Irish dependent verbal alternation: structural adjacency, non-terminal insertion, & Fission

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1 Introduction

- Locality of allomorphy: the trigger of allomorphy must be structurally adjacent to the **target**.
- The condition accounts for *ABA generalizations' insensitivity to linear order (Bobaljik 2012), possibility of intervention by prefixes (Demirok 2021), plenty of cases of non-local allomorphy (Bešlin 2025), on top of general theoretical attractiveness (structures, not strings).
- A striking counterexample comes from Irish verbal suppletion (so-called dependent verbal forms; Ostrove 2018). In Irish, certain verbs undergo complementizer-conditioned allomorphy (1a-b), even when an overt tense-agreement suffix is present (1c-d).

(1) Alternation for the verb 'to do'

a. ∅ ***rinne*** *Áine an obair*
C do.PAST.INDEP A. the work
'Aine did the work.' (Stenson 2019:86)

b. *deir sé go* ***ndearna*** *sé é*
says he that do.PAST.DEP he it
'He says that he did it.' (Stenson 2019:86)

c. ∅ ***rinne***-*adar* *í don síochanta*
C do.PAST.INDEP-PAST.3PL it for peace
'They did it for peace'. (LINK)

d. *maí-onn an DUP nach* ***ndearna***-*dar* ...
claim-PRES the DUP NEG.that do.DEP.PAST-PAST.3PL
'The DUP claims that they didn't ...' (LINK)

- Allomorphy conditioning of **V** by C across an overt T violates structural adjacency, assuming a C > T > V structure (which everyone accepts).

- Today's claim: the pattern does not violate structural adjacency.
- My counter-analysis is that the suppletive forms realize V and T together: making the target of Vocabulary Insertion (V+T complex) adjacent to the complementizer.

(2) The argument

  a. $T_{[+PST]}$ has two exponents: initial consonant mutation and tense-agreement suffixes.

  b. Suppletive verbal forms block tense-conditioned mutation.

  c. Therefore, suppletive verbal forms realize V and T *together*.

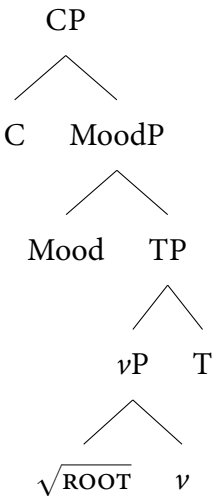
- Multiple exponence of T is achieved by Fission. There is nothing special about the pattern: while Fission is *usually* employed to derive multiple independent affixes, there is no reason why Fission cannot result in a portmanteau and an independent affix.
- Roadmap:
  - background data: pieces of Irish verbal morphosyntax
  - background data: Irish consonant mutations
  - core data: past tense-conditioned mutation & its absence in suppletive forms
  - analysis: interaction between Fission and portmanteau formation

2 The suppletion pattern in more detail

- Here is clausal structure and verbal morphology of Irish, following McCloskey (2017).

(3) a. Linearization: C-Mood V-[T+Agr].

b. Clausal structure:



c. An example of all pieces in a single clause.

... *ná* *-r* *chuir* *-eadar*

C MOOD V T-Agr

spéis *san* *fhogra*

interest in.the warning

'... that they were not interested in the warning' (LINK)

- The inventory of tense-agreement suffixes varies across dialects. Like Ostrove, I present Munster Irish inventory as one of the richest. Note the *cuir*∼*chuir* alternation: [kɪɾʲ] ∼ [xiɾʲ].

(4) Partial list of Munster Irish TAM suffixes on *cuir* 'put' (Ostrove 2018: 1266)

	Present	Future	Past	Past habitual	Conditional
φ-neutral	**cuir**-eann	cuir-fidh	**chuir**-∅	chuir-eadh	chuir-feadh
	[kɪɾʲən̪ˠ]	[kɪɾʲhə]	[xiɾʲ]	[xɪɾʲəx]	[xɪɾˠhəx]
1SG	cuir-im	cuir-fead	chuir-eas	chuir-inn	chuir-finn
...					
3PL	cuir-id	cuir-fid	chuir-eadar	chuir-idís	chuir-fidís

- Mood exponence is conditioned by T: *-r* only occurs in past tense (McCloskey 2017).

