

# Two sources of initial consonant mutation in the Irish clause

**Anna Laoide-Kemp**

*[anna.laoide-kemp@ed.ac.uk](mailto:anna.laoide-kemp@ed.ac.uk)*

School of Philosophy, Psychology and Language Sciences (PPLS)

University of Edinburgh

**33<sup>rd</sup> 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* [fʲágfainn]  
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 **dh**íolfaidh
  - b. an-**{E}** *creideann* → an **g**creideann
  - c. *d'*-**{L}** *fágfainn* → *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

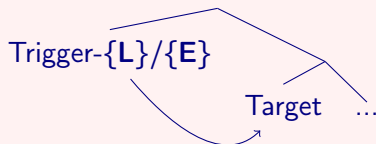
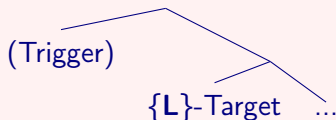


Figure 2: Type 2 mutation



**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 → 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*<sub>[trigger]</sub> *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<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>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 *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

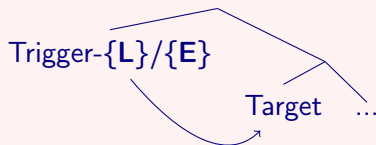
Given that insertion of *d'* is sensitive to the post-mutation form of the target word, it **cannot be the trigger of lenition**.

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

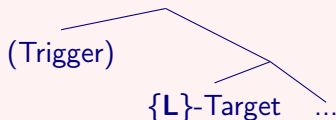
## Two sources of mutation in the Irish clause:

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

Type 1 mutation:



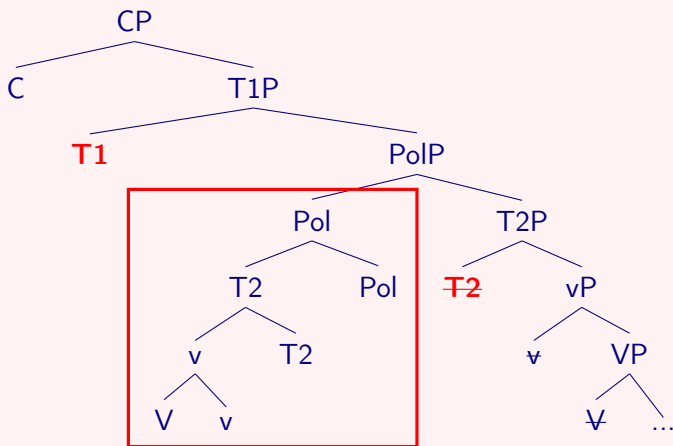
Type 2 mutation:



# 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:

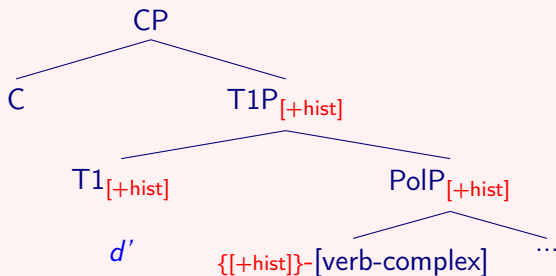
- Hosts all pre-verbal particles *other* than *d'*
- Associated with **Type 1** mutation (trigger word)

T1-head:

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



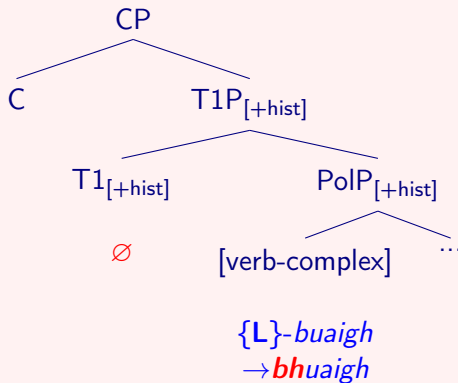
# My proposal: two sources of ICM in the Irish clause



- 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)

