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Radical tmesis is Internal Merge

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Abstract: One major achievement in syntax has been a deep understanding of displacement in terms of Internal Merge. Therefore, displacement types initially resisting that analysis deserve scrutiny. This article investigates one. Latin verse permits tmesis – the division of “words” into nonadjacent pieces. In one subtype, radical tmesis, the cut is not obviously at a morpheme boundary. If it were not, radical tmesis would be theoretically recalcitrant. The article argues, however, that radical tmesis is actually derived by Internal Merge. The cut does occur at a morpheme boundary, despite appearances. Furthermore, the constituent orders radical tmesis produces can be derived syntactically, positing only independently motivated operations. Radical tmesis, then, is syntactic – supporting nonlexicalist frameworks, e.g., Morphology as Syntax. Even displacement types yielding apparently “irregular” outputs, then, can turn out on examination to be products of Internal Merge, a subcase of the elementary structure-building operation Merge – a theoretically welcome result, given minimalist aims.

Keywords: tmesis; Internal Merge; movement; displacement; Morphology as Syntax

1 Introduction

One of the most significant achievements of syntactic inquiry has been to greatly push forward our empirical and theoretical understanding of displacement – the phenomenon wherein an element occurs overtly in one position in a syntactic object SO but has a (typically covert) presence in one or more other positions within SO as well. Some of the strongest evidence for displacement comes from lexical selection, or L-selection (Merchant 2019; Pesetsky 1991: Ch. 1). This is illustrated in (1)–(2).

Examples (1a–c) show that the verb *rely* obligatorily L-selects a PP headed by *on*.¹ Crucially, the instance of *on* whose presence is forced by *rely* must be highly local to

¹ The P can also be *upon*.

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rely: it cannot appear too high, as in (1d), or too low, as in (1e) (see also Landau 2007: 488–489).

- (1)
 - a. We're discussing the fact that Katie's experiments **rely** [_{PP} **on** innovative techniques from France].
 - b. *We're discussing the fact that Katie's experiments **rely**.
 - c. *We're discussing the fact that Katie's experiments **rely** [_{DP} innovative techniques from France].
 - d. *We're discussing **on** the fact that Katie's experiments **rely** ([_{DP} innovative techniques from France]).
 - e. *We're discussing the fact that Katie's experiments **rely** [_{DP} innovative techniques [_{PP} **on** France]].

The overall picture that has emerged is one in which, for two lexical items X and Y such that X L-selects Y, (a projection of) Y must merge with (a projection of) X – i.e., L-selection is extremely local (Landau 2007: 488–489; for formal definitions of Merge aimed at accounting for this, see Collins and Stabler 2016: 63–64; Merchant 2019: 326; and Zyman 2024, esp. Sect. 4). In (2), therefore – where the *on*-PP is superficially entirely outside the maximal projection of *rely* – this PP must initially merge with *rely*, satisfying the latter's L-selectional requirement, and then move to the position where it surfaces overtly. Otherwise, the L-selectional requirement of *rely* would be unsatisfied, so (2) would be incorrectly predicted to be unacceptable, like (1b–e).

- (2) We're discussing the innovative techniques from France [_{PP} **on** which] Katie's experiments **rely**.

The analysis of displacement in terms of movement has been highly successful, and has only been placed on firmer conceptual ground by the insight that movement can be analyzed as Internal Merge, a subcase of the fundamental structure-building operation Merge (Chomsky 2004; see also Collins 2017: 48; Collins and Groat forthcoming; Collins and Stabler 2016: 46; Epstein et al. 1998: 13, 26; Freidin 2016: 802; Groat 1997; Hunter 2015: 274; and Kitahara 1994, 1995, 1997; see Graf 2018 for relevant discussion).²

That being so, any instance of displacement initially resisting analysis in terms of Internal Merge³ deserves scrutiny. Such a phenomenon, if it indeed could not be

² Chametzky (2008 [2003]: 201–203), though, sounds a note of skepticism about some of the arguments for the unificationist approach to External and Internal Merge. See also Hewett (2023) for an approach to External and Internal Merge that is potentially quite unificationist but less so than the currently dominant approach.

³ Or something else independently motivated, e.g., an anaphoric dependency between a nominal base-generated high and a lower *pro* (in relevant languages).

analyzed as due to Internal Merge, would apparently require us to posit a second mechanism giving rise to displacement besides Internal Merge – yielding, *ceteris paribus*, a duplication of the sort that the minimalist project aims to eliminate. But if the phenomenon can be analyzed as due to Internal Merge after all, then the duplication can be avoided and the apparent obstacle to a maximally simple and elegant theory of syntax overcome.

This article, then, is organized as follows. Section 2 introduces a type of displacement, tmesis in Latin, of which one subtype (here dubbed radical tmesis) initially seems to resist analysis in terms of Internal Merge, because it splits up “words” in places where there is not obviously a morpheme boundary (i.e., displaces elements that are not obviously constituents). Section 3 scrutinizes radical tmesis more closely and argues, building on Fruyt (1991), that the “cut” in radical tmesis does consistently coincide with a morpheme boundary after all. Section 4 shows that the surface constituent orders yielded by radical tmesis can be derived syntactically, appealing exclusively to independently motivated aspects of the theory. Section 5 concludes the article by summarizing the argument that, despite appearances, radical tmesis is a product of garden-variety Internal Merge – a theoretically welcome result from a minimalist standpoint.

2 The phenomenon: radical tmesis

Latin verse permits tmesis: it allows elements traditionally considered “words” to be split up, under certain circumstances, with the pieces surfacing in nonadjacent positions. Two examples of what we might call CANONICAL TMESIS (which is not the focus of this article) are given below. In (3), the verb word *praeterire* ‘go by, go past’ is split up by the verb word *crēditur* ‘is believed’; in (4), the verb word *interrumpere* ‘break apart’ is split up by the adverbial *quasi* ‘as it were’.⁴

- (3) ea **praeter** crēditur ī-r-e
 that.F.NOM.SG past is.believed go-PRS.INF-ACT
 ‘that one [= ship] is believed to be passing by’ (Lucretius, *De Rerum Natura*
 4.388)

⁴ Examples follow the Leipzig Glossing Rules; additions: ACT = active, ADJ = adjectivalizer, AGT = nominalizer forming agent nouns, CONJ1 = first conjugation, DECL1 = first declension, GENT = gentilic, INT = intended interpretation, LIT = literal translation, NMLZ.ABSTR = nominalizer forming abstract nouns, SP = sentence particle, TH = theme vowel, V = vowel (whose syntactic identity is unclear but not directly relevant).

- (4) radiōs **inter** quasi **rump-e-r-e** lūcis
 rays.ACC between as.it.were break-TH-PRS.INF-ACT light.GEN
 ‘to, as it were, interrupt the rays of light’ (Lucretius, *De Rerum Natura* 5.287)

Although such examples of canonical tmesis raise interesting questions – in particular, what are the precise lexical items, features, and elementary operations that derive the surface constituent orders they display – they do not pose any obvious problems for current mainstream syntactic theory. In any nonlexicalist framework – e.g., Distributed Morphology (Halle and Marantz 1993; Halle and Marantz 1994, among others), Nanosyntax (Starke 2009, among others), or Morphology as Syntax (Collins and Kayne 2023; Crippen 2023; Julien 2022; Koopman 2020b; Ntelitheos 2022; Zyman 2020, 2023b; Zyman and Kalivoda 2020; and references therein; see also Bruening 2018b, 2018c) – structures traditionally considered “words” are built in the syntax, just like traditional “phrases,” so subconstituents of “words” are predicted to be able to undergo Internal Merge and hence surface outside those “words,” a prediction borne out by examples like (3)–(4). Note that this argument that canonical tmesis is theoretically unproblematic relies crucially on the observation that, in the relevant examples, the “cut” clearly occurs at a morpheme boundary – which, in a nonlexicalist framework, means at a syntactic boundary.

There is, however, another type of tmesis permitted in Latin verse that initially appears far more problematic for current syntactic theory: a type in which the “cut” does not obviously occur at a morpheme boundary, here dubbed RADICAL TMESIS.⁵ Four examples follow:

- (5) ... tēlō / Trānsfigit corpus, saxō **cere-** comminuit **-brum**.
 spear.ABL pierces body.ACC rock.ABL sk- crushes -ull.ACC
 ‘He pierced his body with a spear [and] crushed his skull with a rock.’ (Ennius, *Annales* 609 [Vahlen]; pre-comma context added following Chase 1874: 373, Giles 1836: 17, Jäger 1887: 14, Ménière 1858: 9, and Merula 1595: 308)⁶

⁵ The *radical* in this term means something like ‘extreme’; it has nothing to do with roots in the morphological sense. Both *radical tmesis* and *canonical tmesis* are descriptive terms adopted here purely for ease of exposition: on the analysis developed below, both phenomena are products of Internal Merge, so there is no deep ontological or mechanical difference between them, despite appearances.

⁶ In the literature on radical tmesis (Aicher 1989: 229; Bishop 1957; Byrne 1916: 46; Conrad 1965: 227; Cordier 1940; Debouy 2012: 200; Faust 1970: 133; Fruyt 1991; Hahn 1947: 323; Lenchantin 1947: 228; Mariotti 1988: 83; Popan 2012; Poultney 1980: 4; Raehse 1868: 12; Schmidt 1840: 34; Timpanaro 2005: 232; Vollmer 1916: 133; Zetzel 1974, among others), the “word” fragments are often written without hyphens (*saxo cere comminuit brum*). They are written with hyphens here to make the tmeses easier to see, and to reflect the traditional intuition that the two fragments are pieces of a single “word” (though the article will develop a Morphology as Syntax-style analysis on which there is no syntactic correlate of wordhood, so *cerebrum* ‘skull’ is not a fundamentally different kind of syntactic object

- (6) **Massili-** portābant iuvenēs ad litora **-tānās.**
 b- were.carrying youths.NOM to shores.ACC -ottles.ACC
 ‘The youths were carrying bottles to the shore.’ (Ennius, *Annales* 610 [Vahlen])
- (7) **Lāmen-** color **-tātrīci** mūtāt...
 mour- color.NOM -ner(F).DAT changes
 ‘The hue of a woman in mourning changes...’ (attributed to Pomponius; see Debouy 2012: 200 for discussion)
- (8) Inveniēs praestō subiūncta petorrita
 you.will.find ready having.been.joined.ACC four.wheeled.carriages.ACC
 mūlis: / Villā **Lūcāni-** mox potiēris **-acō.**
 mules.DAT villa.ABL Lucani- soon you.will.take.possession.of -acus.ABL
 ‘You’ll find a four-wheeled carriage with a team of mules ready: you will soon become the owner of the villa Lucaniacus.’ (Ausonius, Epistle 5, 35)⁷

In these examples, particularly the first three, it is initially not obvious that the “cut” occurs at a morpheme boundary. But if it did not, then accounting for these examples would apparently require us to posit a novel, constituency-insensitive displacement operation (call it X), thus complicating the theory of grammar.⁸ Such a move would be

than is, e.g., *hoc cerebrum* ‘this skull’ [constructed example], which would traditionally be considered two “words”).

Comminuit in (5) is glossed ‘crushes’ but translated “crushed” because the (small amount of) broader context given for this example of radical tmesis by Chase (1874: 373), Giles (1836: 17), Jäger (1887: 14), Ménière (1858: 9), and Merula (1595: 308) suggests that *comminuit* here is a narrative present form: formally present tense, but with past time reference. (Out of context, it could also be formally a “perfect tense” form, meaning ‘crushed’ or ‘has crushed’.)

As some of the works cited above note, the authorship of (5)–(8) has been debated. Nothing will turn on this: what is important here is not precisely who wrote (5)–(8) but what grammatical operations derive these expressions.