(5) a. *Creidim nach gcuir-fidh sí isteach ar an phost.*
I-believe NEG.C put-FUT she on the job
'I believe that she won't apply for a job.' (present tense; no *-r*)

b. *Creidim ná-r chuir sí isteach ar an phost.*
I-believe NEG.C-MOOD put.PAST she on the job
'I believe that she didn't apply for a job.' (past tense; *-r* present)

- Mood exponence is conditioned by C (Ostrove 2018: 1271). See Appendix for a full list of complementizers.

(6) a. *{Ní-or / *Ní} chuir-eadar*
NEG-MOOD NEG put-PAST.3PL
'They did not put' (root negation: *-r* obligatory)

b. *{Má / *Má-r} chuir-eadar*
if.REAL if.REAL-MOOD put-PAST.3PL
'If they put ...' (realis conditional: *-r* impossible)

- The complementizers that condition Mood exponence are the same complementizers that condition verbal suppletion. Verbal suppletion blocks Mood exponence (Ostrove 2018: 1274).

(7) The dependent alternation
a. *Ní* ***dhearna*** *tú* ... b. **Ní rinne* c. **Ní-or dhearna*
NEG do.PAST.DEP you NEG do.PAST.INDEP NEG-PAST do.PAST.DEP
'You didn't do ...'

(8) List of verbs that undergo the alternation

Verb	Tense	Independent	Dependent
bí 'be'	PAST	bhí	raibh
	PRES	tá	fuil
déan 'do'	PAST	rinne	dearna
faigh 'get'	PAST	fuair	bhfuair
	FUT/COND	gheobhaidh	bhfaighidh
feic 'see'	PAST	chonaic	faca
	PRES/FUT	chí	feic
teigh 'go'	PAST	chuaigh	deachaigh

- Overt tense-agreement suffixes do not block either suppletion or suppression of Mood affix.

(9) a. *ná-r* *chuir* *-eadar* *spéis*
NEG.C-MOOD put.PAST-PAST.3PL interest
'... that they were not interested' (LINK)

b. *nach* ***ndearna*** *-dar* ...
NEG.C do.DEP.PAST-PAST.3PL
'... that they didn't ...' (LINK)

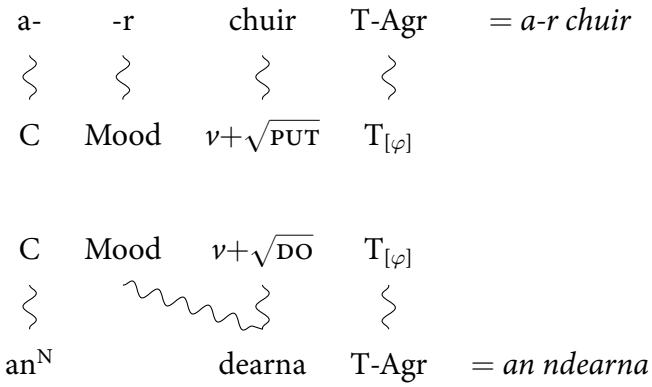
- We are now in a position to state the pattern—it is a problem for structural adjacency as a condition on allomorphy. A structurally non-adjacent sequence of terminals undergoes portmanteau exponence!

(10) **Summary of the suppletion pattern**
a. C conditions portmanteau exponence of V and Mood
b. Overt exponents of T do not interfere

- Changing the functional sequence will not help: T is either in between V and Mood or Mood and C—the pattern seems to contradict structural adjacency, no matter how you cut it.
- My response is that there is a missing piece in the morpheme decomposition. Recall the *cuir*∼*chuir* alternation in (4). A common analysis is that it is triggered by a floating feature (call it ^{L}) that occurs on the right edge of some lexical items.
- Over next pages, I argue that past tense exponence invovles a prefix that is just the autosegmental piece of melody: thus, /^{L}-/. The core observation is that it is also blocked by the suppletive forms, resulting in portmanteau exponence of a structurally contiguous sequence of terminals.

