<i>m</i>	<i>n</i>	<i>ŋ</i>	<i>v</i>	—	—	—	—	—

Note: each consonant above also has a “palatalised” counterpart
→ same mutation pattern, but with secondary [+pal] feature

Appendix B: Evidence for the empty consonantal slot

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* /i:s^j/ 'age'
b. *an aois* /ən^j i:s/ 'the age' (Ní Chiosáin 1991:81)

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

- (9) a. *feoil* /f^jo:ɲ/ 'meat'
b. *an f^heoil* /ən^j o:ɲ/ 'the meat' (Gussmann 1986:894)
- (10) a. *fáinne* /fan^jə/ 'ring'
b. *an f^háinne* /ən^j an^jə/ 'the ring' (Gussmann 1986:894)

Appendix C: Alternative analyses of *d'* insertion

- Inserted to satisfy onset requirement?

- No – see (11)

(11) a. *d'* *fhliuch sí [...]* (12)

HIST L.wet she
'She wet [...].'

- b. *d'* *fhreagair sí*
HIST L.answer she
'She answered.'

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] \leftrightarrow {**L**}-

(14) **Historic tense particle:**

- [T1,+hist,+indep] \leftrightarrow /d/ / ____ {empty consonantal slot}
- [T1,+hist,+indep] \leftrightarrow \emptyset (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:**

$[\text{Pol}, +\text{hist}] \leftrightarrow \{L\}-$

(16) **Historic tense copular particle:**

- $[\text{T1}, +\text{hist}, +\text{dep}, +\text{cop}] \leftrightarrow /b/ \text{ / } ___ \{ \text{empty consonantal slot} \}$
- $[\text{T1}, +\text{hist}, +\text{dep}, +\text{cop}] \leftrightarrow \emptyset \text{ (elsewhere)}$

Appendix E: NP vs. AP predicates

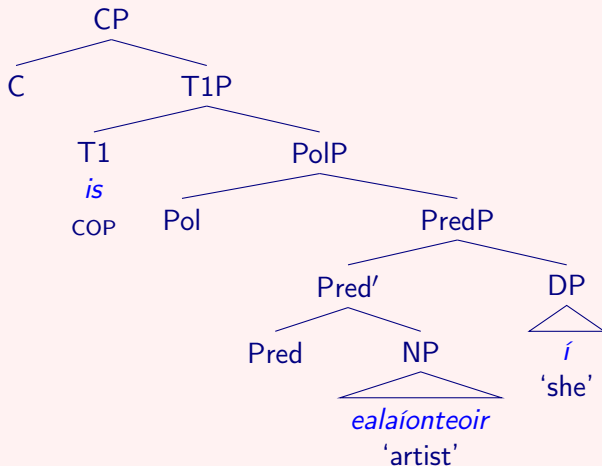
NP vs. AP predicates: responsive ellipsis

(McCloskey 2005)

- (17) a. *an ealaíonteoir í?*
Q artist she
'Is she an artist?'
- b. *is ea*
COP DUMMY
'Yes.'
- (18) a. *an cosúil le taibhse í?*
Q like with ghost she
'Is she like a ghost?'
- b. *is cosúil*
COP like
'Yes.'

Appendix E: NP vs. AP predicates

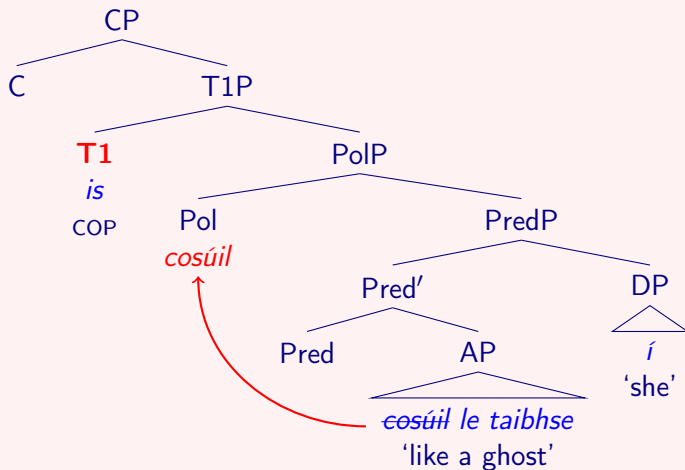
Structure of the Irish copular clause (NP predicate):



(Doherty 1996; McCloskey 2005)

Appendix E: NP vs. AP predicates

Structure of the Irish copular clause (AP predicate):



(Doherty 1996; McCloskey 2005)