Isogloss
Open Journal of Romance Linguistics

Received: 29-02-2024
Accepted: 02-11-2024
Published: 20-03-2025

Three theme vowels, zero conjugation classes: A classless analysis of Fiuman verbs

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How to cite: Simonović, Marko. 2025. Three theme vowels, zero conjugation classes: A classless analysis of Fiuman verbs. In *Romance minority languages: A challenge for linguistic theory*, eds. Michela Russo & Shanti Ulfsbjorninn. Special issue of *Isogloss. Open Journal of Romance Linguistics* 11(3)/4, 1–23.
DOI: https://doi.org/10.5565/rev/isogloss.413

Abstract

I challenge the conventional understanding of Romance theme vowels (TVs) as universally identifying conjugation classes, and advance a unified and classless synchronic analysis of phi-feature exponence in Fiuman, an endangered Venetian variety spoken in Rijeka/Fiume, Croatia, and its diaspora. I propose that phi-features are exponed by the same Vocabulary Items, regardless of adjacent theme vowels. Various alternations, which give rise to the illusion of conjugation classes emerge in phonology, through the interaction between TV exponents and phi-feature Vocabulary Items, some of which have underspecified phonological structures, containing floating vocalic features. This interaction is modelled in an Optimality Theory grammar sensitive to phasal spellout. The realisation of phonologically underspecified Vocabulary Items is enforced by the Faithfulness constraint *UNREALISEDMORPHEME, argued to be a more parsimonious and modular version of REALIZEMORPHEME. *UNREALISEDMORPHEME militates against complete non-realisation of Vocabulary Items inserted in the current cycle. I examine evidence for the featural Vocabulary Items proposed based on regular verbs in the domain of irregular verbs as well as nominal and adjectival inflection, demonstrating the potential for extending the analysis to these two domains.

Keywords: Inflectional classes, Theme Vowels, Distributed Morphology, Optimality Theory, Fiuman.

1. Introduction

Romance theme vowels (henceforth TVs) have a special status in formal theories of morphology, since they have been argued to be prime examples of 'ornamental', purely morphological elements, which have no syntactic or semantic import (see Calabrese & Petrosino 2023 for a recent overview). TVs are also classically assumed to "instantiate conjugation classes" (Oltra-Massuet 2021). Assuming purely morphological classes has important ramifications for formal analyses, especially in approaches such as Distributed Morphology (Hale & Marantz 1993, 1994), which assume that syntax is the only structure-building module. Working within DM, Oltra Massuet (1999) proposes an analysis of Catalan verbs employing inflectional class diacritics (α, β) on roots. These diacritics regulate the exponence pattern of the TVs and also condition the exponence of further pieces of morphology.

In what follows, I will use two simple examples to illustrate the two relevant aspects of the phenomenon. Table 1 shows three main conjugation classes in Catalan (as presented in Oltra Massuet 1999).

Table 1. Variable exponence of TVs in Catalan

TV	INF	PRS.1PL	PRS.2PL	Gloss
-a-	cant-a-r	cant-[ɛ]-m	cant-[ɛ]-u	'sing'
-e-	tém-e-r	tem-[ɛ]-m	tem-[ɛ]-u	'fear'
-i-	un-i-r	un-i-m	un-i-u	'unite'

Source: Data from Oltra Massuet (1999)

On the analysis pursued by Oltra Massuet (1999) what we see in all forms in Table 1 following the root is the TV, albeit with some differences in exponence in INF, on the one hand, and PRS.1PL and PRS.2PL on the other. Specifically, the three TVs have different exponents in the infinitive, but the first two, *-a-* and *-e-*, get neutralised to [ɛ] in PRS.1PL and PRS.2PL. In order to capture this exponence pattern, Oltra Massuet (1999) proposes that the vocabulary insertion rule for the feature [-α] (responsible for the first conjugation TV) enforces the realisation of [ɛ] in the context of 1PL and 2PL (participant plural persons). The relevant Vocabulary Items are in (1).

(1) Vocabulary Items for the first conjugation theme in Oltra Massuet (1999: 11)
/ɛ/ ⇔ [-α] / [+PARTICIPANT, + PL]
/a/ ⇔ [-α] / <elsewhere>

To exemplify the conditioning of adjacent morphological elements typical of conjugation classes, we can examine the exponence of FUT in Latin, illustrated in Table 2.

Table 2. Variable exponence of FUT in Latin

TV	INF	FUT.1PL	FUT.2PL	Gloss
-ā-	am-ā-re	am-ā-bi-mus	am-ā-bi-tis	'love'
-ē-	mon-ē-re	mon-ē-bi-mus	mon-ē-bi-tis	'warn'
-e-	reg-e-re	reg-~~e~~-ē-mus	reg-~~e~~-ē-tis	'rule'
-ī-	aud-ī-re	aud-i-ē-mus	aud-i-ē-tis	'hear'

Here the exponence of the FUT morpheme is different for the first two classes (*-bi-*) and the second two classes (*-ē-*). Following the logic for the previous example and assuming that in Latin the first two conjugations are [-α], whereas the second two are [+α], we can formulate the Vocabulary Items in (2) to capture this distribution.

(2) Vocabulary Items for the FUT morpheme in Latin
/ē/ ⇔ [FUT] / [+α]
/bi/ ⇔ [FUT] / <elsewhere>

An obvious question is why introduce inflection class features for classes of environments like those in (2) if we can reference the phonological content of the specific TVs, which would yield the Vocabulary Items in (3).

(3) Vocabulary Items for the FUT morpheme in Latin
/ē/ ⇔ [FUT] / e_, ī_
/bi/ ⇔ [FUT] / <elsewhere>

As argued convincingly by Oltra Massuet (1999) for Catalan, the use of inflection class features has the advantage of capturing the fact that certain conjugation classes pattern together in various environments, whereas others never do. In other words, the presented toy analysis of Latin conjugation classes is adequate if there are further Vocabulary Items which reference the same subset of conjugation classes (in this case the first and the second).

In a sense, the same argument underpins the very use of inflectional class diacritics for the insertion of TVs themselves, as illustrated in (1). If all TVs had uniform phonological content across the contexts in which they appear, there would be no particular advantage in assigning inflectional class diacritics to roots. Instead, specific roots (i.e., those belonging to non-default conjugations) would be individually listed in the Vocabulary Item for the TV. As seen in the preceding example, if these lists were solely utilised for the insertion of a single phonological element, it wouldn't pose a significant issue. However, in languages like Catalan and others analysed as having inflectional classes, these same lists of roots constitute the environment for the insertion of various phonological elements in different contexts. This then leads to the necessity of referring to these lists by means of morphology-specific features.