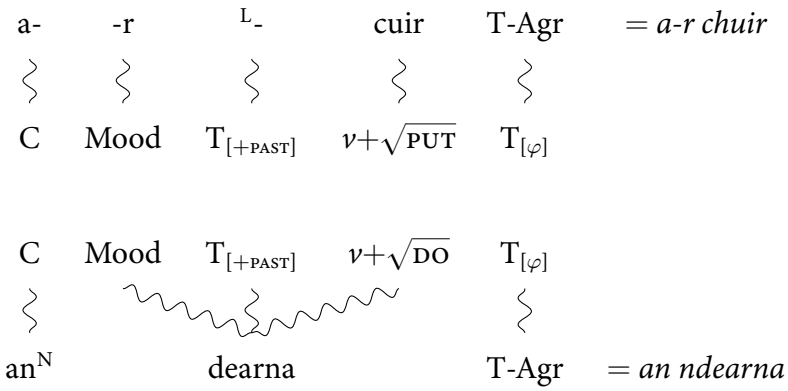
- Previous work (Ostrove 2018) states the problem for structural adjacency assuming that the tense(-agreement) suffixes are the only exponents of T, and Mood&V are realized together due to being linearly adjacent.

(11) Terminal-exponent mappings in previous work: linearly contiguous sequence Mood⌢V



- After an autosegmental exponent of T is motivated, the analysis is that the portmanteau exponent realizes ⟨V, Mood, T⟩, a structurally contiguous sequence of terminals.

(12) Terminal-exponent mappings in this work: structurally contiguous sequence ⟨V, Mood, T⟩



3 Lenition as an exponent of past tense

3.1 Lenition?

- The *cuir*∼*chuir* alternation exemplifies a larger system of Irish mutations (it exemplifes lenition). For my purposes, it suffices to treat them as input-output mappings.
- While I present most data using orthographic conventions (which indicate mutations), but the table below shows pronunciations too.

	p [p$^{(j)}$]	t [t$^{(j)}$]	c [k$^{(j)}$]	b [b$^{(j)}$]	d [d$^{(j)}$]	g [g$^{(j)}$]	m [m$^{(j)}$]	f [f$^{(j)}$]	s [s$^{(j)}$]	l [ʟ$^{(j)}$]	n [ɴ$^{(j)}$]
Lenition	ph [f$^{(j)}$]	th [h$^{(j)}$]	ch [x$^{(j)}$]	bh [v$^{(j)}$]	dh [ɣ$^{(j)}$]	gh [ɣ$^{(j)}$]	mh [v$^{(j)}$]	fh [∅]	sh [h$^{(j)}$]	l [l$^{(j)}$]	n [n$^{(j)}$]
Eclipsis	bp [b$^{(j)}$]	dt [d$^{(j)}$]	gc [g$^{(j)}$]	mb [m$^{(j)}$]	nd [ɴ$^{(j)}$]	ng [ŋ$^{(j)}$]	–	bhf [v$^{(j)}$]	–	–	–

Table 1: Lenition and eclipsis patterns (adapted from Iosad 2023)

- Mutations have morphosyntactic triggers (Chiosáin 1991; Green 2006): they can be represented as a floating features on the right edge of relevant morphosyntactic pieces (Massam 1983; Swingle 1993; Laoide-Kemp 2025). I stay non-committal about their phonological identity.

(13) a. X ⟷ /(...)^{L}/ (^{L}: lenition)

b. Y ⟷ /(...)^{N}/ (^{N}: eclipsis)

- E.g., some complementizers trigger obligatory eclipsis, some trigger obligatory lenition.