⁷ When (5) and (8) are repeated (and explicitly derived) below, the context preceding the minimal clause featuring the radical tmesis will be omitted.

⁸ Because clauses like (5)–(8) occur only in verse, a skeptic might argue that the theory of grammar need not account for them. But we have good reason to reject that view. On the reasonable assumption that (5)–(8) are acceptable (in verse) in at least their authors’ idiolects – i.e., that they did not deliberately write lines they themselves found unacceptable – there are sharp contrasts between (5)–(8) and their close English counterparts in (ib–c), (iib), (iiiv), and (ivb) below, which are completely unacceptable even in verse. (A native English speaker could opt to use such clauses in verse, but they would be intentionally employing ill-formed expressions.) These contrasts would be mysterious if (5)–(8) were underivable, but are expected if they are derivable but the starred English examples below are underivable (i.e., if Latin but not English verse registers permit syntactic derivations yielding radical tmesis), the view adopted here. (Examples (ia), (iia), (iiia), and (iva) below are controls showing that English verse allows types of leftward scrambling that English prose does not, so the problem with the starred examples is not the scrambling but the radical tmesis specifically. To

undesirable not only on general grounds of theoretical parsimony but also because X would be very similar to the independently motivated operation Internal Merge, since both would effect overt displacement – and yet the two could not be unified, because Merge, whether internal or external, operates only on syntactic constituents (see Hornstein 2009: 65 and Davis 2023 for related discussion). Countenancing X, then, would introduce a suspicious duplication into the theory.

3 The cut in radical tmesis consistently occurs at a morpheme boundary

Fortunately, though, the theory of grammar need not be complicated in the way just alluded to: closer scrutiny reveals that, despite appearances, the cut in radical tmesis does in fact occur at a morpheme boundary. That that is indeed so is demonstrated in this section, paving the way for Section 4 to offer an analysis of radical tmesis as a product of Internal Merge.

The view that the cut in (5) and (6) occurs at a morpheme boundary has already been argued for convincingly by Fruyt (1991) (see also Popan 2012: 68). Fruyt's arguments will thus provide the basis for the discussion of (5)–(6) below – which, however, will expand on them in certain ways.

make the judgments as clear as possible, all the examples in (i)–(iv) below are in iambic pentameter, hence why they do not perfectly translate (5)–(8) in Latin.) For independent evidence of the analytic value of crosslinguistic acceptability contrasts, see Bošković (2020b: 250–251) and Fukui (2011: 90–91).

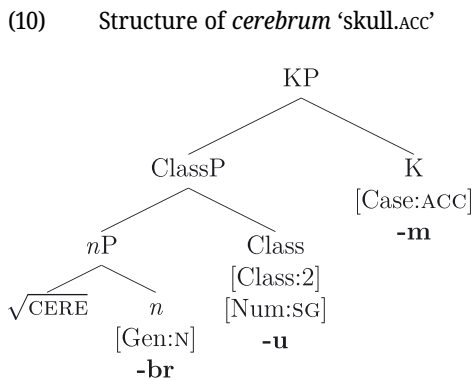
- (i) a. for he maxillas₁ crushes __₁ with a rock (English: poetic register)
 b. *for he max-₁ crushes __₁ -illas with a rock
 c. *for he mac-₁ crushes __₁ -sillas with a rock
- (ii) a. The youths ampullas₂ carried __₂ to the shore. (English: poetic register)
 b. *The youths am-₂ carried __₂ -pullas to the shore.
- (iii) a. The woman lamentations₃ then poured __₃ forth. (English: poetic register)
 b. *The woman lamen-₃ then poured __₃ -tations forth.
- (iv) a. The villa, then, Lucanian₄ will be __₄. (English: poetic register)
 b. *The villa, then, Lu-₄ will be __₄ -canian.

See Zyman and Kalivoda (2020: 20) and the works cited there for further argumentation in support of this general view.

Consider first (5), which is repeated here:

- (9) saxō **cere-** comminuit **-brum**
 rock.ABL sk- crushes -ull.ACC
 ‘He crushed his skull with a rock.’ (Ennius, *Annales* 609 [Vahlen])

As Fruyt (1991: 244) and Popan (2012: 68) note, *cerebrum* ‘brain, skull’ invites a synchronic decomposition into a root *cere-* and a nominalizing suffix *-brum* – more precisely, *-br*, since *-um* is inflectional material (see below). The suffix *-br* typically forms instrument nouns, as in *candēl-a* ‘candle’ > *candēlā-br-um* ‘candelabrum’; *crī-br-um* ‘sieve’ (from the same root as *cern-ere* ‘sift’); *dēlu-ere* ‘wash out, wash off, cleanse’ > *dēlū-br-um* ‘temple, shrine, sanctuary’; *lav-āre* ‘wash, bathe’ > *lavā-br-um* ‘bathtub’; and *lūc-ēre* ‘shine’ > *lūcu-br-um* ‘candle’ (see Fruyt 1991: 244 and Serbat 1975: 90–91 for more examples).⁹ *Cerebrum* ‘skull.ACC’, then, has the structure in (10):



In (10), $\sqrt{\text{CERE}}$ is the root; the nominalizing suffix *-br* is a little *n* head (Marantz 1997; this *n* is taken here to be the locus of the neuter Gender feature); the second-declension theme vowel *-u* (elsewhere *-o*) is analyzed as a (Declension) Class head above *n* (taken here for concreteness to be the locus of the singular Number feature); and the accusative suffix *-m* is analyzed as a K(ase) head (Bittner and Hale 1996; Lamontagne and Travis 1987; see Norris 2021; forthcoming: Sect. 2.3 for discussion). Of course, the structure in (10) raises many questions about the precise mechanisms that generate the partially fusional nominal-declension paradigms in Latin;¹⁰ what is

⁹ If, as argued here, *cerebrum* ‘brain, skull’ is to be synchronically decomposed into *cere-br-um* (at least), then *-br* in this particular structure does not obviously mean ‘instrument’, and *cere-* is apparently a cran-morph. Naturally, neither of these conclusions undermines the analysis: they indicate only that *cere-br-* is an idiom (meaning ‘brain, skull’). See Fruyt (1991: 244) for further argumentation supporting this view.

¹⁰ Including how KP-internal Gender and Number features come to be visible to KP-external probes.

important here, though, is that there is a morpheme boundary between $\sqrt{\text{CERE}}$ and *-br*.¹¹

Consider now (6), which is repeated here:

- (11) **Massili-** portābant iuvenēs ad litora **-tānās.**
 b- were.carrying youths.NOM to shores.ACC -ottles.ACC
 ‘The youths were carrying bottles to the shore.’ (Ennius, *Annales* 610
 [Vahlen])

In (11), the boldfaced surface-discontinuous structure is the accusative plural form of the noun *Massilitāna* ‘bottle’, which is derived by conversion from the feminine form of the adjective *Massilitānus* ‘from Massilia (Marseille)’. If the radical tmesis in (11) is to be attributed to Internal Merge, as this article argues it should be, then there must be a morpheme boundary between *Massili-* and *-tānās*. It is not obvious at first glance that this is the case. Since *-ās* is inflectional material and *-ān* is a suffix forming demonyms (aka gentilics – as in *Rōm-ān-us* ‘Roman’), it initially seems natural to identify *-it* with the demonym-forming suffix *-īt* (as in *Antōniopol-īt-ae* ‘inhabitants of Antonopolis, Lydia’), despite the vowel-length difference (on which see Fruyt 1991: 244–245 and references cited there). This would yield the decomposition in (12), with no morpheme boundary between *Massili-* and *-tānās*.

- (12) Initial decomposition of *Massilitānās* ‘bottles.ACC’ (to be revised)
 Massil-**it**-ān-ā-s
 Marseille-GENT-GENT-TH.DECL1-ACC.PL
 ‘bottles’

As Fruyt (1991: 244–245) argues, however (on the basis of somewhat different considerations from those discussed here), there is good reason to take the linearly earlier demonym-forming suffix in (11) to be not *-it* but *-t*. In particular, *-t* occurs in demonyms independently of *-i/-ī-*:

- (13) Hīlō-**t**-ae
 Helos-GENT-NOM.PL
 ‘the original inhabitants of the city of Helos; helots’
- (14) Sax-ē-**t**-ān-us¹²
 Sex-V-GENT-GENT-M.NOM.SG
 ‘of or from Sex (a town in Hispania Baetica)’
- (15) Spart-i-ā-**t**-ēs
 Sparta-V-V-GENT-M.NOM.SG
 ‘a Spartan’ (adjectival derivative: *Spart-i-ā-t-ic-us* ‘Spartan’)

¹¹ More generally, the trees in this article will reflect a number of assumptions about the relevant structures, of which, for reasons of space and coherence, only those that are crucial to the analysis will be explicitly defended, for the most part.

¹² Also *Sex-i-t-ān-us*.

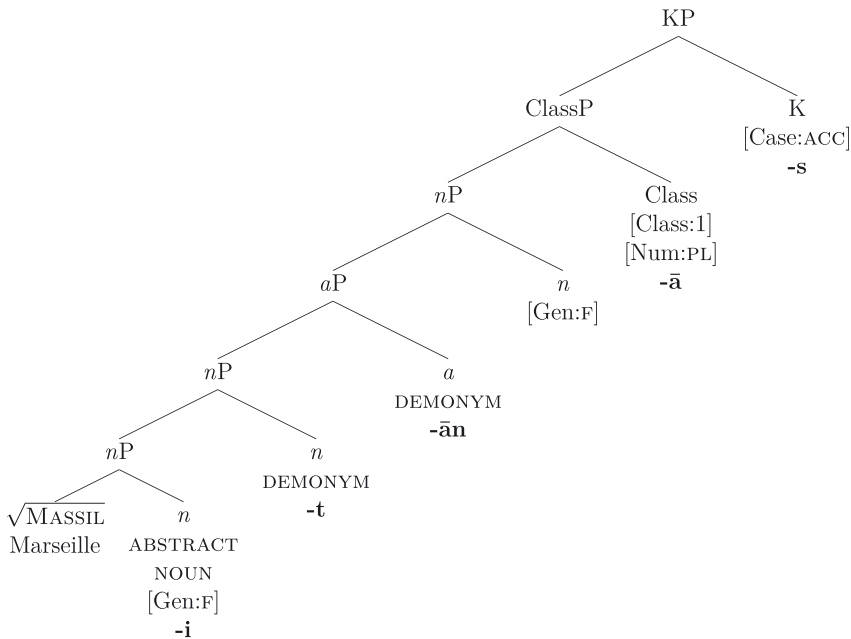
- (16) {Massil/Massal}-i-ō-t-ic-us
 Marseille-NMLZ.ABSTR¹³-V-GENT-ADJ-M.NOM.SG
 ‘of or from Marseille’

That *-t* occurs in demonyms independently of *-i/-ī* and can be preceded by a range of other vowels instead (see (13)–(16)) indicates that it is a morpheme unto itself. Thus, (12) should be revised:

- (17) Final decomposition of *Massilitānās* ‘bottles.ACC’
 Massil-i-t-ān-ā-s
 Marseille-NMLZ.ABSTR-GENT-GENT-TH.DECL1-ACC.PL
 ‘bottles’

In (17), the *-i* immediately preceding *-t* is analyzed as an abstract-noun-forming suffix, as in *Ital-i-a* ‘Italy’ (cf. *Ital-us* ‘Italian’). Alternatively, *Massili-* could in principle be an undecomposable root (shared with *Massili-a* ‘Marseille’), as Fruyt (1991: 245) proposes. What is important here is that there is a morpheme boundary between *Massili-* and *-tānās* after all (Fruyt 1991: 244–245; see also Popan 2012: 68). The structure corresponding to (17) is shown below:

- (18) Structure of *Massilitānās* ‘bottles.ACC’



¹³ This *-i* will be discussed shortly below.