What sort of reanalysis would then enable dispensing with inflectional class diacritics in the toy examples presented in Tables 1 and 2? A first step would be achieving consistent exponence of the TVs. For Catalan, one might, for example, entertain the notion that the phonological content of the TV of the first conjugation is always /a/, but there exists an additional element, say a floating vowel realising the [+PARTICIPANT] feature that, when combined with /a/, yields /ɛ/, while leaving the other TVs unaffected. If such a reanalysis could be proposed for all instances where different TVs neutralise, that would constitute an important argument towards dispensing with the inflectional classes. For the Latin scenario, at least two possibilities come to mind. Perhaps the less ambitious (and more realistic) approach is to retain the Vocabulary Items as outlined in (3), demonstrating this grouping of TV classes is not found in other contexts or that the two TV classes have some phonological features in common that the other two do not have. The more stimulating route would involve proposing a single abstract underlying representation for /ē/ and

/bi/ and elucidating how the eventual surface form is determined by the phonological computation.

The purpose of the two toy examples was to show the type of exponence patterns which lead to assuming conjugation classes in Romance and to demonstrate what kind of requirements a fully classless analysis would have to meet. To my knowledge, there has been no proposal of a fully classless analysis of a Romance conjugational system. Such a proposal will be the main goal of this paper. However, a classless analysis has been proposed for standard Italian nominal and adjectival declension in Passino (2009), Lampitelli (2010, 2011) and Lampitelli & Ulfsbjorninn (2023). These authors propose analyses couched in Element Theory (Kay et al. (1985), Backley (2011), see also Bendjaballah et al. (2021) for recent perspectives), in which surface patterns that look like different declension classes actually arise from the fact that most roots in Italian end in a deficient phonological structure — either an empty vocalic slot or a vocalic slot with a floating element (|A|, |I| or |U|) — whereas the exponents of singular and plural are invariably floating elements — |A| and |I|, respectively. Table 3 shows four common declension pattens in standard Italian as analysed in Lampitelli & Ulfsbjorninn (2023).

Table 3. Four declension patterns in Italian (adapted from Lampitelli & Ulfsbjorninn 2023)

Root Final V Melody	SG underlying	PL surface	PL underlying	PL surface	Gloss
none	/alV + A/	ala	/alV + I/	ali	‘wing’
floating A	/salA + A/	sala	/salA + I/	sale	‘hall’
floating U	/manU + A/	mano	/manU + I/	mani	‘hand’
floating I	/tigrI + A/	tigre	/tigrI + I/	trigri	‘tiger’

An important feature of this type of accounts is that the root-final elements are not considered separate morphemes, but rather parts of the root, so that theme vowels have no formal status in such analyses.

As previewed above, the main goal of this paper is to present a fully classless analysis of an Italo-Romance verbal system — that of Fiuman — which features three TVs and multiple contexts of total neutralisation between two TVs, similar to those illustrated in (1) for Catalan. While I also make use of floating vocalic features which realise phi-features, the technical implementation is somewhat different from that in Lampitelli & Ulfsbjorninn (2023) and related accounts. Specifically, I assume TVs as the exponents of the verbalising head *v*, which also closes off the first phase/phonological cycle. I further model the phonological grammar that determines the exponence of the TVs and phi-features in terms of an Optimality Theory (Prince & Smolensky 1993) grammar sensitive to phasal spellout. Specifically, I argue that the constraint that enforces the realisation of the phonologically underspecified vocabulary items is *UNREALISEDMORPHEME, which requires the presence of at least some phonological features for each Vocabulary Item inserted in the current phonological cycle.

The rest of the paper is organised as follows. In Section 1 I introduce the targeted variety and the pattern of phi-feature exponence that will be tackled in this paper. In Section 3 I provide an overview the relevant IMPF, COND, PRS and IMP paradigms and propose phi-feature Vocabulary Items that lead to the neutralisations of TV classes in speficific contexts. Section 4 presents the comprehensive formal analysis of instances of TV class neutralisation in regular verbs. In Section 5 I explore

irregular verbs, FUT paradigm and nominal/adjectival declension, demonstrating that the proposed phi-feature Vocabulary Items can be attested in these domains as well. Section 6 concludes the paper and outlines potential avenues for further research.

2. Fiuman and its Conjugation Classes

Fiuman (endonym; *fiumano* in Italian, *fijumanski* in Croatian) is an endangered Venetian variety spoken in Rijeka/Fiume, Croatia and in Fiuman diaspora, mostly in Italy. Until World War II, Fiuman was the dominant vernacular variety of the city and part of a continuum of Venetian varieties spoken along the coast between Trieste and Zadar/Zara. Nowadays, Fiuman is the easternmost Italian variety spoken on the Croatian coast and the studies on use of Fiuman in Croatia converge in stating that the use is decreasing (see, e.g., Plešković et al. 2019). The situation is arguably even grimmer among the Fiuman diaspora, where transmission to the grandchildren generation is exceptional.

Fiuman is often considered part of the Istro-Venetian dialect (group) and is as such the only (relatively) vital Istro-Venetian variety outside of Istria. In the context of other Istro-Venetian varieties, Fiuman is perceived as highly 'tuscanised', i.e., influenced by standard Italian. Table 4 shows four differences between Fiuman and the neighbouring Venetian varieties of Istria and Trieste. All examples from now on are in IPA and the Fiuman examples have stress marks.

Table 4. Four differences between Fiuman and the neighbouring Venetian varieties

Fiuman	Istria+Trieste	Standard Italian	Gloss
saˈpon/ saˈvon	savon	sapone	'soap'
naˈtal/naˈdal	nadal	natale	'Christmas'
ˈʧuder/seˈrar	serar	kjudere	'close.INF'
ˈdorme	dormi	dorme	'sleep.PRS.3SG'

The perception of Fiuman as 'tuscanised' mainly stems from lexically restricted differences, where the Fiuman-specific form displays similarities with standard Italian and differs from the rest of Venetian either in specific sounds (the first two examples) or in the entire lexical item (the third example). The fourth example is relevant for our purposes because it concerns the realisation of the TV of the third conjugation (*-i-*, as observable from the infinitive *dorm-i-r*). Here, the Fiuman pattern actually plausibly continues the Venetian original, although it cannot be excluded that this preservation was facilitated by the surface match with standard Italian.