(14) a. Interrogative C *an* triggers eclipsis
An gcuir-fidh sí isteach ar an phost
Q ^{N}.put-FUT she in on the jobs
'Will she apply for the job?' (McCloskey 2017:10)

b. Embedded negative C *nach* triggers eclipsis
Creid-im nach gcuir-fidh sí isteach ar an phost
believe-PRES.1SG NEG.C ^{N}.put-FUT she in on the jobs
'I believe that she won't apply for the job.' (McCloskey 2017:9)

c. Root negative C *ní* triggers lenition
Ní chuir-eann sé isteach ar phostanna.
NEG ^{L}.put-PRES he in on jobs
'He doesn't apply for jobs.' (McCloskey 2017:9)

- We model this by positing floating features on the right edge of complementizers

(15) a. C$_{[\text{NEG, ROOT}]}$ ⟷ /ní ^{L}/

b. C$_{[\text{NEG, EMD}]}$ ⟷ /nach ^{N}/

- Sometimes, however, the floating feature is all there is to an exponent.

3.2 Exponent of past tense?

- A recent grammatical description of Modern Irish states that "the past tense of regular verbs is formed by lenition of the verb stem" (Stenson 2019: 77).
- In unembedded verbal contexts, we find exactly that.

(16) Lenition is a necessary part of past tense exponence (Swingle 1993: 462, 465)
  a. *glan* [glan] 'clean' ~ *ghlan* [ɣlan] 'cleaned'
  b. *snamh* [sna:] 'swim' ~ *shnámh* [hna:] 'swam'

- Past-tense lenition is not limited to verbal roots: 'He was a doctor' involves lenition of the first segment of *dochtúir* 'doctor' into *dhochtúir*.

(17) Non-verbal predication in present and past tense (Doherty 1996: 9)

a.	*Is*	*dochtúir*	*é*	b.	*Ba*	*dhochtúir*	*é*
	COP.PRES	doctor	he.ACC		COP.PAST	^{L}.doctor	he.ACC
	'He is a doctor.'				'He was a doctor.'		

- Past tense involves lenition in environments with overt complementizers as well.

(18) Lenition after the negative complementizers
  a. *ní-or bhris mé an chathaoir*
  NEG-PAST ^{L}.break.PAST I the chair
  'I did not break the chair.'
  b. *ná-r chuir sí isteach ar an phost.*
  NEG.C-MOOD ^{L}.put.PAST she on the job
  'that she didn't apply for a job.' (McCloskey 2017:9)

- This is also supported by verbal paradigm: recall that the only verbal form that lacks a suffix is φ-invariant past tense *chuir-*$\varnothing$. The only exponent of T is lenition. The correct decomposition, then, is to present *chuir* as ^{L}*-cuir*.

(19) Verbal paradigm after decomposition

	Present	Future	Past	Past habitual	Conditional
φ-neutral	cuir-eann	cuir-fidh	^{L}-cuir	^{L}-cuir-eadh	^{L}-cuir-feadh
1SG	cuir-im	cuir-fead	^{L}-cuir-eas	^{L}-cuir-inn	^{L}-cuir-finn
...					
3PL	cuir-id	cuir-fid	^{L}-cuir-eadar	^{L}-cuir-idís	^{L}-cuir-fidís

- There is then a VI rule that maps past tense T onto /^{L}/. However, other past tense contexts also feature a tense(-agreement) suffix.

(20) $T_{[PST]} \longleftrightarrow /^{L}/$

- A natural solution to multiple exponence of this kind is Fission (Embick & Noyer 2007).

(21) $T[\pm PAST,F] \rightarrow T_1[\pm PAST], T_2[F]$

- The suppletive verbal forms are a systematic exception to the link between past tense and lenition.

4 Suppletive forms block tense-conditioned lenition

- As mentioned earlier, complementizers trigger mutations of their own.

(22) a. Root negative C *ní* triggers lenition
Ní *<u>ch</u>uir-eann sé isteach ar phostanna.*
NEG ^{L}.put-PRES he in on jobs
'He doesn't apply for jobs.' (McCloskey 2017:9)

b. Embedded negative C *nach* triggers eclipsis
Creid-im nach <u>g</u>cuir-fidh sí isteach ar an phost
believe-PRES.1SG NEG-C ^{N}.put-FUT she in on the jobs
'I believe that she won't apply for the job.' (McCloskey 2017:9)

- In all tenses, the suppletive forms undergo the complementizer-triggered mutations. So they show an **alternation**, unlike regular verbs in past tense—so the floating features that trigger mutations (which are on the right edge of the complementizers) are adjacent to the dependent forms.