(Here, the *n* that takes *aP* as its complement is the element taken to effect the adjective-to-noun conversion – the derivation of a noun *Massilitāna* ‘bottle’ from the feminine form of the adjective *Massilitānus*, *-a*, *-um* ‘from Marseille’.)

Consider now (7), which is repeated here:

- (19) **Lāmen-** color **-tātrīcī** mūtāt...
 mour- color.NOM -ner(F).DAT changes
 ‘The hue of a woman in mourning changes...’ (attributed to Pomponius; see Debouy 2012: 200)

Lāmentātrīcī ‘to/for/of a female mourner’ consists of the following morphemes, at least:

- (20) Initial decomposition of *lāmentātrīcī* ‘mourner(F).DAT’ (to be revised)
 lā-ment-ā-t-rīc-ī
 shout?-NMLZ.ABSTR-TH.CONJ1-PTCP-AGT.F-DAT.SG
 ‘to/for/of a female mourner’

In (20), working our way from the outside in, *-ī* is a dative singular suffix; *-rīc* is a suffix forming agent nouns (the feminine counterpart of *-or*); *-t* is an element argued at length by Zyman and Kalivoda (2020: Sect. 4.1) to be a participle-forming suffix of category *a*,¹⁴ and *-ā* (elsewhere *-a*) is the theme vowel of first-conjugation verbs. The verb *lāment-ā-(rī)* ‘wail, lament’, from which (20) is derived, is itself derived from the noun *lāment-(um)* ‘wailing, lament’, which clearly consists of the nominalizer *-ment-(um)* and a root *lā-*, perhaps to be identified with the root of *clām-āre* ‘shout’ (Lewis and Short 1879; see the *Thesaurus Linguae Latinae* s.v. *lāmentae* for a different view).

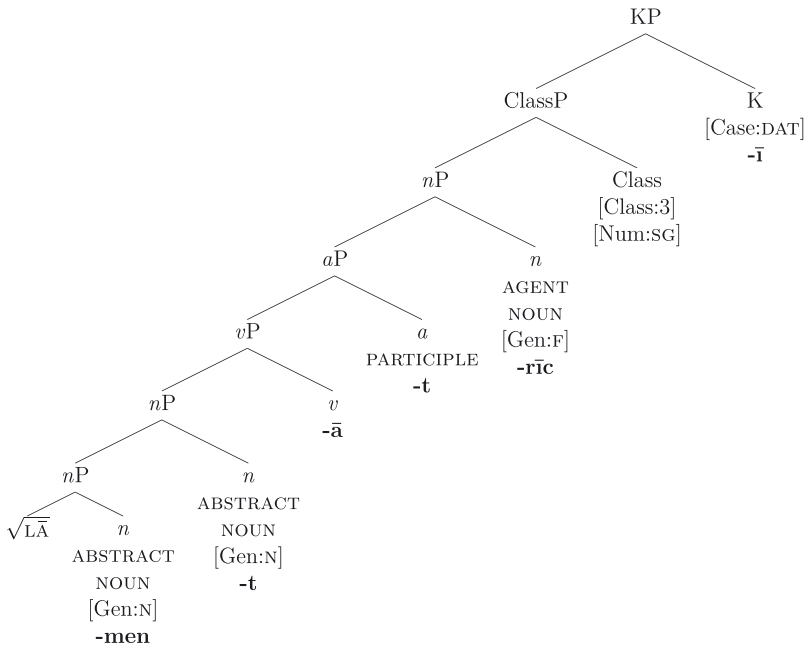
If (20) were the full decomposition, there would be no morpheme boundary between *lāmen-* and *-tātrīcī*, so the radical tmesis in (19) could not be derived by Internal Merge, contra this article’s thesis. But there is good evidence that the Latin nominalizer *-ment* is not simplex but consists of two smaller elements: the nominalizer *-men* and a suffix *-t*. The view that this decomposition is valid diachronically has been argued for extensively (Perrot 1961; Pike 2011: 37; Uth 2010: 216, 228; and references cited there). Crucially, though, there is ample synchronic support for this decomposition as well. Thus, the nominalizer *-men* occurs independently of *-t* – as is shown vividly by minimal pairs like *aerā-men-t-um* ‘copper or bronze vessel or utensil’ ~ *aerā-men* ‘copper, bronze’; *cōgitā-men-t-um* ‘a thought’ ~ *cōgitā-men* ‘thinking, thought’; *corōnā-men-t-um* ‘garland, crown (or flowers therefor)’ ~ *corōnā-men* ‘a wreathing, crowning’; and *crassā-men-t-um* ‘thickness; dregs, grounds’ ~ *crassā-men* ‘dregs’ (see Stringer 2017: 24 for more examples). Thus, (20) should be revised:

¹⁴ Seen in participles like *laudā-t-us* ‘having been praised’ and *laudā-t-ūrus* ‘that is going to praise’, among many others.

- (21) Final decomposition of *lāmentātrīcī* ‘mourner_(F).DAT’
lā-men-t-ā-t-rīc-ī
 shout?-NMLZ.ABSTR-NMLZ.ABSTR-TH.CONJ1-PTCP-AGT.F-DAT.SG
 ‘to/for/of a female mourner’

The corresponding structure follows:¹⁵

- (22) Structure of *lāmentātrīcī* ‘mourner_(F).DAT’



¹⁵ The *-t* taking [_{nP} *lāmen-*] as its complement is analyzed here for concreteness as an abstract-noun-forming suffix of category *n*. According to Uth (2010: 228), this *-t* is to be identified, at least historically, with the participle-forming *-t* (the one analyzed here as a little *a* head, which occurs higher up in (22)). Although it would be worthwhile to conclusively determine the categorial feature and the precise lexical identity of the lower *-t* in (22), that will not be done here: nothing below will turn on these matters.

On Zyman and Kalivoda's (2020) analysis of Latin clause structure, which will be adopted in Section 4.1, the participle-forming *a* head *-t* takes its complement to its right – and the reason [_{vP} *lāmentā-*] nonetheless precedes *-t* in (22) is that it moves to [Spec,*aP*] (see Zyman and Kalivoda 2020: Sect. 4 for arguments). The structure in (22) abstracts away from this because it is not directly relevant here: what is important here is that there is indeed a morpheme boundary between *lāmen-* and *-tātrīcī*.

There is, then, a morpheme boundary between *lāmen-* and *-tātrīcī* after all.

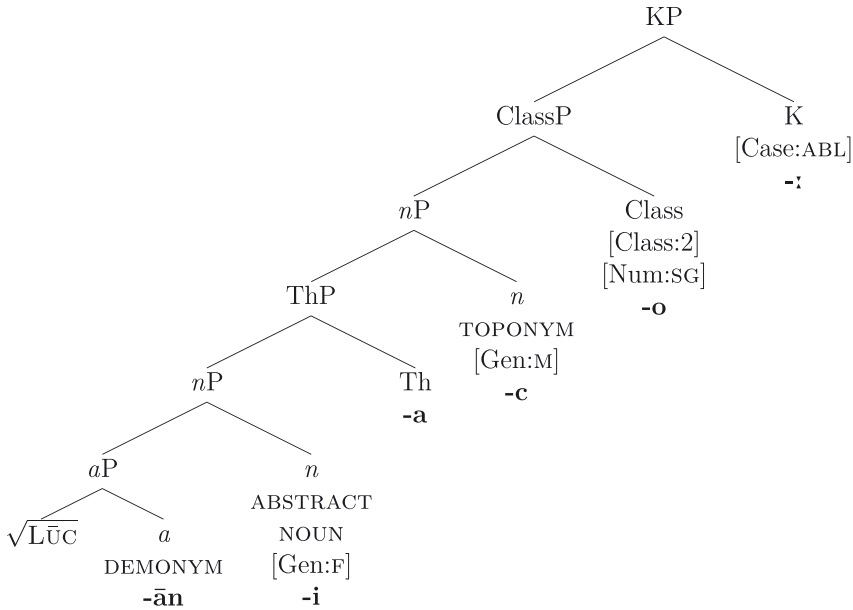
Finally, consider (8), which is repeated here:

- (23) *Villā* **Lūcāni-** *mox* *potiēris* **-acō.**
 villa.ABL Lucani- soon you.will.take.possession.of -acus.ABL
 ‘You will soon become the owner of the villa Lucaniacus.’ (Ausonius, Epistle
 5, 35)

In (23), *-ō* is inflectional material. It is immediately preceded by *-ac*, a suffix that forms place names, as well as personal names. (As Mowat 1881: 381–382 discusses, the vowel in *-ac* can be either short or long, depending on the stem it attaches to. Here it is short, as revealed by the meter: (23) is the second line of an elegiac distich.) In fact, the discussion in Mowat (1881: 382) makes it quite plausible to take the place-name-forming suffix proper to be *-c*, the immediately preceding *-a* being a nominal theme vowel, though nothing will hinge on this.¹⁶ The sequence *-a-c* is immediately preceded by *-i*, the abstract-noun-forming suffix discussed under (17). This *-i*, in turn, is preceded by *Lūcān-*, the stem of the name *Lūcān-us*: as Billy (2016: 98–99) discusses, Ausonius calls his estate *Lūcāniacus* because it previously belonged to his late father-in-law, Attūsus Lūcānus Talīsius.¹⁷ The stem *Lūcān-* will be taken here for concreteness to consist of the demonym-forming suffix *-ān* (discussed under (11)) and a root *Lūc-*, though nothing will turn on that. The pre-tmesis structure of *Lūcāniacō* ‘Lucaniacus’ in (23), then, is:

¹⁶ For arguments that theme vowels are syntactically independent heads, see Zyman (2023b) and works cited there.

¹⁷ The vowel lengths in *Attūsus* and *Talīsius* were extracted from the *Thesaurus Linguae Latinae* and Gaffiot (2016 [1934]), respectively.

(24) Structure of *Lūcāniacō* 'Lucaniacus.ABL',¹⁸

Recapitulating: in radical tmesis, a structure traditionally considered a “word” is split in two, and the pieces are separated by other material – and it is initially not obvious that the cut occurs at a morpheme boundary. Closer scrutiny reveals, though, that the cut in radical tmesis does occur at a morpheme boundary, though this is much less obvious on casual inspection than it is in cases of canonical tmesis. This finding is significant because it opens the door to analyzing radical tmesis as a product of Internal Merge, entirely on a par with ordinary phrasal movement.

¹⁸ In (24), the masculine ablative singular ending *-ō* is decomposed into the *-o* (elsewhere *-u*) that is the second-declension theme vowel (here analyzed as expounding a [Declension] Class head that is also the locus of the singular Number feature) and a suprasegmental morpheme *-i*, here analyzed as the exponent of the ablative K(ase) head.

The *-a* in (24), which was taken above to be a nominal theme vowel, is assigned to a category Th(eme) for concreteness. But if its categorial feature is something other than [CAT Th] – e.g., [CAT *n*] – or if *-ac* is a monomorphemic toponym-forming suffix of category *n* (see Mowat 1881: 382 for discussion), the analysis will be essentially unaffected.

4 Deriving the constituent order in radical tmesis syntactically

Successfully analyzing radical tmesis as a product of Internal Merge will, however, require more than just showing that the cut occurs at a morpheme boundary – i.e., at a syntactic boundary (the conclusion just reached). That the cut occurs at a morpheme boundary indicates that radical tmesis *could* be derived by Internal Merge, in principle. But showing that it actually *can* be derived by Internal Merge (in a principled way) will require establishing that the applications of Internal Merge (and other operations) needed to derive the surface constituent orders produced by radical tmesis are independently motivated – the goal of this section.