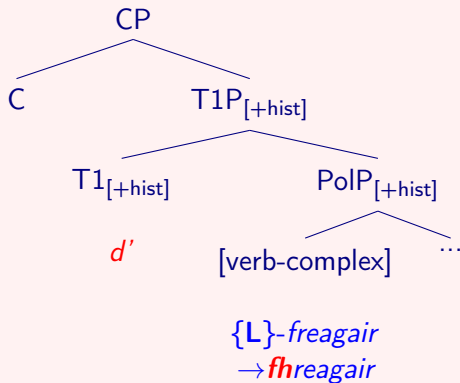
# My proposal: two sources of ICM in the Irish clause

- **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

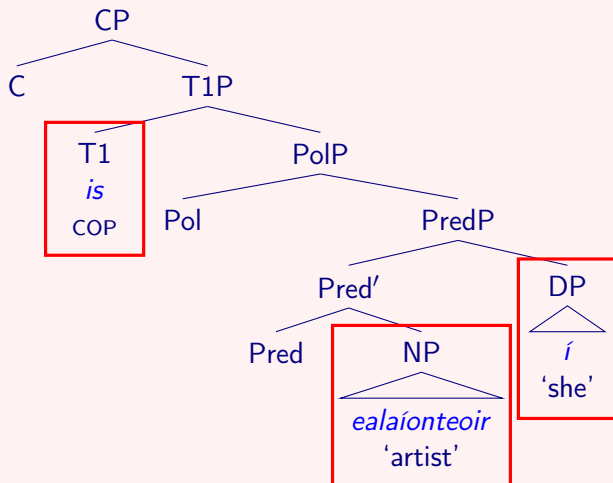
Historic copular particle *-b*: similar pattern to *d'* (in some contexts)

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

# Extending the analysis: copular clauses

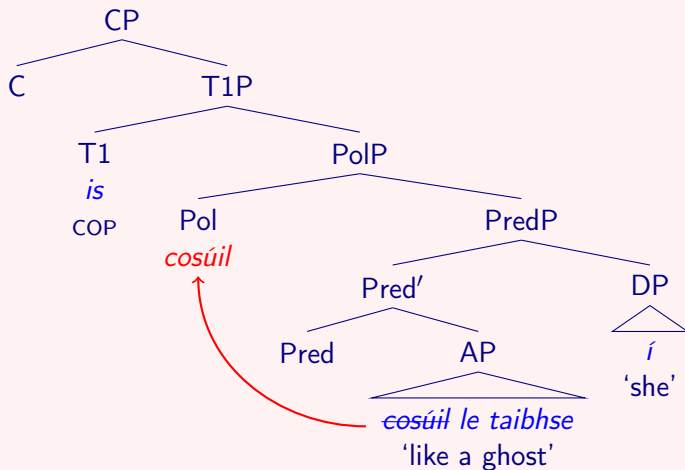
Structure of the Irish copular clause (NP predicate):



(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

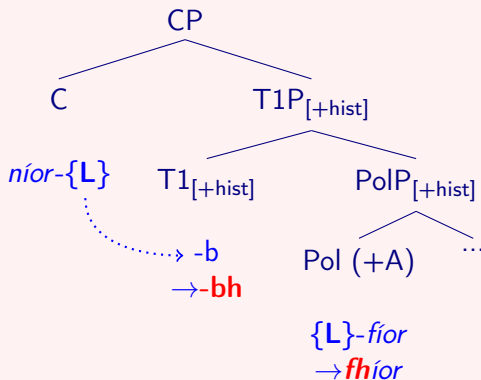
## Copular clause with **NP** predicate:

- 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

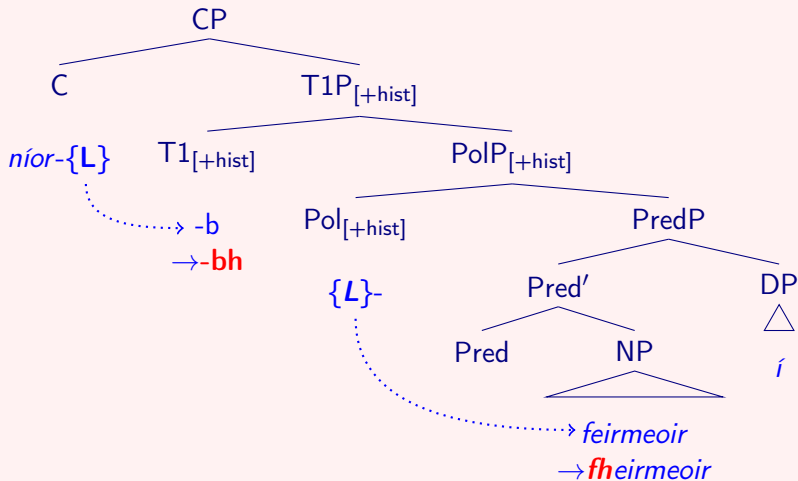
- Example: *níor-bh fhíor é* 'it was not true'

(*fíor*)



# Extending the analysis: copular clauses

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



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

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

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

## Appendix C: Alternative analyses of *d'* insertion

- Inserted to satisfy onset requirement?

- No – see (11)

(11)	a.	<i>d'</i>	<i>fhliuch sí</i>	[...]	(12)	a.	<i>(*d')</i>	<i>léim sé</i>
		HIST L.wet	she				(HIST)	jump he
			'She wet [...].'					'He jumped.'
	b.	<i>d'</i>	<i>fhreagair sí</i>			b.	<i>(*d')</i>	<i>rith sé</i>
		HIST L.answer	she				(HIST)	run he
			'She answered.'					'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:**

- [T1,+hist,+indep] ↔ /d/ / \_\_\_ {empty consonantal slot}
- [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:**

- [T1,+hist,+dep,+cop] ↔ /b/ / \_\_\_ {empty consonantal slot}
- [T1,+hist,+dep,+cop] ↔ ∅ (elsewhere)

## Appendix E: NP vs. AP predicates

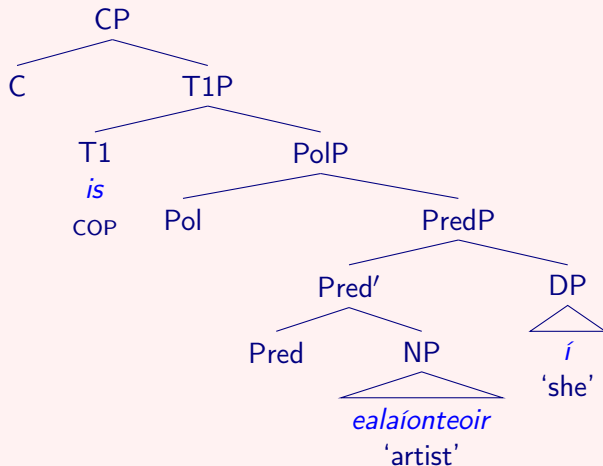
### NP vs. AP predicates: responsive ellipsis

(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

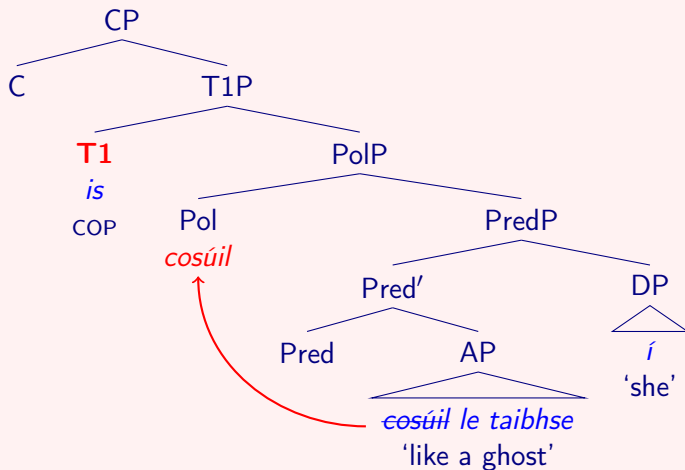
Structure of the Irish copular clause (NP predicate):



(Doherty 1996; McCloskey 2005)

# Appendix E: NP vs. AP predicates

Structure of the Irish copular clause (AP predicate):



(Doherty 1996; McCloskey 2005)