(23) a. Root negation *ní* triggers lenition on the suppletive form
Ní *<u>dh</u>earna tú ...*
NEG ^{L}.do.PAST.DEP you
'You didn't do ...' (Oda 2012:150)

b. Embedded negative C *nach* triggers eclipsis on the suppletive form
síl-im nach <u>nd</u>earna sé é
think-PRES.1SG NEG.C ^{N}.do.DEP.PAST he it
'I think that he didn't do it.' (Stenson 2019: 86)

- The dependent forms blocks both the Mood suffix *-r*, but also the autosegmental exponent of past tense that triggers lenition. The suppletive forms then realize (a part of) T.

5 An analysis: Fission feeds non-terminal insertion

- Here are two patterns we need to capture

(24) a. Suppletive verbal forms realize Mood and T[+PAST]

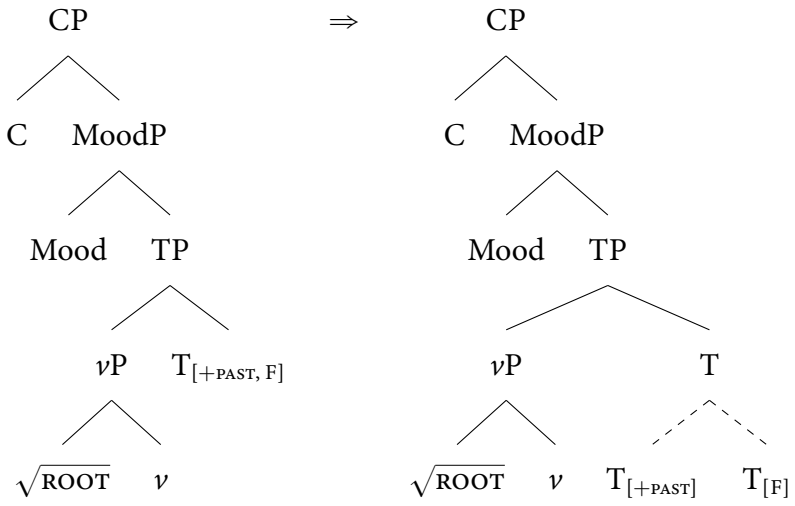
b. And yet, they do not block TAM-agreement suffixes

- Recall that I posited a Fission rule.

(25) Fission in Irish verbal inflection
$T[\pm\text{PAST},F] \rightarrow T_1[\pm\text{PAST}], T_2[F]$

- What does Fission do? In some formulations (Arregi & Nevins 2012; Hewett 2023), it creates two copies of the same node.

(26) Application of the Fission rule in (25)

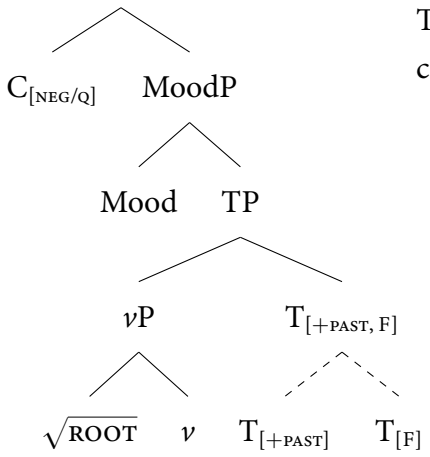


- What is less clear, however, is whether the adjacency relations that hold of the 'mother' node $T_{[+\text{PAST, F}]}$ hold of split nodes $_{[+\text{PAST}]}$ and $_{[F]}$. I suggest they do.[1]
- An analysis of verbal suppletion is now possible: the dependent verbal form is inserted into a sequence of structurally adjacent nodes that includes T[PAST], accounting for the absence of past tense related lenition and making the pattern comply with structural adjacency.