Before we proceed, it will be worthwhile to highlight two assumptions that will be made in the analysis developed below. First, Merge – whether external or internal – is driven by structure-building features [**F•**] (the notation is from Heck and Müller 2007). Secondly, there exist underspecified structure-building features [**X•**] that are not keyed to a particular categorial feature (the way that [**D•**] on T in English is keyed to the categorial feature [_{CAT} D]; see Lai 2019: 248), which can therefore trigger movement even of a categoryless root. The hypothesis that underspecified structure-building features exist is independently supported by the famous “nonpickiness” of movement to [Spec,CP] in V2 environments, which is likewise quite category-insensitive (see Bošković 2020a: 62 and references cited there, as well as Newman 2020: 10; see also Zyman 2018 for empirical observations that suggest that [**X•**] can trigger External as well as Internal Merge). Other relevant assumptions will be made explicit as we proceed.

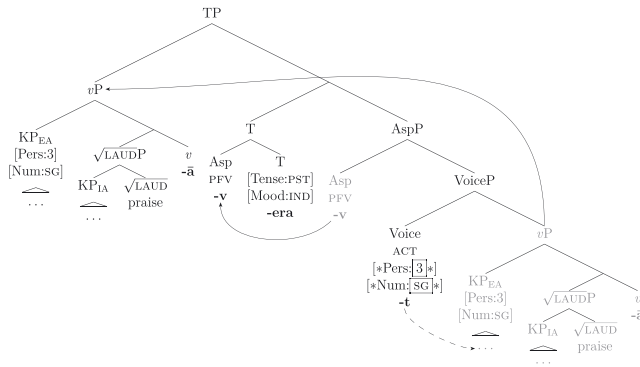
4.1 A brief introduction to Latin clause structure

Establishing that radical tmesis not only could in principle but in fact *can* be derived syntactically will require us to have a clear idea of the structure and derivation of Latin clauses. Much recent work has argued that, in Latin, the building of an ordinary clause involves movement of a (phrasal) verbal projection to a specifier position in the inflectional layer (Bailey 2010; Danckaert 2012, 2014, 2017a, 2017b; Gianollo 2016; on this kind of derivation crosslinguistically, see many of the papers in Carnie and Guilfoyle 2000; Carnie et al. 2005). This article will adopt the version of that analysis developed by Zyman and Kalivoda (2020), henceforth Z&K. On their analysis, the building of a finite clause in Latin involves two key operations: 1) Asp-to-T head movement, and 2) vP-movement to [Spec,TP]. Consider (25):

- (25) laud-ā-v-er-a-t
 praise-TH-PFV-PST-3_{SG}
 ‘he/she/it had praised’
 (adapted from Z&K: 6)

A clause built from (25) is derived as in (26). (*EA* = ‘external argument’; *IA* = ‘internal argument’.)

(26) Derivation of *laudāverat* ‘he/she/it had praised’



(adapted from Z&K: 6¹⁹)

On this analysis, the Person and Number probes in a finite clause are on Voice in Latin – not on T, as in English. (The dotted arrow depicts Agree.) This component of the analysis receives some crosslinguistic support from Lemon’s (2024) convincing arguments that the Person and Number probes in Uab Meto (which, like Latin, has a nominative/accusative agreement alignment) are on a head just above Voice, which he calls *Agr*. It also offers a straightforward explanation for the otherwise puzzling observation that some Latin verb forms obey, and others appear to disobey, Baker’s (1985: 375) Mirror Generalization.²⁰ To see this, consider (27):

- (27) *laud-ē-t-ur*
 praise-PRS.SBJV-3SG-PASS
 ‘(that) he/she/it may be praised’
 (adapted from Z&K: 8)

In (27), the passive Voice morpheme *-ur* surfaces farther from the root *laud-* ‘praise’ than does the present tense/subjunctive mood portmanteau *-ē* (see Baker 2014: 8–9; Cinque 1999: 197, citing Calabrese 1985; Calabrese 2019: Sect. 3.4.4.2; and Embick 2000:

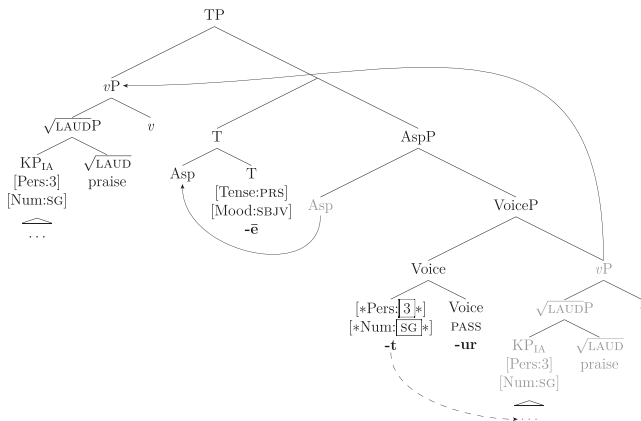
¹⁹ This tree innocuously replaces V and its projections (in Z&K’s tree) with a categoryless root and its projections, for consistency with the trees above.

On this analysis, whenever a clausal structure is built up to the TP level in Latin (i.e., in all finite and infinitival clauses), vP moves to [Spec, TP]. TP itself is invariably head-initial, though, even in surface syntax, since T is linearized to the left of (the overt content of) its AspP complement (see (26) and (28)). On the syntax of Latin clauses containing auxiliaries (which are not directly relevant to this article), see Z&K: 13–14, fn. 19.

²⁰ Originally called the Mirror Principle. It is not, however, a principle but a generalization to be derived from deeper principles (Brody 2000: 31; Dékány 2018: 3; Willson 2021: 11).

196–199). This superficially appears to violate the Mirror Generalization, since Voice is crosslinguistically lower in clause structure than T/Mood. But it is a straightforward consequence of the analysis of Latin clause structure adopted here:

(28) Derivation of *laudētur* ‘(that) he/she/it may be praised’



(adapted from Z&K: 9²¹)

As (28) shows, the reason passive Voice surfaces farther from the root than does T in (27) is that Voice is stranded by vP-movement to [Spec,TP].

On this analysis, Latin does obey the Mirror Generalization, despite appearances, but it must be understood as a generalization about structures formed by operations on heads (e.g., Asp-to-T movement, as in (26)): phrasal movement can result in apparent violations of it (see Z&K: 10 for references). The analysis also has the consequence that all Latin finite verb forms, whether they transparently obey the Mirror Generalization or

²¹ On Z&K's analysis, the Latin passive Voice head undergoes postsyntactic Fission when its Person and Number features acquire certain values (but not when they acquire others). The result of this Fission is shown anticipatorily in (28). Z&K's overall analysis nearly complies with the tenets of Morphology as Syntax (see the references under (4)), a framework that seeks to eliminate specifically morphological operations, attributing their effects to independently necessary syntactic operations. However, the analysis would come closer to complying with those tenets if the Fission component were eliminated, since the linear sequences of exponents sometimes taken to be produced by Fission might in principle actually be produced by External and Internal Merge. The account's Fission component could be eliminated by taking the Person and Number probes to be on an Agr head distinct from Voice, exactly as Lemon (2024) does for Uab Meto. (On the possible eliminability of Fission, see also Marantz 2019.) This alternative, though promising, will not be pursued here: nothing below will turn on these matters.

As shown in (26) and (28), Z&K also posit that Voice's probe features trigger Agree (Chomsky 2000, 2001). However, Hornstein (2009: Ch. 6) gives extremely interesting conceptual and empirical arguments that (long-distance) Agree should be eliminated in favor of Local Agree (see also Collins 2017: Sect. 8). It would be worthwhile to determine whether the analysis of Latin clause structure adopted here is compatible with Local Agree, but that would take us too far afield here.

superficially appear to violate it, share the simple derivation just laid out, involving one step of head movement (Asp to T) and one step of phrasal movement (*v*P to [Spec,TP]) (see Z&K: appendix). See Z&K for further discussion of derivations like (26) and (28) (Z&K: 7–8) and for several strands of syntactic evidence, independent of morpheme order, in favor of the analysis of Latin clause-building adopted here (Z&K: Sect. 5).

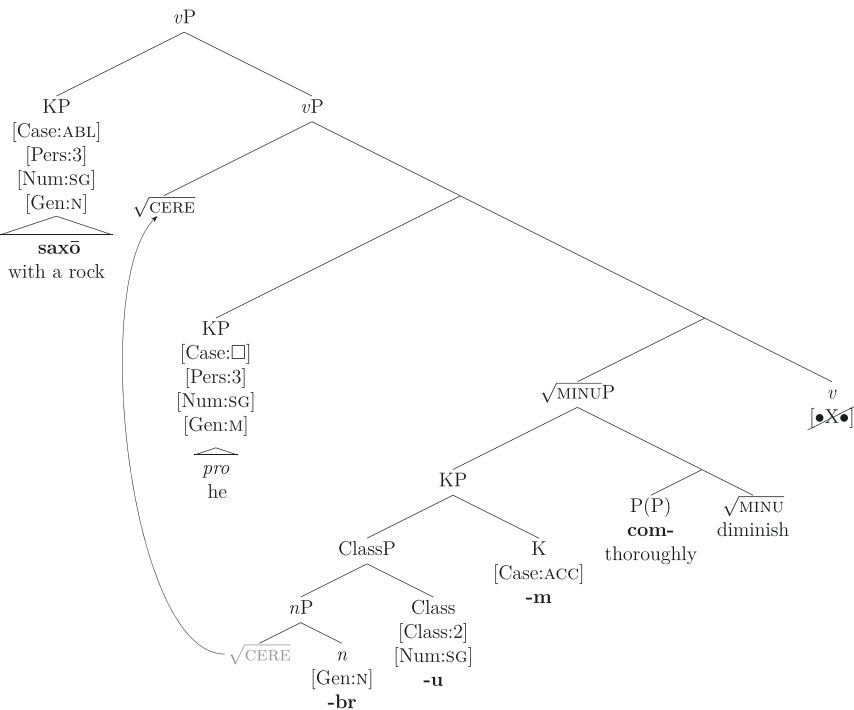
4.2 The syntax of radical tmesis

Now that we have an analysis of the derivation of Latin finite clauses, we can proceed to show how our basic derivation, in conjunction with independently motivated further applications of Internal Merge, can account for the constituent orders that radical tmesis produces. To that end, let us consider the derivation of (5) (repeated in (29)) in detail; the other radical tmesis derivations to be considered here are very similar to that one.

- (29) saxō cere- comminuit -brum
 rock.ABL sk- crushes -ull.ACC
 ‘He crushed his skull with a rock.’ (Ennius, *Annales* 609 [Vahlen])

Example (29) is derived as follows. First, the structure in (30) is built:

- (30) Derivation of (29), part 1



In (30), the root $\sqrt{\text{MINU}}$ ‘diminish’ takes two arguments: the intransitive P *com* ‘thoroughly’ (traditionally considered a prepositional prefix but similar to Germanic particles: see Harley 2008; Koopman 2020a: 208–209; Punske 2013; Zyman 2020; see also Giannoula 2021, 2023: 80–81, and Keyser and Roeper 1992) and the KP *cerebrum* ‘[his] skull’.²² (The mechanisms by which KPs get case are set aside here.) The next head up above the root, *v*, selects the maximal projection of the root and the external argument KP (here *pro* ‘he’).

Next, the root $\sqrt{\text{CERE}}$ within [_{KP} *cerebrum*] ‘his skull’ scrambles to the left edge of *vP*, an instance of phrasal movement (note that $\sqrt{\text{CERE}}$ is a maximal as well as a minimal projection, in the relational senses of these notions familiar from Bare Phrase Structure [Chomsky 1995a]). Although multiple approaches to scrambling are compatible with the overall analysis developed in the present article, this process will be posited here, for concreteness, to be driven by an underspecified structure-building feature [$\bullet\text{X}\bullet$] that *v* can bear in Latin, and does bear in this derivation.²³

²² As stated in note 11, of the various assumptions reflected in these derivations, only those that are crucial to the analysis will generally be explicitly defended.