The verbal system of Fiuman features three TV classes, characterised by the TVs *-a-*, *-e-* and *-i-*, which is also the set of [-round] vowels in this variety. The three TVs neutralise to two values in various environments. Such neutralising contexts are the main focus of this contribution. The main data set for this paper is in Table 5. These data match the few available descriptions, e.g., Depoli (1913), Berghoffer (1992),

Pafundi (2011), but also match the usage attested in recent written sources, e.g., de Saint-Exupéry (2017) [1].

Table 5. Three TV classes in Fiuman

INF	PRS.1SG	PRS.3	PRS.2PL	IMP.2SG	Gloss
tʃaˈm-a-r	ˈtʃam-o	ˈtʃam-a	tʃaˈm-e	ˈtʃam-a	‘call’
taˈz-e-r	ˈtaz-o	ˈtaz-e	taˈz-e	ˈtaz-i	‘be silent’
parˈt-i-r	ˈpart-o	ˈpart-e	parˈt-i	ˈpart-i	‘leave’

The presented data show the possible exponence patterns of the three TVs in Fiuman. The INF form represents a context in which all three TVs are realised differently and arguably faithfully to their underlying representations. The PRS.1SG form is a context in which all three TVs are deleted. The remaining three forms show three neutralisation patterns between the TVs, whereby the TVs that do not surface faithfully are represented with a grey background. In PRS.3SG the TV *-i-* becomes [e] and therefore neutralises with the TV *-e-*. In PRS.2PL the TV *-a-* becomes [e] and therefore neutralises with the TV *-e-*. Finally, in IMP.2SG the TV *-e-* becomes [i], neutralising with the TV *-i-*.

The sketched picture is perhaps the least favorable for a diacritic analysis because the three alternation patterns show three different groupings of theme vowel classes, i.e., the patterning of theme vowel classes does not repeat. The crux of my analysis will be that it in each of the neutralising cases, the TV morpheme is accompanied by an additional morpheme exponed by floating vocalic features. The fact that some TVs seem unaffected by this additional morpheme is explained by the featural compatibility of the TV and the Vocabulary Item in question.

Before turning to the specifics of the proposed Vocabulary Items, a note is in order regarding further pertinent features of the system. First, as common in Venetian, there is no distinction between the 3SG and 3PL simple verbal forms anywhere in the system. Second, the use of the subjunctive mode varies highly among the speakers, but it can be disregarded in the present discussion because it never leads to a neutralisation of two TV classes. As in the Venetian varieties of Istria and Trieste, the present subjunctive is different from the present indicative only in the third person, where all conjugations have the ending *-i* (e.g., ˈ*tʃam-i* ‘call-PRS.SUBJ.3’, ˈ*taz-i* ‘be silent-PRS.SUBJ.3’, ˈ*part*-i ‘leave-PRS.SUBJ.3’). Finally, unlike the neighbouring Venetian varieties, Fiuman has a three-way person distinction in the conditional. Specifically, while Istrian Venetian dialects and the dialect of Trieste would use a form like *sar-i-a* as ‘be.COND.1SG/2SG/3’ in Fiuman, this form is specialised for the third person, whereas ‘be.COND.1SG’ is *sar-i-o* and ‘be.COND.2SG’ *sar-i-i*. These same person endings are encountered in the IMPF forms, e.g., *er-o* ‘be.IMPF.1SG’, *er-i* ‘be.IMPF.2SG’, *er-a* ‘be.IMPF.3SG’. Since the present indicative, imperfect and conditional are the three simple tenses in Fiuman that show the maximal number of distinct forms in the paradigm, I will argue that the person and number endings in these three tenses can be unified. The exponence pattern is somewhat simpler for the conditional and imperfect, which is why these are first considered in the following section.

[1] The author is also grateful to Daniela Kružić Ježić and Gianna Mazzieri Sanković for all the fruitful discussions of the Fiuman data.

3. Phi-feature Vocabulary Items in Fiuman verbs

The goal of this section is to establish the phi-feature Vocabulary Items that play a role across the Fiuman verbal system. As previewed in the previous section, the richest set of endings is found in the PRS.IND, IMPF and COND. While in the PRS.IND the phi-features are exponed on the TVs, in the IMPF and COND, we can observe them in isolation, i.e., in a context where they get enough realisational space to sponsor a full vowel. This is why I first consider the IMPF and COND forms. The phi-feature exponence in these forms is exactly the same for all verbs in Fiuman, as illustrated for the irregular verb *eser* 'be' in Table 6 and for three regular verbs belonging to the three conjugations in Table 7.

Table 6. Same person and number endings in the IMPF and COND of *eser* 'be'

	IMPF		COND	
	SG	PL	SG	PL
1	ˈer-o	ˈer-i-mo	saˈr-i-o	saˈr-i-i-mo
2	ˈer-i	ˈer-i	saˈr-i-i	saˈr-i-i
3	ˈer-a		saˈr-i-a	

Table 7. Same person and number endings in the IMPF and COND for regular conjugations, illustrated by *ʧamar* 'call', *tazer* 'be silent' and *partir* 'leave'

	IMPF		COND	
	SG	PL	SG	PL
1	ʧaˈm-a-v-o	ʧaˈm-a-v-i-mo	ʧam-a-ˈr-i-o	ʧam-a-ˈr-i-i-mo
2	ʧaˈm-a-v-i	ʧaˈm-a-v-i	ʧam-a-ˈr-i-i	ʧam-a-ˈr-i-i
3	ʧaˈm-a-v-a		ʧam-a-ˈr-i-a	
1	taˈz-e-v-o	taˈz-e-v-i-mo	taz-e-ˈr-i-o	taz-e-ˈr-i-i-mo
2	taˈz-e-v-i	taˈz-e-v-i	taz-e-ˈr-i-i	taz-e-ˈr-i-i
3	taˈz-e-v-a		taz-e-ˈr-i-a	
1	parˈt-i-v-o	parˈt-i-v-i-mo	part-i-ˈr-i-o	part-i-ˈr-i-i-mo
2	parˈt-i-v-i	parˈt-i-v-i	part-i-ˈr-i-i	part-i-ˈr-i-i
3	parˈt-i-v-a		part-i-ˈr-i-a	

A note is in order regarding the representation of syncretic forms in Tables 6 and 7. While the third person forms are always represented as a single cell, the equally syncretic second person forms are represented in separate cells. This way of representing the paradigms is admittedly informed by what is known about the rest of the system: while the third person never realises number, second person forms have distinct forms in virtually all other tenses, which is why they are kept separate.