[1]Note that I assume that the relation that needs to hold between the terminals referenced by a portmanteau insertion rule is the same as the relation necessary for contextual allomorphy. I think that is an attractive point of view but it hasn't been entertained in the literature due to odd predictions wrt. specifiers (which, however, I believe to be borne out; more on that on another occasion).

(27) The Fission account

a.



b. Fission

$T[\pm\textsc{past},F] \rightarrow T_1[\pm\textsc{past}], T_2[F]$

c. VI rules

$\langle\sqrt{\textsc{put}},v\rangle \longleftrightarrow$ /cuir/

$\langle\sqrt{\textsc{do}},v\rangle \longleftrightarrow$ /déan/

$\langle\sqrt{\textsc{do}}, v, T_{[+\textsc{past}]}, \text{Mood}\rangle \longleftrightarrow$ /dearna/ /]$C_{[\textsc{neg/q}]}$

$T_{[+\textsc{past}]} \longleftrightarrow /^{L}/$

$T_{[3\textsc{pl}]} \longleftrightarrow$ /-(ea)dar/

$\text{Mood}_{[+\textsc{past}]} \longleftrightarrow$ /-r/ /]$C_{[\textsc{neg/q}]}$

$C_{[\textsc{q}]} \longleftrightarrow /\text{an}^{N}/$

$C_{[\textsc{neg}]} \longleftrightarrow /\text{ní}^{L}/$ or $/\text{nach}^{N}/$

- Note that not all suppletive verbal forms require past tense.

(28) List of suppletive verbs, again

Verb	Tense	Independent	Dependent
bí 'be'	PAST	bhí	raibh
	PRES	tá	fuil
déan 'do'	PAST	rinne	dearna
faigh 'get'	PAST	fuair	bhfuair
	FUT/COND	gheobhaidh	bhfaighidh
feic 'see'	PAST	chonaic	faca
	PRES/FUT	chí	feic
teigh 'go'	PAST	chuaigh	deachaigh

- To make them work, T[−PAST, F] must undergo Fission in all cases—resulting in a zero prefix (that is contrasted with past tense's lenition prefix $/^{L}\text{-}/$).
- Finally, I should emphasize that the analyis requires all tense-aspect features to be bundled on T (or, alternatively, *v*)—if there is any other syntactic piece, the sequence of terminals realized by the suppletive variant ceases to be structurally contiguous.
- This is related to the issue of bundling in morphosyntax. An approach that relies on a strict, universal functional sequence (like Nanosyntax), will be unable to account for the pattern without abandoning structural adjacency.

6 Conclusion

- Complementizer-conditioned verbal suppletion in Irish does not contradict structural adjacency as a condition of Vocabulary Insertion.
- An apparent violation occurs due to Fission followed by portmanteau exponence.
- While a bit odd, this situation, I think, cannot be ruled out—if Fission can feed insertion into a terminal, it must be able to feed non-terminal insertion as well.
- If you don't buy non-terminal insertion, the analysis cannot be ruled out if you believe portmanteaux to always involve zero affixes.
- Using Fusion, however, rules out the derivation presented here.
- There is then a conditional pro-Fission & contra-Fusion argument: if you wish to maintain structural adjacency, you need a Fission-based analysis that is incompatible with Fusion.

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Appendix

Here is a list of Irish complementizers. C^D trigger Mood exponence / verbal suppletion, C^I do not.

(29)

		Complementizer		Meaning
C^D	a.	go	[gə]	Embedded declarative
	b.	a^N	[ə]	Indirect relative
	c.	ní	[n^ji:]	Root negation
	d.	nach	[nax]	Non-root negation
	e.	an	[ən]	Interrogative
	f.	dá	[$d^ɣ$a:]	Irrealis conditional
	g.	mura	[mʊrə]	Negative conditional
C^I	h.	a^L	[ə]	Direct relative
	i.	má	[$m^ɣ$a:]	Realis conditional