²³ The structure-building features that trigger *External Merge* are suppressed from the trees for legibility, as are those that trigger *Internal Merge* but are not directly relevant.

The claim that Latin allows scrambling to the left edge of *vP* is independently supported by sentences like (i) below. In (i), the direct object *cuius membra* ‘whose limbs’ is displaced to the left of the subject *haruspices* ‘soothsayers’, subverting the default SOV order (Devine and Stephens 2006: 79). (The subsequent subextraction of *cuius* ‘whose’ is irrelevant here.) Crucially, the displaced object follows the clausal negation *nōn* ‘not’, which Z&K (Sects. 5.1.3 and 5.3), building on Danckaert (2017a: Sect. 1.5.3.3.1), analyze as a Σ (polarity) head (Laka 1990) that, when present, sits just above TP. Given the analysis of Latin clause structure adopted here (which includes the analysis of negation just mentioned), the direct object in (i) must have either (a) scrambled to the left edge of *vP* (as shown by the bracketing) or (b) scrambled out of *vP* before *vP* moved to [Spec, TP], and then moved to an outer specifier of TP (or adjoined to TP). The former analysis is simpler (involving one fewer derivational step) and is thus favored, absent evidence to the contrary.

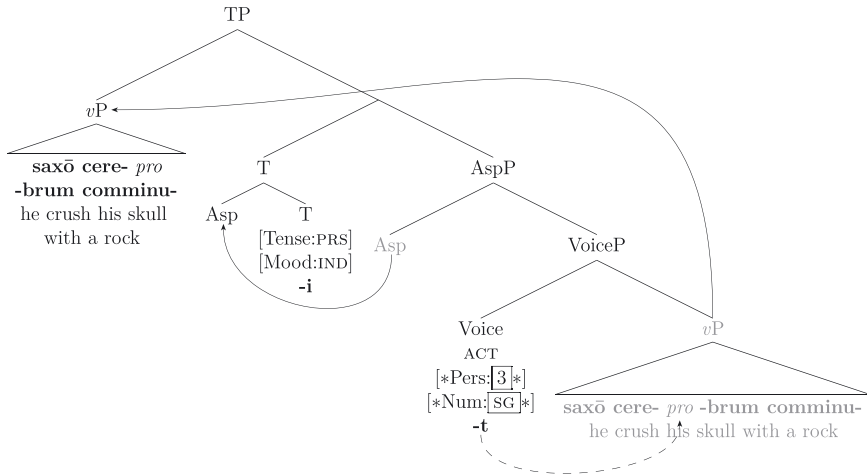
- (i) Et quis rēgum erit tūtus [cuius₃ [_{ΣP} *nōn* [_{TP} [_{vP} [_{KP} ___₃
and who.NOM kings.GEN will.be safe.M.NOM.SG whose(GEN) not
membra]₁ haruspices ___₁ collig]₂-a-nt ___₂]]]?
limbs.ACC soothsayers.NOM collect-PRS.SBJV-3PL
‘And what king will be spared soothsayers collecting his limbs?’ (Seneca the Younger, *De Clementia* 1.7.1)
(adapted from Danckaert 2012: 13, (32))

A reviewer questions this analysis, on the grounds that “there is ample evidence for multiple positions for negation in Latin.” The reviewer argues that it may instead be that, in (i), (a) the subject moves from its base position to some higher A-position, (b) the direct object scrambles above it (into “the high TP domain”), and (c) *nōn* ‘not’ occurs higher than it is shown in the labeled bracketing above. On this analysis too, though – as on the one in the text – a constituent originally lower than the subject (in this case, the direct object) scrambles above it, so there is no obvious impediment to saying

(On scrambling in Latin, see Devine and Stephens 2006: 88–89 and Sect. 1.6; Z&K: 26 and Sect. 5.3; and references cited there.²⁴) Finally, the ablative KP *saxō* ‘with a rock’ adjoins to *vP*.

The derivation continues as follows:

(31) Derivation of (29), part 2



that $\sqrt{\text{CERE}}$ in (29)/(30) undergoes the same kind of scrambling above the subject, in the spirit of the analysis in the text. (A proponent of this alternative analysis would, however, have to posit that the *vP*-adjunct *saxō* ‘with a rock’ then scrambles leftwards over $\sqrt{\text{CERE}}$, in keeping with the arguments in Devine and Stephens 2006: 58, 92, 116 that instrumental nominals can scramble leftwards in Latin.)

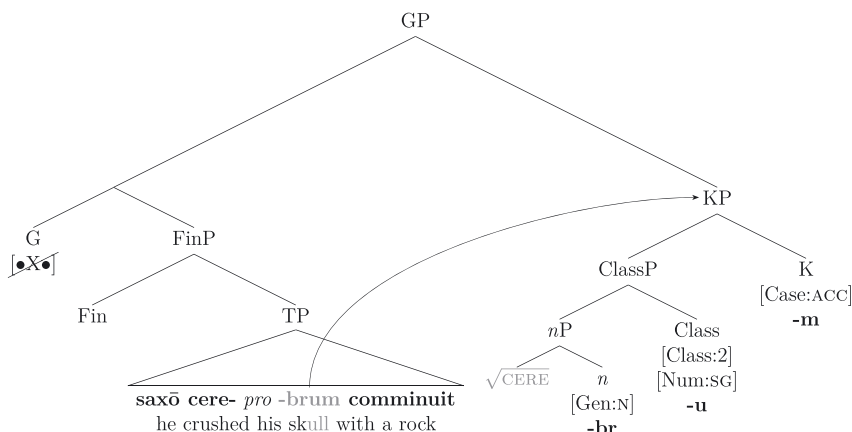
24 One might initially be tempted to object that the scrambling of $\sqrt{\text{CERE}}$ to the *vP* edge in (30) violates minimality, on the grounds that there is another root, $\sqrt{\text{MINU}}$ ‘diminish’, that is closer and hence should move instead. But this is not so on the standard view that minimality is calculated in terms of asymmetric c-command (Byron 2019: 24; Chomsky 1995b: 311, 2000; McCloskey 2000: 60), since $\sqrt{\text{MINU}}$ does not c-command $\sqrt{\text{CERE}}$ in (30).

One might also worry that the scrambling of $\sqrt{\text{CERE}}$ in (30) violates A-over-A locality (Chomsky 1964, 1973), since, prior to scrambling, $\sqrt{\text{CERE}}$ is irreflexively dominated by *nP*, *ClassP*, *KP*, and $\sqrt{\text{MINU}}$. Because any of these phrases should in principle be able to satisfy $[\bullet X]$ on *v*, one might expect this feature to have to be satisfied by movement of $\sqrt{\text{MINU}}$, which irreflexively dominates all the others. However, it has been argued on numerous grounds that there is no A-over-A Condition. Evidence for this view, which is adopted here, is given by McCloskey (2000: 60), Pesetsky (2021: 15), Ross (1967: Ch. 2), van Riemsdijk and Williams (1986: 23), and Zyman (2023a: Sect. 7); see also Aitha (2023: Sect. 5.1), Kusmer (2015), Lebowksi (2021: 31), and Zyman (2021: 550).

In (31), as usual, Voice agrees in Person and Number with the highest accessible nominal (here *pro* ‘he’); Asp moves to T; and *vP* moves to [Spec,TP].

The final portion of the derivation unfolds as follows:

(32) Derivation of (29), part 3



In (32), two heads are merged in above TP: a Fin(iteness) head²⁵ (Rizzi 1997) and a G(round) head (cf. Bianchi and Zamparelli 2004: 319; Poletto and Pollock 2004; see also Hulk and Pollock 2001: 9 and Kayne and Pollock 2001: 118), whose specifier is interpreted as conveying backgrounded or deemphasized information. G bears a [•X•] feature, which attracts a constituent – in this derivation, the remnant KP *-brum* – to [Spec,GP], which is taken here to be linearized to the right.²⁶ Crucially, we need not stipulate that a constituent that moves to [Spec,GP] bears an ad hoc

25 The example being derived is a main clause; on the properties of FinP in Latin embedded clauses, see Danckaert (2012: 107–108) and Z&K: 19–20.

26 It might be objected that it is problematic to posit KP-movement out of a *vP* that has moved to [Spec,TP], on the grounds that movement out of moved elements is banned (see Wexler and Culicover 1980). However, this objection is undermined by the observation that topicalization out of preposed *vPs* is possible in English: see (i) below. (The judgment is mine: not all idiolects of English permit contrastive *vP*-topicalization to begin with.)

(i) But [_{DP} his_K SKULL]₃, I suspect that [_{vP} set __₃ on FIRE]₁, he_i DIDN'T __₁, but [_{vP} crush __₃ with a ROCK]₂, he_i DID __₂.

Although this particular counterargument could be disputed, since there are analyses of English verb-phrasal preposing on which the clause-initial verb phrase does not move from within the core of the clause (Ott 2018; Thoms and Walkden 2019), abundant additional evidence reveals that movement out of moved elements is sometimes possible. See Bošković (2004: 732–733); Bruening (2018a: Sect. 6);

information-structure feature [BACKGROUNDED] or the like, which would violate the Inclusiveness Condition (Chomsky 1995b): rather, such a constituent is interpreted as backgrounded/deemphasized in virtue of occurring in [Spec,GP] (owing to the denotation of G), so [$\bullet X \bullet$] suffices to trigger the movement as such. See Chomsky et al. (2019: 237–238, 250) and Chomsky (2020: 165) for similar arguments; theirs are cashed out in a Free Merge framework rather than in the feature-driven Merge framework adopted here, but little will turn on this analytical difference.

The GP component of the analysis is independently supported by the observation that backgrounded/deemphasized constituents can surface right-peripherally quite generally in Latin, including in prose. Thus, in (33), *puellam* ‘the girl’ is backgrounded (note that it conveys old information, given the presence of *sorōris* ‘of his sister’ in the first sentence), and it surfaces right-peripherally:

- (33) Movet ferōcī iuvenī animum conplōrātiō sorōris ...
 stirs fierce.DAT youth.DAT spirit.ACC lamentation.NOM sister.GEN
 Strictō itaque gladiō simul verbīs
 having.been.drawn.N.M.ABL and.so sword.ABL at.the.same.time words.ABL
 increpāns trānsfigit **puellam.**
 rebuking pierces.through girl.ACC
 ‘The lamentation of his sister angered the fierce young man [...] And so,
 drawing his sword, while shouting reproaches at her, he ran it through the
 girl.’ (Livy, *Ab Urbe Condita* 1.26.3)
 (adapted from Devine and Stephens 2006: 17)

And in (34), *mundō* ‘the world’ is backgrounded (it too conveys old information, given the presence of *mundum ipsum* ‘the world itself’ in the first finite clause), and it also surfaces right-peripherally:

- (34) ... modo mundum ipsum deum dicit esse, modo
 now world.ACC itself.M.ACC god.ACC says to.be now
 alium quendam praeficit **mundō ...**
 another.M.ACC certain.M.ACC puts.in.charge.of world.DAT
 ‘...now he says the world itself is a god, now he puts someone else in charge
 of the world...’ (Cicero, *De Natura Deorum* 1.33)
 (adapted from Devine and Stephens 2006: 178)

For many more examples of backgrounded/deemphasized constituents surfacing right-peripherally in Latin, see Devine and Stephens (2006: 129 et passim).²⁷

The GP component of the analysis is independently supported not only Latin-internally but also crosslinguistically. It is lent further plausibility by Cantonese sentences like (35)–(37):

- (35) Zoeng Saam tingjat __₄ heoi teng jincoengwui lo¹_[Adv] **dosou**₄.
 Zoeng Saam tomorrow go listen concert _{SP} probably
 ‘Zoeng Saam is probably going to a concert tomorrow.’
 (adapted from Lee 2017: 62)