Based on the data in Tables 6 and 7, we can assume the following Vocabulary Items for the person and number in Fiuman verbs.

(4) Vocabulary Items for person and number (based on IMPF and COND)
- a. [1SG] ⇔ /o/
- b. [2SG] ⇔ /i/
- c. [1] ⇔ /-mo/ /_ [PL]
- d. [3] ⇔ /a/
- e. [PL] ⇔ /i/

A further remark is in order regarding the competition between the items (3d) and (3e) in 3PL. Since both items are equally specific and compatible with 3PL, a more general principle needs to decide which one has precedence. With a host of DM literature, I follow Noyer (1992) in assuming that in such cases person has precedence over number, which gives the correct result and, assuming that these Vocabulary Items are used throughout the system, also explains why the third person does not distinguish number.

With the Vocabulary Items in (4) in place, we can now consider the present tense forms of regular verbs and establish the unified representations for the phi-feature Vocabulary Items. Modified TV exponents are represented with a grey background colour.

Table 8. The PRS of regular verbs illustrated by *ʧamar* 'call', *tazer* 'be silent' and *partir* 'leave'

	SG	PL
1	ˈʧam-o	ʧaˈm-e-mo
2	ˈʧam-i	ʧaˈm-e
3	ˈʧam-a	
1	ˈtaz-o	taˈz-e-mo
2	ˈtaz-i	taˈz-e
3	ˈtaz-e	
1	ˈpart-o	parˈt-i-mo
2	ˈpart-i	parˈt-i
3	ˈpart-e	

If we consider the Vocabulary Items in (4) in the context of the data in Table 8, we see that items (4a), (4b) and (4c) can be kept as they are, as every 1SG form ends in *-o*, every 2SG form ends in *-i*, and every 1PL form ends in *-mo*. In addition, we can observe that the Vocabulary Items (4a) and (4b) make the TV disappear. The situation is quite different with the items (4d) and (4e), which seem to surface in the expected way in only one conjugation class each: exactly in the conjugation classes where the TV is identical to the proposed phi-feature Vocabulary Item. However, there are some further indications that the proposed Vocabulary Items are somehow on the right track: the modified TVs seem to be modified 'in the direction of' the proposed Vocabulary Items. Specifically, the fact that the TV *-a-* raises/fronts to [e] in the plural forms can be seen as changing in the direction of the originally proposed PL [i]. By the same token, the TV *-i-* that lowers to [e] in the third person can be seen as approximating the originally proposed 3 [a].

The person and number Vocabulary Items in the PRS exhibit a clear dichotomy when it comes to their phonological effects: on the one hand, there are Vocabulary Items that enforce the deletion of the TV and surface the same across the conjugations (deleters), while on the other hand there are those that merely influence some of the TVs (modifiers). The difference cannot be due to the specific vowels, as [i] shows up on both lists: [i] that expones [2SG] is a deleter, where the [PL] [i] is a modifier. I propose that the difference is in the underlying representation: while the deleters are full vowels, consisting of vocalic features associated with a timing slot, the modifiers consist of floating vocalic features only.

Floating vocalic features can get realised in two constellations. On the one hand, they can get a dedicated empty vowel slot on which they can enforce the surface

vowel that best matches their specification. This is the case in IMPF and COND, which arguably have an empty V slot as part of their exponent. On the other hand, these floating vocalic features can also get realised on a vowel that has a different lexical specification, and in such cases they only cause modifications in some cases. One way of modelling these floating elements would be in terms of Element Theory: (4d) would insert a floating element |A|, whereas (4e) would insert a floating element |I|. In this paper, I use traditional phonological features, which still enjoy wider familiarity, leaving an ET implementation and a comparison of the two approaches for future research. The revised Vocabulary Items are shown in (5).

(5) Vocabulary Items for person and number (based on IMPF and COND)
- a. [1SG] ⇔ /o/
- b. [2SG] ⇔ /i/
- c. [1] ⇔ /-mo/ /_ [PL]
- d. [3] ⇔ ~~/a/~~ [-high, +low]
- e. [PL] ⇔ ~~/i/~~ [+high, -back]

In the remainder of the article I will refer to Vocabulary Items which consists of floating features as *featural* Vocabulary Items. The featural Vocabulary items in (5d) and (5e) are clearly mappable to specific vowels of Fiuman, which has a five-vowel system. [a] is the only vowel fully compatible with the specification [-high, +low], and [i] is the only vowel fully compatible with the specification [+high, -back]. However, there are various other feature combinations mappable to the vowels [a] and [i]. These specific features were chosen to capture the modifying behavior of the relevant morphemes, as will become clear in the following sections.

Before turning to the mechanism which makes the featural Vocabulary Items surface the way they do in combination with TVs, there is an additional data point to be considered. A total neutralisation of two TV classes and a co-existence of full-voweled and featural endings is also attested in IMP.2SG forms, illustrated in Table 9, where the standalone form has a featural ending, whereas the form combined with a clitic has a full-voweled ending [i].

Table 9. IMP.2SG in three regular verb classes in Fiuman (11 p)

INF	IMP.2SG	IMP.2SG + CLITIC.3SG.ACC.M.	IMP.2SG + CLITIC.1PL.ACC/DAT	Gloss
tʃaˈm-a-r	ˈtʃam-a	ˈtʃamilo	ˈtʃamine	‘call’
ˈkred-e-r	ˈkred-i	ˈkredilo	ˈkredine	‘be silent’
senˈt-i-r	ˈsent-i	ˈsentilo	ˈsentine	‘feel, hear’

The Vocabulary Item for the isolated IMP.2SG has to be incompatible with mid vowels. While high and low vowels famously do not constitute a natural class, the right result can be obtained by specifying the relevant Vocabulary Item as: [+low] [+high]. This yields the IMP.2SG Vocabulary items in (6).