- (36) Zoeng Saam __₅ maai-zo bou soenggei aa³ _[PP] **hai dinnou zit**₅.
 Zoeng Saam buy-PFV CLF camera _{SP} at computer festival
 ‘Zoeng Saam bought a camera at the computer festival.’
 (adapted from Lee 2017: 62)

- (37) Zoeng Saam jatzik dou __₆ heoi duksyu ge² _[V] **soeng**₆.
 Zoeng Saam all.the.time all go study _{SP} want
 ‘Zoeng Saam wants to go study all the time.’
 (adapted from Lee 2017: 62)

In such examples, the constituent that surfaces sentence-finally, to the right of the sentence particle, is interpreted as defocused: it cannot be a *wh*-phrase or an information focus; bear focal stress (Lee 2017: Sect. 3.1.1, 2020: 140–141); be a contrastive focus (Lee 2020: 141, 2021: 108–109); or be the associate of *lin ... dou* ‘even’ (Lee 2020:

27 In (33)–(34), as noted, the right-peripheral constituents analyzed here as backgrounded are XPs that convey old information: *puellam* ‘the girl’ and *mundō* ‘the world’ denote entities that have already been mentioned. The overall analysis currently being developed, then, incorporates the idea that, if an XP moves to [Spec,GP], the resulting sentence will, ceteris paribus, be felicitous if XP denotes an entity that is discourse-old/given. But this does not entail that an XP moved to [Spec,GP] *must* be interpreted as discourse-given, since it could instead be assigned some other information-packaging-related interpretation compatible with the overall notion of backgrounding. Returning to (32), although we cannot know for certain that [_{KP} -*brum*] is *not* discourse-old in its original context (on which see note 6), the current analysis does not hinge on the assumption that it is. To establish the plausibility of the claim that [_{KP} -*brum*] moves to [Spec,GP], it suffices to note that it is, in an intuitive sense, “informationally light.” That is, of the two pieces that [_{KP} *cerebrum*] ‘his skull’ is split into – *cere*- and the remnant -*brum* – the former is a much stronger and more reliable cue to the KP’s identity and is thus informationally heavy; the latter, by contrast, is informationally light. (The same is true of *Massili*- and -*tānās*, respectively, in (6) and of *Lūcāni*- and -*acō*, respectively, in (8): in both cases, the latter piece will be analyzed below as moving to [Spec,GP].) The overall claim, then, is that an XP moved to [Spec,GP] is interpreted as backgrounded, but backgrounding is a somewhat capacious notion, at least as it is implemented in Latin grammar: XP’s being either discourse-given or informationally light suffices for it to be able to count as backgrounded (and there might be other routes to backgrounding as well).

142). For further discussion of defocalization, see Lee (2017: Sects. 3.1.2–3.2), Lee (2020), and references cited there. Notably, the sentence-final position for defocalized elements in Cantonese is not categorially restricted: it can host an adverb (see (35)), a PP (see (36)), a modal verb (see (37)), other types of verbs (Lee 2021: 106), a CP complement (Lee 2017: 62), or a nominal object with or without a demonstrative (Lee 2017: 62; Lai 2019: 270) – exactly as expected if the head determining the relevant specifier position bears an underspecified [$\bullet$ X $\bullet$] feature, as Lai (2019) essentially argues for Cantonese and as was argued above for Latin.²⁸

The account's GP component receives further crosslinguistic support from Turkish sentences involving postposing, like (38)–(39), if, as Takano (2014: 176) states (citing Erguvanlı 1984), “postposing in Turkish has the discourse function of backgrounding.”

- (38) __₁ Ali-ye kitab-ı verdi Hasan₁.
 Ali-DAT book-ACC gave Hasan
 ‘He_i gave the book to Ali, Hasan_i.’
 (adapted from Kornfilt 2013: 206)

- (39) __₂ __₃ Kitab-ı verdi Hasan₂ Ali-ye₃.
 book-ACC gave Hasan Ali-DAT
 ‘He gave the book to him, Hasan to Ali.’
 (adapted from Kornfilt 2013: 207)

Further crosslinguistic empirical observations lending plausibility to the account's GP component are given in Devine and Stephens (2006: 136) and works cited there.

Returning to radical tmesis, the derivations of (6) and (8), both of which exemplify radical tmesis, are very similar to the derivation just examined (in (30)–(32)), so they can be presented quite efficiently.²⁹ Consider first (6), repeated here:

²⁸ Lai's (2019) proposal that the relevant movement-driving feature is an underspecified structure-building feature is preferable to Lee's (2017: Sect. 5, 2021: Sect. 4.2.1) proposal that it is a [–Foc] feature, since, on Lee's implementation of the latter proposal, not only the high CP-level functional head (on his analysis, a Defocalization head) but also the defocalized XP itself bears [–Foc], and the latter component of the account violates the Inclusiveness Condition.

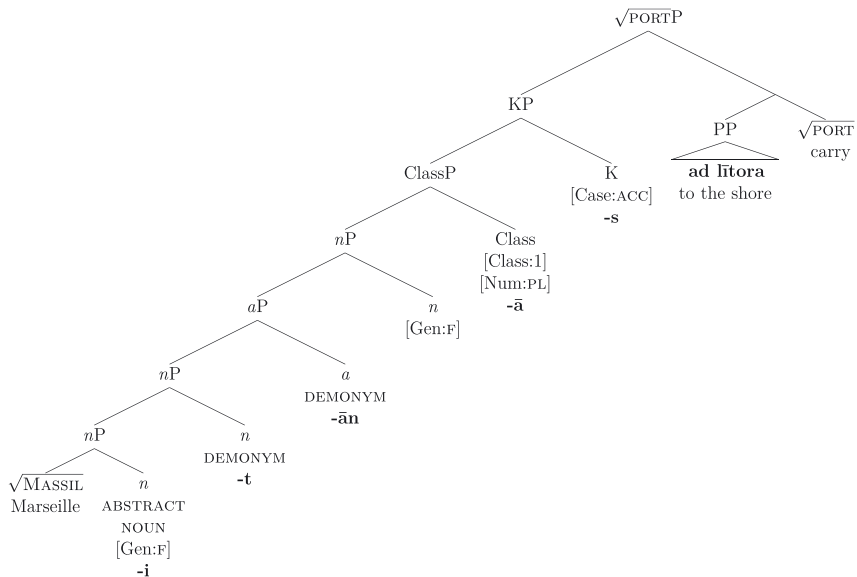
Lai (2019: 247) dubs the Cantonese CP-level functional head in question G, but for him, G stands for *Given* (cf. Ahn 2015), not for *Ground*, as in Bianchi and Zamparelli (2004) and here. The Latin G head proposed here does not force the XP in its specifier to be interpreted as given but merely to be interpreted as backgrounded/deemphasized. But even if the Cantonese Defocalization head (Lee 2017) or Given head (Lai 2019) has a slightly different denotation than does the Latin G head proposed here, the similarities between the Cantonese and Latin sentences under discussion are striking enough for the former to provide at least some crosslinguistic support for the present analysis.

²⁹ A full derivation will not be given for (7) *Lāmen- color -tātrici mūtāt...* ‘The hue of a woman in mourning changes...’. Doing so would require us to first determine how Latin dative-possessor structures are derived, which would lead us too far astray. But since [_{NP} *lāmen*–] is a subconstituent of

- (40) **Massili-** portābant iuvenēs ad litora **-tānās.**
 b- were.carrying youths.NOM to shores.ACC -ottles.ACC
 ‘The youths were carrying bottles to the shore.’ (Ennius, *Annales* 610
 [Vahlen])

Sentence (40) is derived as follows. First, the structure in (41) is built:

- (41) Derivation of (40), part 1

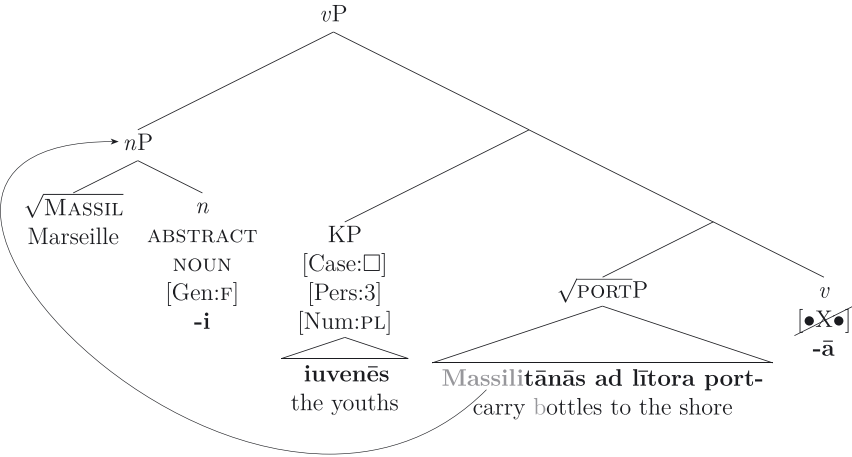


In (41), $\sqrt{\text{PORT}}$ ‘carry’ takes two arguments: $[_{\text{PP}} \text{ad litora}]$ ‘to the shore’ and $[_{\text{KP}} \text{Massilitānās}]$ ‘bottles’.³⁰ The derivation continues:

lāmentātrīcī ‘to/for/of a female mourner’ (see (22)), (7) is unlikely to pose problems for the view, argued for here, that radical tmesis is derived by Internal Merge.

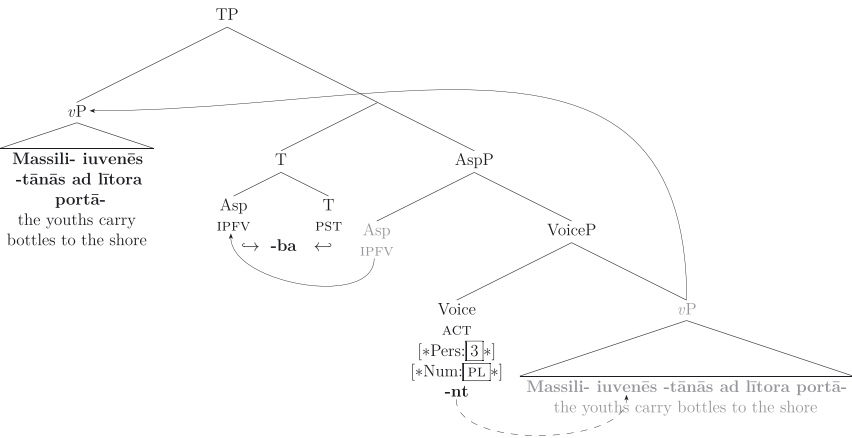
30 According to (41), the PP is base-generated as the root’s complement and the direct-object KP as its specifier, in keeping with Devine and Stephens’ (2006: 79) claim that, in the default order, a (referential) direct object precedes a goal phrase in Latin. It is possible, though, that this order is a derived one, and the direct object is actually base-generated lower than the PP, as is convincingly argued for English by McCloskey (2000: Sect. 6.3). (For related discussion, see Collins 2020; Rauber 2022; see also Belletti and Shlonsky 1995; Bošković 2002.) The derivation currently being laid out abstracts away from this issue: nothing below will turn on it.