(6) Vocabulary Items for IMP.2SG (based on regular verbs)
- a. [IMP] ⇔ [+high] [+low]
- b. [IMP] ⇔ /-i/ /_ [CLITIC]

Three remarks are in order regarding the Vocabulary Items in (6). First, the item in (6a) contains two features that cannot surface on the same vowel. As will be shown in the following sections, Fiuman grammar enforces the realisation of *some* feature for each morpheme, but it does not require the realisation of *all* features for each morpheme. As a consequence, some of the vowels on which (6a) is exponed will be [+high], while others will be [+low], as determined by other aspects of Fiuman grammar. This type of morpheme is arguably posited by the learner in cases where the same morpheme has different effects in different environments. This, however, does not make [+high, +low] a phoneme of Fiuman. Second, unlike (6a), (6b) is a regular full vowel, as it consistently surfaces as [i] and deletes the preceding TV, just like (5b) above. Finally, as noted by one of the reviewers, the environment in (6b) could also reference the specific phonological context. Specifically, since all object clitics are consonant-initial, (6b) can be specified for contexts where the IMP morpheme is followed by a consonant in the same prosodic word.

The data presented in this section leads to the general picture of TV exponence in Fiuman summarised in (7).

(7) Exponence of TVs in Fiuman
a. If the Vocabulary Item following the TV is consonant-initial, the TV is realised faithfully.
b. If the Vocabulary Item following the TV is vowel-initial (i.e., beginning in a full vowel), the TV gets deleted.
c. If the Vocabulary Item following the TV is featural, some TVs are modified, while others are realised faithfully.

In the following section, I turn to the exact mechanism which regulates the realisation of the featural Vocabulary Items.

4. The formal analysis: *UNREALISEDMORPHEME in Action

In this section I present the full formal analysis of the realisation of the featural Vocabulary Items presented in the previous section. A key role in the analysis will be played by the constraint *UNREALISEDMORPHEME, a Faithfulness constraint which militates against full non-realisation of a Vocabulary Item. In Subsection 4.1. I briefly present the REALISE-MORPHEME constraint family within OT and define and motivate the exact implementation used in this paper. In Subsection 4.2. I discuss the architectural assumptions of the proposed model. Subsection 4.3. presents the remaining two constraints used in the analysis and the tableaux for all the relevant PRS and IMP forms.

4.1. REALISE-MORPHEME and *UNREALISEDMORPHEME

Classical OT Faithfulness constraints refer to features which are part of an input segment, i.e. those features that are associated with a timing slot. It was therefore not obvious how to define constraints which favour the preservation of featural morphemes (see Trommer 2012 for and overviews the different proposed solutions). The constraint family with the longest tradition is REALISE-MORPHEME, usually first

credited to Samek-Lodovici (1992: 10). Samek-Lodovici's definition requires the properties of the morpheme to be realised in an "overt and detectable manner". In subsequent work, REALISE-MORPHEME has been implemented in various ways. On the one hand, Kurisu (2001: 55)'s version of REALISE-MORPHEME requires "some overt phonological manifestation of every morpheme contained in the underlying representation". This implementation therefore requires phonological realisation even for morphemes whose Vocabulary Items are not associated with any phonological material.

More in line with the original idea is the version implemented by Van Oostendorp (2006) and adopted in Trommer (2012). Van Oostendorp's constraint definition is quoted in (8).

(8) REALIZE-MORPHEME (RM)
For every morpheme in the input, some phonological element should be present in the output (Van Oostendorp 2006: 118).

The formulation in (8) leaves it open how the affiliation of phonological elements to morphemes gets established. Specifically, if the affixal Vocabulary Item [+low] gets realised on an underlying low vowel, does this constitute a violation of REALISE-MORPHEME? It definitely does constitute a violation of Samek-Lodovici's and Kurisu's versions of REALISE-MORPHEME. As far as Van Oostendorp's version is concerned, the answer is more complicated, because Van Oostendorp assumes that multiple candidates can have the same phonetic form, but different morpheme affiliations. His version of REALISE-MORPHEME is not violated by the candidate that has the feature [+low] affiliated with the featural morpheme, but it is violated by a candidate that has a feature [+low] only affiliated with the original TV.

Fiuman data can be adequately analysed without granting phonology any insight in the affiliations between Vocabulary Items and phonological features. The version of REALISE-MORPHEME which I will use here is satisfied if any feature of the Vocabulary Item in question can be found in the target output segment. In other words, *UNREALISEDMORPHEME is only violated when the morpheme is clearly left unrealised on the output segment. This means that in the example discussed above, the featural Vocabulary Item [+low] will always count as realised if the target output segment is [+low] regardless of the lexical specification of other morphemes realised on the same segment. The formal constraint definition is given in (9).

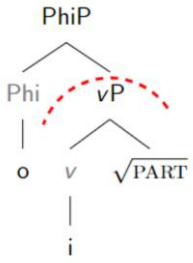
(9) *UNREALISEDMORPHEME
Assign a violation mark for every morpheme whose features are all absent from the output.

Whilst the constraint definition in (9) refers to morphemes (i.e., to the phonological features of the relevant Vocabulary Items), it still needs to be specified what the phonological grammar can identify as an exponent of a morpheme and thus ensure its realisation, whether full or partial. This issue is elaborated upon in the next subsection.

4.2. Architectural assumptions: What can *UNREALISEDMORPHEME see?

With a host of DM literature, I assume that spellout proceeds in cycles that are determined by syntactic phases. I also assume that the TV is the exponent of the verbalising head, which triggers the first spellout cycle[2]. The part of the computation where phi-feature Vocabulary Items get inserted is the second phase/cycle, which includes the output of the previous cycle (root + TV, [parti] in Figure 1) plus all Vocabulary Items inserted on this cycle.

Figure 1. The assumed structure for *part-o* 'leave-PRS.1SG'



At the point when phi-feature Vocabulary Items get inserted, phonology no longer has access to the morphological structure of the output of the first phase. This means that at this point *UNREALISEDMORPHEME cannot be violated by the deletion of the TV in forms like /parti-o/ realised as [parto], because at this point /parti/ is a single chunk. In fact, since there are no verb forms that consist only of a TV and phi feature morphemes, Fiuman data do not provide any evidence that the output of the first cycle is considered as an exponent of a morpheme for the purposes of *UNREALISEDMORPHEME. Thus, we can proceed on the restrictive hypothesis that only Vocabulary Items inserted in the current cycle fall under the purview of *UNREALISEDMORPHEME. To be sure, the material from previous cycles is still protected by general Faithfulness constraints (such as IDENT and DEP), discussed in the following section.

In sum, in a system with undominated *UNREALISEDMORPHEME, as Fiuman will be argued to have, surface forms can display the full deletion of some morphemes, as in /parti-o/ realized as [parto], because what counts as a separate morpheme in one cycle becomes part of unanalysed 'old' material in the following one.

Having defined the workings of *UNREALISEDMORPHEME, the following subsection demonstrates how this constraint interacts with other constraints to yield the attested exponence pattern.

4.3. OT Grammar and Tableaux

The other two faithfulness constraints which will be used in this analysis are OT classics. IDENT militates against featural modifications in underlying segments, whereas DEP is an anti-epenthesis constraint. The two constraints are defined in (10) and (11), respectively.

[2] This representation was chosen for clarity of exposition, but the same result would have been obtained if what I consider TVs were a part of the root à la Lampitelli & Ulfsbjorninn (2023).

(10) IDENT
Assign a violation mark for every feature linked to a segment that has one value in the input and another in the output.

(11) DEP
Assign a violation mark for every segment present in the output but absent from the input.

In the context of our data, DEP militates against the insertion of an extra root node, preventing featural morphemes from sponsoring a vowel 'of their own'.[3] IDENT protects the features of the TV and therefore keeps the modifications at a minimum. The standard feature values for a five-vowel system are summarised in Table 10.

Table 10. Feature values for Fiuman vowels

	high	**low**	**back**	**round**
a	-	+	+	-
e	-	-	-	-
i	+	-	-	-
o	-	-	+	+
u	+	-	+	+

Establishing the ranking between the three constraints is straightforward. DEP and *UNREALISEDMORPHEME are not violated in any of the data[4], so they are both top-ranked. IDENT is violated in all cases where the TV gets modified and is therefore ranked below the two other constraints.

4.3.1. PRS.*3 forms*

We start from the PRS.3 forms, where the featural Vocabulary Item is [-high][+low], incompatible only with high vowels. Table 11 shows a case in which the featural morpheme is compatible with the TV on which it surfaces, so no modification is encountered.

Table 11. Tableau for *tʃam-a* 'call-PRS.3'

tʃama + [-high][+low]	**DEP**	***UNREALISEDMORPHEME**	**IDENT**
a. tʃamaa	*!		
☛ b. tʃama			
c. tʃamo			*!*
d. tʃame			*!*
e. tʃami		*!	***
f. tʃamu		*!	***

[3] *HIATUS, militating against adjacent vowels, assigns the same violations and could be used instead. Some version of *HIATUS is independently necessary for deleting theme vowels in front of full vowels, which is a process that is not explicitly modelled here. More evidence is needed to decide between the two options.

[4] Recall that the featural Vocabulary Items do get realised as full vowels in IMP and COND. I assume that IMP and COND morphemes bring in the necessary empty vowel slot.

Candidate (a) realises the featural Vocabulary Item on a separate segment, and this gets penalised by DEP. The competition is then between candidates which realise the feature of the PRS.3 morpheme on the TV. *UNREALISEDMORPHEME excludes candidates (e) and (f), which have high vowels in the position where the featural morpheme can get realised. Now IDENT can pick the winner among candidates (b), (c) and (d). The faithful candidate (b), which incurs no IDENT violations, is selected as optimal.

The evaluation in Table 12 follows the exact same pattern, and once again, the faithful candidate emerges as the winner[5].

Table 12. Tableau for *taz-e* 'be silent-PRS.3'

taze + [-high][+low]	**DEP**	***UNREALISEDMORPHEME**	**IDENT**
a. tazea	*!		
☛ b. taze			
c. tazo			*!*
d. taza			*!*
e. tazi		*!	*
f. tazu		*!	***

The situation becomes more interesting in Table 13, where the featural Vocabulary Item [-high][+low] is not compatible with the TV *-i-*, which leads a modification of the TV[6].

Table 13. Tableau for *part-e* 'leave-PRS.3'

parti + [-high][+low]	**DEP**	***UNREALISEDMORPHEME**	**IDENT**
a. partia	*!		
b. parti		*!	
☛ c. parte			*
d. parto			**!*
e. parta			**!*
f. partu		*!	**

In Table 13, candidate (b), preserving the original TV, incurs a fatal violation of *UNREALISEDMORPHEME because it does not have any of the features of the featural Vocabulary Item and gets excluded together with candidate (f). Now, IDENT can choose between candidates (c), (d) and (e). The winner is candidate (c), which only has a single IDENT violation.

[5] Note that the winner fails to realise one of the features of the featural Vocabulary Item. This means that the winner violates the low-ranked constraint MAX(feature) (see McCarthy 2008:200 for a discussion), which militates against the non-realisation of input features regardless of the morpheme they are affiliated to.

[6] In this case the winner displays a clear case of coalescence, whereby features of two morphemes are realised on the same vowel. This is an argument for the low ranking of the anti-coalescence constraint UNIFORMITY (see, e.g., Iscrulescu 2005, McCarthy 2008:197, Faust 2021).

4.3.2. PRS.PL *forms*

In the plural forms the featural Vocabulary Item is [-back][+high]. This specification is compatible with the TVs *-e-* and *-i-*, but it is not with the TV *-a-*. As expected, this leads to the modification of the incompatible TV *-a-*, as demonstrated in Table 14.

Table 14. Tableau for *tʃam-e* 'call-PRS.2PL'

tʃama + [-back][+high]	**DEP**	***UNREALISEDMORPHEME**	**IDENT**
a. tʃamai	*!		
b. tʃama		*!	
☛ c. tʃame			**
d. tʃami			***!
e. tʃamo		*!	**
f. tʃamu			***!

The other two TVs remain unmodified, as clear from the selection of the faithful candidate in Tables 15 and 16.

Table 15. Tableau for *taz-e* 'be silent-PRS.2PL'

taze + [-back][+high]	**DEP**	***UNREALISEDMORPHEME**	**IDENT**
a. tazei	*!		
☛ b. taze			
c. tazi			*!
d. tazo		*!	**
e. tazu			*!**
f. taza		*!	**

Table 16. Tableau for *part-i* 'leave-PRS.2PL'

parti + [-back][+high]	**DEP**	***UNREALISEDMORPHEME**	**IDENT**
a. partii	*!		
☛ b. parti			
c. partu			*!*
d. parte			*!
e. parto		*!	**
f. parta		*!	***

4.3.2. IMP *forms*

IMP forms feature the 'anti-mid' Vocabulary Item [+high][+low]. The phonological computation is not affected in any way by the fact that this Vocabulary Item is not fully compatible with any specific vowel. All that matters is that it is partially compatible with the TVs *-a-* and *-i-*, but totally incompatible with the TV *-e-*. The first two TVs also expectedly survive in the evaluations shown in Tables 17 and 18.