(42) Derivation of (40), part 2



As (42) shows, the next head merged in is *v* – which selects the maximal projection of $\sqrt{\text{PORT}}$ ‘carry’ and the external-argument KP *iuvenēs* ‘the youths’. The *v* chosen in this derivation also bears a [*•X•*] feature, which causes [_{nP} *Massili-*] ‘Marseille’ to scramble to the *vP* edge. The derivation continues:

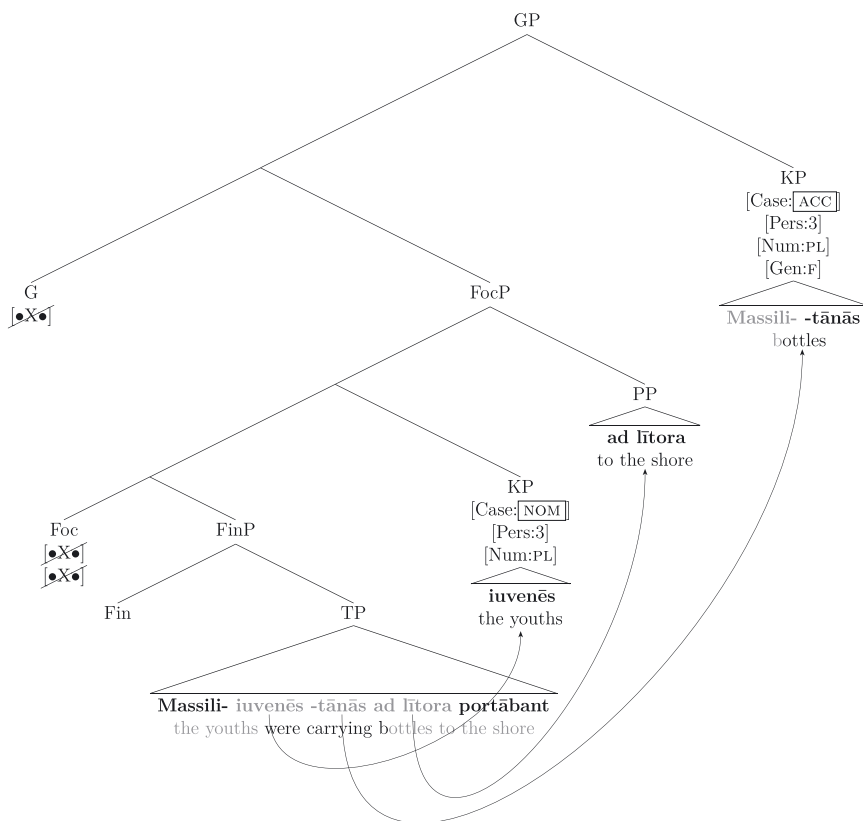
(43) Derivation of (40), part 3



In (43), Voice agrees in Person and Number with the closest accessible KP, here *iuvenēs* ‘the youths’. Asp moves to T; imperfective Asp and past T are jointly realized by the portmanteau exponent *-ba*. As usual, *vP* moves to [Spec,TP]. The final portion

of the derivation is shown in (44). (As above, the precise mechanism by which the external argument gets nominative case is set aside.)

(44) Derivation of (40), part 4



In this derivation, as (44) shows, three heads are merged in above TP: Fin; Foc(us) (Rizzi 1997; Servidio 2009); and G. The KP *iuvenēs* ‘the youths’ and PP *ad litora* ‘to the shore’ surface to the right of the verb word *portābant* ‘were carrying’; this is taken here to be due to movement of these arguments to specifier positions of Foc³¹ and

³¹ Itself taken here, for concreteness, to be triggered by $[\bullet X \bullet]$ features on Foc.

Abundant independent evidence that multiple foci can cooccur within a single minimal finite clause in Latin is given by Devine and Stephens (2019: 83–86), who discuss several different types of structures in which this occurs. An example is given in (i) below; (i) is particularly relevant here because the focused XPs it contains surface right-peripherally and are thus plausibly in rightward

linearization of the resulting specifiers to the right (as in Kirundi; see Ndayiragije 1999). (That specifiers of FocP projections can alternatively be linearized to the left in Latin is suggested by the empirical observations in Devine and Stephens 2006: Sects. 3.1, 3.3.)

The precise features and operations responsible for the placement of those two arguments will not be investigated further here, as they are not directly relevant to the radical tmesis in (40). What is important here is that $[\bullet \mathbf{X} \bullet]$ on G attracts the remnant KP-*tānās* to [Spec,GP] – which, as in the previous derivation, is linearized to the right – thus yielding the constituent order observed.

Finally, consider (8), repeated here:

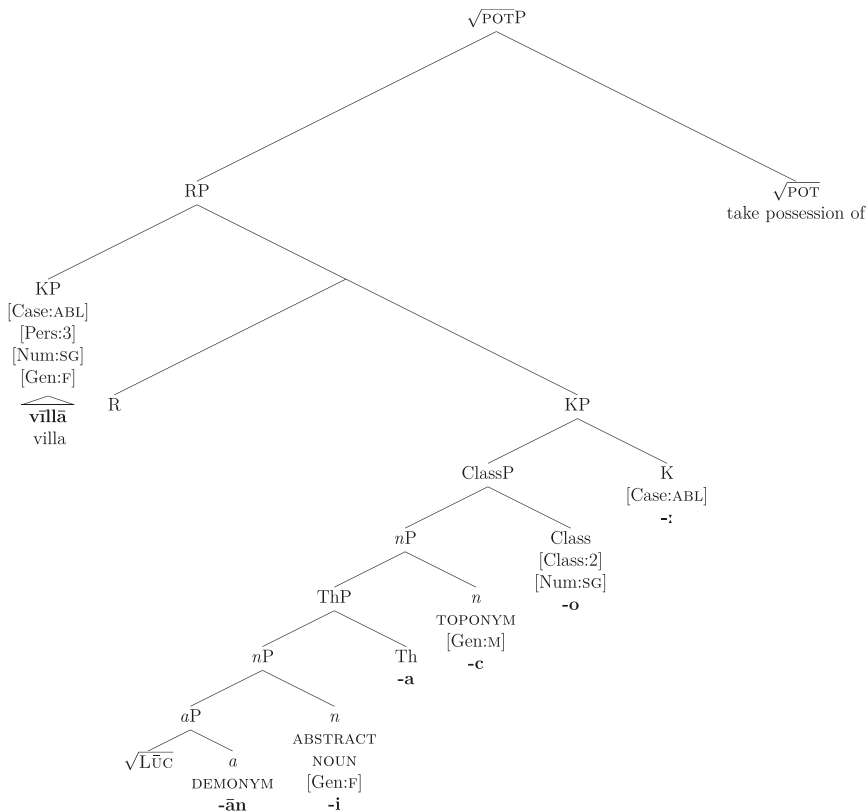
- (45) Villā **Lūcāni-** mox potiēris -**aċō.**
villa.ABL Lucani- soon you.will.take.possession.of -acus.ABL
'You will soon become the owner of the villa Lucaniacus.' (Ausonius, Epistle 5, 35)

Sentence (45) is derived as follows. First, the structure in (46) is built:

specifiers of FocP (two per conjunct, since (i) appears to involve asyndetic coordination of three clauses, with ellipsis in the non-initial ones):

- (i) Nēmō crēdebāt occīsum virum ā fēminā, iuvenem
no.one.NOM believed having.been.killed.M.ACC.SG man.ACC by woman.ABL youth.ACC
ā puellā, armātum ab inermī.
by girl.ABL armed.M.ACC.SG by unarmed.ABL.SG
'No one could believe that a man had been killed by a woman, a youth by a girl, an armed
person by an unarmed one.' (Seneca the Elder, *Controversiae* 1.2.18)
(adapted from Devine and Stephens 2019: 86, (69); translation slightly modified on the basis of
Seneca the Elder, *Controversiae* 1.2.18 [Winterbottom, *LCL*])

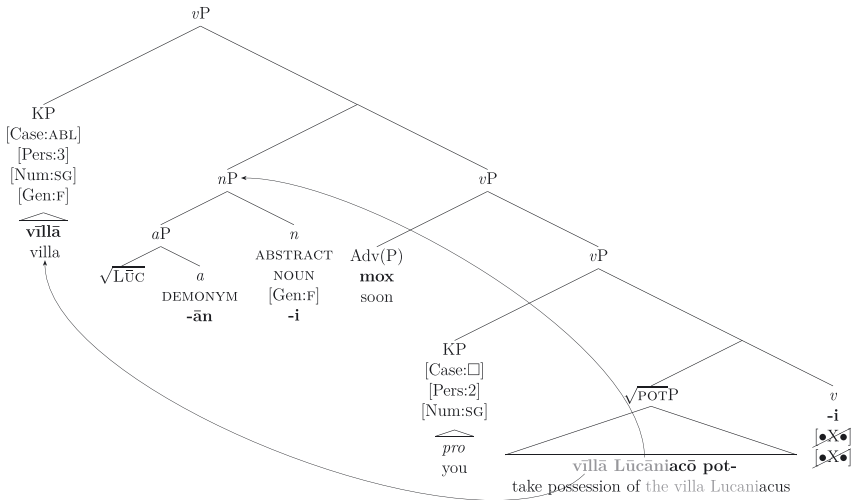
(46) Derivation of (45), part 1



In (46), *villā Lūcāniacō* ‘the villa Lucaniacus’ is treated for concreteness as a R(elator) P(hrase) (Den Dikken 2006), in which the KPs *villā* ‘villa’ and *Lūcāniacō* ‘Lucaniacus’ are taken to be the specifier and the complement, respectively, of R. The internal structure of phrases like *villā Lūcāniacō* (or *the letter A*) deserves further scrutiny, but that would take us too far astray here (see Jackendoff 1984 for an initial investigation).³² The RP *villā Lūcāniacō* ‘the villa Lucaniacus’ is merged as the complement of $\sqrt{\text{POT}}$ ‘take possession of’. The derivation continues:

³² Den Dikken (2006: Sects. 2.2.3, 2.5) stresses that “R” is not a categorial feature. If R in (46) bore an unvalued categorial feature $[\ast_{\text{CAT}}:\square\ast]$ that it valued under Agree with its KP complement (or Local Agree with its KP complement or KP specifier; see Hornstein 2009: Ch. 6), then “R” – and, by endocentricity, its maximal projection “RP” – would end up with a derivationally valued categorial feature $[\ast_{\text{CAT}}:\text{K}\ast]$, explaining how this “RP” could satisfy the c-selectional requirement imposed by $\sqrt{\text{POT}}$ ‘take possession of’. (The existence of unvalued categorial features that are valued in the

(47) Derivation of (45), part 2



In (47), *v* selects the maximal projection of the root and the external-argument KP (*pro* ‘you’), forming a *vP*, to which the adverb *mox* ‘soon’ adjoins. The hypothesis that it adjoins to *vP* in (47), rather than to some larger verbal constituent, receives crosslinguistic support from the observation that, in English, *soon* can be carried along under *vP*-preposing:³³

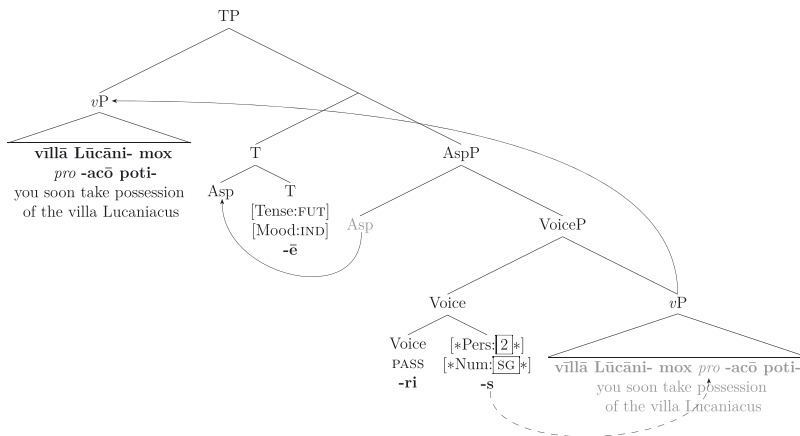
- (48) a. But though you most certainly will become the owner of the villa
Lucaniacus soon, I suspect that you’re going to continue to live mostly in the
city.
b. But [_{vP} become the owner of the villa Lucaniacus soon]₁ though you most
certainly will __₁, I suspect that you’re going to continue to live mostly in the city.