Table 17. Tableau for *ʧam-a* ‘call-IMP.2SG’

ʧama + [+high][+low]	**DEP**	***UNREALISEDMORPHEME**	**IDENT**
a. ʧamaia	*!*		
☛ b. ʧama			
c. ʧami			*!**
d. ʧamu			*!**
e. ʧame		*!	**
f. ʧamo		*!	**

Table 18. Tableau for *part-i* ‘leave-IMP.2SG’

parti + [+high][+low]	**DEP**	***UNREALISEDMORPHEME**	**IDENT**
a. partiia	*!*		
☛ b. parti			
c. partu			*!*
d. parta			*!**
e. parte		*!	*
f. parto		*!	**

In Table 19, the faithful candidate (b) incurs a fatal violation of *UNREALISEDMORPHEME, which is why a modification is enforced. Candidate (c) has the virtue of satisfying *UNREALISEDMORPHEME, while minimally violating IDENT (a single violation due to the fact that [e] is [-high], whereas [i] is [+high]), which is why it is selected as the optimal candidate.

Table 19. Tableau for *taz-i* ‘be silent-IMP.2SG’

taze + [+high][+low]	**DEP**	***UNREALISEDMORPHEME**	**IDENT**
a. tazeia	*!*		
b. taze		*!	
☛ c. tazi			*
d. taza			**!
e. tazu			**!*
f. tazo		*!	**

This concludes the formal analysis of the data set in the main focus of this contribution. In the following section, I consider several further contexts in which the proposed featural Vocabulary Items may be attested.

5. Other contexts for [3], [PL] and [IMP]

So far, the focus of the discussion was the exponence of [3], [PL] and [IMP] in regular verbs. In this section I consider other domains in Fiuman in which the exponents of the proposed Vocabulary Items can be identified. I first turn to the irregular verbs in 5.1. 5.2. focuses on the FUT forms, whereas 5.3. addresses the exponence of [PL] in

nominal/adjectival forms. While the discussion of the encountered patterns cannot be as detailed as for the forms discussed so far, and therefore, some aspects of the analysis need to be left for future research, the discussion in this section nonetheless provides important insights into the scope of the proposed Vocabulary Items and the alternative ways of their phonological realisation.

5.1. Irregular verbs in PRS and IMP

Irregular verbs exhibit patterns that are relevant for the present purposes in PRS and IMP, which is why I consider these two paradigms. I do not show all irregular verbs, but a representative set of 9 verbs which illustrate all the exponence patterns encountered in the system. IMP.1PL and IMP.2PL are always syncretic with PRS.1PL and PRS.2PL, so that the tables below only provide the IMP.2SG form. Finally, all irregular verbs in the PRS (except for *dir* 'say' and partly *eser* 'be', illustrated in Tables 20 and 21), as well as the future tense forms (shown in the following section) exhibit total syncretism of 2SG and 3, which seem to be neutralised to the third person form. Assuming the feature set used in Oltra-Massuet (1999), this may be analysed as the impoverishment of the [+PARTICIPANT] feature in the [SG] context.

Table 20. Present tense and imperative of *dir* 'say'

	PRS		IMP
	SG	PL	SG
1	ˈdig-o/ ˈdiz-o	diˈz-e-mo	
2	ˈdiz-i	diˈz-e	ˈdiz-i/ˈdi
3	ˈdiz-e		

Table 21. Present tense paradigm of *eser* 'be'

	PRS	
	SG	PL
1	son	ˈs-e-mo
2	son / ze	s-e
3	ze	

Table 22. Present tense paradigm of *voler* 'want'

	PRS	
	SG	PL
1	ˈvoj-o	voˈl-e-mo
2	vol	voˈl-e
3	vol	

Table 23. Present tense paradigm of *parer* 'seem'

	PRS	
	SG	PL
1	ˈpar-o	paˈr-e-mo
2	par	paˈr-e
3	par	

Table 24. Present tense and imperative of *tʃor* ‘take’

	PRS	IMP	IMP
	SG	PL	SG
1	ˈtʃog-o	tʃoˈl-e-mo	
2	tʃol	tʃoˈl-e	tʃol
3	tʃol		

Table 25. Present tense and imperative of *teɲir* ‘hold’

	PRS		IMP
	SG	PL	SG
1	ˈteɲ-o	teˈɲ-i-mo	
2	tjen	teˈɲ-i	tjen
3	tjen		

Table 26. Present tense and imperative of *andar* ‘go’

	PRS		IMP
	SG	PL	SG
1	ˈvad-o	anˈd-e-mo	
2	va/v-a	anˈd-e	va/v-a
3	va/v-a		

Table 27. Present tense and imperative of *gaver* ‘have’

	PRS		IMP
	SG	PL	SG
1	g-o	gaˈv-e-mo	
2	g-a/ga	gaˈv-e	ˈgabi
3	g-a/ga		

Table 28. Present tense and imperative of *far* ‘do’

	PRS		IMP
	SG	PL	SG
1	ˈfatʃ-o /ˈfats-o	faˈtʃ-e-mo / faˈts-e-mo / ˈf-e-mo	
2	f-a/fa	faˈtʃ-e / faˈts-e / f-e	f-a/fa
3	f-a/fa		

The most straightforward featural Vocabulary Item to identify in irregular verbs is the [PL] item [+high] [-back], compatible with [e] and [i]. All the PL forms in the Tables 20-28 have one of these vowels and in that sense look like PL forms of regular verbs. This means that the proposed featural Vocabulary Item can be argued to apply throughout the Fiuman verbal system.

The situation is much more interesting in the PRS.3 forms. The [3] Vocabulary Item posited based on regular verbs is [+low] [-high], compatible with [a], [e] and [o] and incompatible with the high vowels [i] and [u]. In the set of irregular verbs, the only verb for which an exponence pattern comparable to that in regular verbs can be established is *dir* ‘say’. In all PRS forms (but the PRS.1SG form *dig-o*) *dir* behaves like the unattested regular verb **dizer*. On the other extreme is the verb *eser* ‘be’, whose

PRS.3 form *ze* seems a good candidate for a suppletive form. The remaining verbs fall into two groups when it comes to their PRS.3 form. The verbs of the first group have PRS.3 forms that end in a mid or low vowel followed by a sonorant (as illustrated by *vol*, *par*, *ʧol* and *tjen*, in Tables 22, 23, 24 and 25, respectively). The verbs of the remaining group have PRS.3 forms ending in a low vowel that seems ambiguous between being part of the root and being the PRS.3 ending (as illustrated by *va/v-a*, *g-a/ga* and *f-a/fa*, in Tables 26, 27, and 28, respectively). The interesting generalisation that holds of irregular verbs is that none of them has a high vowel as the *last vowel* in its PRS.3 form. This includes the arguably suppletive *ze* and the forms ending in a consonant, which seems to indicate that the featural Vocabulary Item proposed for regular verbs might be present in irregular verbs as well, although not in the same position for all verbs.