In addition, two constituents scramble to the left edge of *vP*: [_{nP} *Lūcāni-*] ‘Lucania’ and [_{KP} *vīllā*] ‘villa.ABL’. These two steps of scrambling are taken here for concreteness to be driven by [*•X•*] features on *v*. The derivation continues:

course of the derivation is also argued for by Wood and Marantz 2017.) The mechanisms giving rise to the (lexical) ablative case in (46), and the apparent case concord between the two KPs, are set aside here: nothing will turn on them.

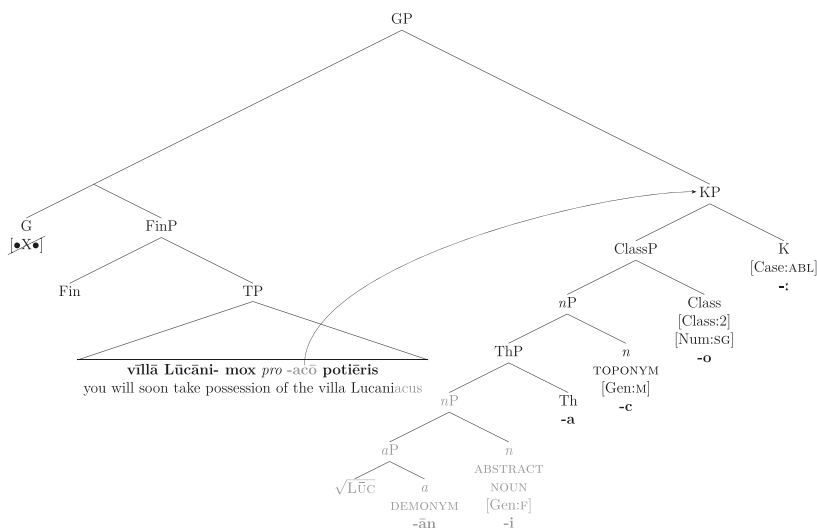
³³ This argument also goes through on Thoms and Walkden’s (2019) analysis of English *vP*-preposing, on which the clause-initial *vP* is base-generated in the left periphery and functions as the antecedent for ellipsis of the TP-internal *vP*. On this analysis too, the fact that *soon* surfaces within the clause-initial verbal projection in (48b) shows that *soon* can indeed occur within *vP*.

(49) Derivation of (45), part 3



In (49), as usual, Voice agrees in Person and Number with the closest accessible nominal (here *pro* ‘you’),³⁴ Asp moves to T, and vP moves to [Spec,TP]. The final portion of the derivation unfolds as follows:

(50) Derivation of (45), part 4



³⁴ *Potiŕi* ‘take possession of’ is a deponent verb: it has active syntax but is passive/nonactive in form. Nothing here will turn on this, so Voice in (49) is shown as Voice_{PASS}, for ease of exposition. On Z&K’s analysis, a Voice_{PASS} head whose Person and Number features acquire the values shown in (49) undergoes postsyntactic Fission, the result of which is shown anticipatorily in (49). On an alternative to positing Fission here, see note 21.

In (50), two heads are merged in above TP: Fin and G. The latter bears a [$\bullet X \bullet$] feature, which attracts the remnant KP *-acō* to [Spec,GP].³⁵ This specifier is, as usual, linearized to the right, deriving the constituent order observed.³⁶

35 As Nick Kalivoda points out to me, this example and (6)–(7) tell against a potential alternative analysis on which radical tmesis is prosodic movement, operating not on syntactic but on prosodic constituents (as Agbayani and Golston 2016 argue for certain non-tmesis displacements of larger structures in Latin; space precludes evaluation of their analysis here). Latin treats the final syllable of a prosodic word as extrametrical and then builds a moraic trochee from right to left (Mester 1994; Hayes 1995: 92); thus, in (6)–(8), neither segment yielded by tmesis is a prosodic constituent:

- (i) a. Mas.si.li ... (tā).nās
 3 syllables foot + syllable
 b. lā.men ... tā.(tri).cī
 2 syllables syllable + foot + syllable
 c. Lū.cā.(ni) ... a).cō
 2 syllables + foot head foot dependent + syllable

(Example (8)/(45) is the second line of an elegiac couplet, so the line's penultimate syllable is short; hence, the *a* in the penult of *Lūcāniacō* 'Lucaniacus' is short. Thus, by the Latin footing rules, *nia* is a foot.)

36 In response to the present analysis of tmesis, a reviewer asks, "[W]hy is it so that roots and (series of) affixes almost always surface adjacent to each other, in Latin, and in other languages?" Although raw text frequencies are by no means devoid of interest – i.e., it may well be worthwhile to determine how often (series of) affixes surface adjacent to their associated root and how often they are separated from it in corpora – these questions pertain mainly to the study of performance. What is more directly relevant to the present investigation of competence is the number of subcases/configurations in which tmesis is licit – and, for Latin, that number is higher than most nonspecialists are probably aware of. Although this article focuses on radical tmesis, and all the tmeses presented thus far have come from verse, there are several subcases of canonical tmesis permitted in prose. Thus, although 'ever'-type relative pronouns like *quōcumque* 'to wherever'; synthetic causatives like *fervefacere* ('boil', lit. 'boil. make'); and intensive adjectives like *pergrātum* 'very agreeable/pleasant' would traditionally be considered single "words," and are listed as such in dictionaries, they can all undergo tmesis in prose:

- (i) **quō** ea mē **cumque** dūcet
 to.where it.F.NOM me.ACC ever will.lead
 'wherever it [= reason] leads me' (Cicero, *Tusculan Disputations* 2.5.15)
- (ii) Posteā **ferv-e** bene **fac-i-tō**.
 afterwards boil-TH well make-TH-FUT.IMP
 'Then let it boil thoroughly.' (Cato the Elder, *On Agriculture* 157.9; see Hahn 1947: 322–323 for more examples)
- (iii) **Per** mihi, **per**, inquam, **grātum** fēceris
 thoroughly me.DAT thoroughly I.say pleasing/agreeable.N.ACC you.will.have.done
 sī...
 if
 'You'll be doing me a very—a VERY, I say—great favor if...' (Cicero, *Letters to Atticus* 1.20.7)

Similarly, Dahlstrom (1987: Sect. 3) shows that, in Meskwaki (Fox), when a verbal complex contains a preverb, the preverb and inflectional material preceding it can be displaced leftwards, thus being separated from the rest of the verbal complex by various types of constituents, or even multiple

5 Conclusions

Our empirical starting point here was the phenomenon of tmesis, wherein a structure traditionally considered a single “word” is split into two pieces that surface in distinct syntactic positions, separated by overt material outside the “word.” Canonical tmesis, in which the cut clearly occurs at a morpheme boundary, is theoretically unproblematic in nonlexicalist frameworks; what initially appears far more troublesome theoretically is radical tmesis, in which it is not obvious at first that there is any morpheme boundary at the cut.

In the face of that recalcitrant phenomenon, this article has argued that, contrary to appearances, no second, constituency-insensitive route to displacement need be posited. The argument proceeded in two steps. First, it was shown that, despite appearances, the cut in radical tmesis does occur at a morpheme boundary – which, in a nonlexicalist framework, means at a syntactic boundary – so radical tmesis could in principle be analyzed as a product of Internal Merge. It was then argued that radical tmesis not only could but indeed *can* be analyzed as a product of Internal Merge: the constituent orders it gives rise to can be analyzed as products of applications of Internal Merge (and other operations, e.g., External Merge and Adjoin) that are independently motivated on Latin-internal and/or crosslinguistic grounds.

The results of this investigation have at least two broader theoretical implications that go beyond the study of tmesis itself. First, they support nonlexicalist approaches to morphosyntax. If the structures traditionally considered “words” were taken to be built in a presyntactic morphological component and to be syntactically atomic, as per the Lexicalist Hypothesis (Bresnan and Mchombo 1995; Di Sciullo and Williams 1987; see Bruening 2018b: 1 for further references), then their subconstituents would be incorrectly predicted to be unable to undergo Internal Merge (i.e., to be syntactically displaced). A defender of the Lexicalist Hypothesis might try to reconcile it with the licitness of radical tmesis by analyzing the latter as a phonological and not a syntactic phenomenon, but such an analysis would miss the

constituents. In view of all this, it is likely that, as empirical work on a variety of (familiar and unfamiliar) languages proceeds, the reviewer’s “almost always” claim will increasingly come to seem too strong. (Importantly, any arguments for that claim will need to be based on a rigorous and independently motivated definition of affix, lest particular elements accidentally – and circularly – be classified not as affixes but as, say, clitics or particles merely *because* they can be separated from a root by tmesis.)

The related question (brought up by another reviewer) of why *radical* tmesis is not more frequent crosslinguistically should probably be revisited after the issue has been specifically investigated in crosslinguistic perspective: radical tmesis has not thus far been a research priority (the works cited in note 6 notwithstanding), so its crosslinguistic distribution is an open question.

generalization that the cut in radical tmesis occurs at a morpheme boundary, which suggests that radical tmesis is not fundamentally phonological in nature.³⁷ But in a nonlexicalist framework, there is a single generative engine – the syntax, which builds both “words” and phrases – so the licitness of radical tmesis is unsurprising. The analysis developed here has been couched in a version of Morphology as Syntax (Collins and Kayne 2023; Crippen 2023; Julien 2022; Koopman 2020b; Ntelitheos 2022; Zyman 2020, 2023b; Z&K; and references therein),³⁸ but it is compatible with other nonlexicalist frameworks as well (see the discussion under (4)).

Secondly, as noted, the existence of radical tmesis does not – despite appearances – force us to posit a second, constituency-insensitive displacement operation (the “X” from under (8)). Adding X to the theory would be conceptually undesirable not only on general grounds of theoretical parsimony but also because, if it were added, there would then be two operations yielding displacement – X and Internal Merge – and, despite the resemblance between them, X could not be reduced to Internal Merge, since the latter operates only on constituents (cf. Hornstein 2009: 65 and Davis 2023). As we have seen, however, closer scrutiny reveals that there are good reasons to analyze radical tmesis as a product of Internal Merge, a subcase of the independently motivated fundamental structure-building operation Merge – a result that is theoretically welcome from a minimalist perspective (cf. Chametzky 1996: 169).

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37 See Bruening (2018b: 13–14) for a parallel argument that sub-“word” coordination and ellipsis cannot be due to phonological string deletion, contra Chaves (2008, 2014), since these processes are exquisitely sensitive to morphological structure. Bruening argues convincingly that the processes in question must in fact be syntactic.

As a reviewer points out, rejecting the Lexicalist Hypothesis does not in itself force one to conclude that radical tmesis is Internal Merge. The reviewer notes, citing Kalin (2022) and references therein, that many cases of infixation do not respect morpheme boundaries; hence, most nonlexicalists will grant that there must be some (plausibly postsyntactic) displacement operation distinct from Internal Merge, which could in principle be responsible for radical tmesis too. But, aside from the fact that such an analysis would miss the generalization that radical tmesis respects morpheme boundaries, there is another reason not to assimilate radical tmesis to infixation. In all the cases of infixation of X into Y discussed in the text of Kalin (2022), it is highly plausible that the syntactic structures underlying X and Y are extremely local to each other (Kalin makes this explicit for one case in her (33)). By contrast, radical tmesis can “infix” (at least) a verb word ((5)), a KP ((7)), an adverb plus a verb word ((8)), or even a verb word plus a KP and a PP ((6))—“infixation” of highly complex and (underlyingly) syntactically distant material, contrasting sharply with Kalin’s cases.

38 The strongly syntactic nature of radical tmesis is recognized by Fruyt (1991: 246), but she does not analyze it as entirely syntactic, as it has been here.

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