Finally, the IMP.2SG forms of irregular verbs seem to show a less straightforward picture, which might be related to the fact that the Vocabulary Item [+high][+low] cannot be fully realised on a single vowel. If we apply the logic of the discussion of PRS.3 forms of irregular verbs to IMP.2SG forms, then at least three Fiuman verbs show total incompatibility with the Vocabulary Item [+high] [+low], compatible with [a], [i] and [u]. These are *ʧol* (Table 24), *tjen* (Table 25) and *vjen* ‘come.IMP.2SG’ (not represented above, because it exhibits the same pattern as *tjen*). While a full analysis of these data will have to be left to further research, one potentially informative generalisation that holds of all three IMP.2SG forms is that they are syncretic with PRS.3.

5.2. [3] and [PL] in FUT

The FUT paradigm in Fiuman exhibits the 2SG/3 syncretism observed in the PRS of irregular verbs, so that only four distinct forms can be identified, as illustrated in Table 29. The exponence of [3] and [PL] in FUT closely resembles that encountered in the PRS of verbs with the theme vowel *-a-*. However, positing that FUT is exponed as [a] would potentially lead to a problem, as the total deletion of this [a] in FUT.1SG would constitute a violation of *UNREALISEDMORPHEME. While a full account needs to be left to further research, employing a featural Vocabulary Item for FUT seems like a viable solution. For instance, if the Vocabulary Item for FUT is [-high], that Vocabulary Item can get realised on the 1SG [o] without causing any further complications.

Table 29. FUT paradigms for regular conjugations verbs illustrated by *ʧamar* ‘call’, *tazer* ‘be silent’ and *partir* ‘leave’, as well as for the irregular verb *eser* ‘be’

	SG	PL	SG	PL
1	ʧam-a-ˈr-o	ʧam-a-ˈr-e-mo	taz-e-ˈr-o	taz-e-ˈr-e-mo
2	ʧam-a-ˈr-a	ʧam-a-ˈr-e	taz-e-ˈr-a	taz-e-ˈr-e
3	ʧam-a-ˈr-a		taz-e-ˈr-a	
1	part-i-ˈr-o	part-i-ˈr-e-mo	saˈr-o	saˈr-e-mo
2	part-i-ˈr-a	part-i-ˈr-e	saˈr-a	saˈr-e
3	part-i-ˈr-a		saˈr-a	

5.3. [PL] in nouns and adjectives

In Table 30, I present an overview of the overt PL exponence in nouns and adjectives. In this case as well, all PL exponents are compatible with the Vocabulary Item proposed for verbs. A further issue, which we can address only superficially here, is the kind of alternations encountered between the SG and PL forms. If we assume, as Lampitelli & Ulfsbjorninn (2023) for standard Italian, that the SG also has an overt exponent and if this exponent is comparable to the proposed Vocabulary Item for [3] in verbs, then we can indeed find nouns that show exactly the same alternation pattern between SG and PL as encountered in verbs between PRS.3 and PRS.PL. Specifically, *roda ~ rode* shows the same alternation as *ʧama ~ ʧame* 'call-PRS.3 ~ call-PRS.2PL', *ʧave~ʧave* as *taze~taze* 'be silent-PRS.3 ~ be silent-PRS.2PL', whereas *pese~pesi* seems analogous to *parte~parti* 'leave-PRS.3 ~ leave-PRS.2PL'. While this comparison seems quite promising, there are still three alternation patterns which are not attested in verbs, one of which involves a zero exponent. This might indicate that the conditions on the exponence in nouns and verbs are not fully analogous.

Table 30. Common exponence patterns for [PL] in nouns and adjectives

SG	PL	Gloss
kan	ˈkan-i	'dog'
ˈrod-a	ˈrod-e	'wheel'
tuˈrist-a	tuˈrist-i	'tourist'
ˈpes-e	ˈpes-i	'fish'
ˈʧav-e	ˈʧav-e	'key'
ˈdit-o	ˈdit-i	'finger'

6. Conclusions and Directions for Further Research

In this paper, I have proposed a fully classless analysis of verbal inflection in Fiuman. The apparent cases of TV class neutralisations were argued to be a consequence of phonologically deficient Vocabulary Items, which only contain floating features and under certain conditions enforce modifications on TVs. These modifications were argued to take place in phonology, which was modelled as an Optimality Theory grammar sensitive to phasal spellout. In the phonological computation, a key role was played by the constraint *UNREALISEDMORPHEME, which militates against complete non-realisation of Vocabulary Items introduced in the current phonological cycle. Three Vocabulary Items that consist of floating vocalic features have been proposed and shown to surface in various domains, either alone or on vowels sponsored by other morphemes. Among these, the PL Vocabulary Item boasts the widest scope, observed not only throughout the verbal system but also in the declension of nouns and adjectives.

Throughout the paper, several empirical domains within Fiuman have been addressed in a cursory examination and are recommended for further research, particularly the three domains briefly discussed in Section 5. Similarly, microvariation with respect to the neighbouring dialects of Istria and Trieste remains an understudied aspect that warrants further investigation.

Finally, there are broader issues which may require a more expansive cross-linguistic perspective, potentially extending beyond Romance languages. One such issue pertains to the generative power of mechanisms like the phonological grammar proposed in this paper, particularly the constraint *UNREALISEDMORPHEME. It would be valuable for future research to test this constraint against datasets used to motivate more powerful versions of REALISEMORPHEME. A more general issue that my analysis could not fully resolve is the formal status of TVs. As noted in Footnote 2, while I implemented TVs as exponents of the *v* head, my analysis does not hinge on this assumption. Alternatively, TVs could be considered as parts of the root, as in Lampitelli & Ulfsbjorninn (2023) for standard Italian nouns and adjectives, or even as a product of a co-phonology that forces all verbal stems into a template ending in one of the non-round vowels of the language. One potential avenue for testing these different approaches lies in comparing how the same roots are embedded in different categorial environments.

Cross-linguistic comparison is also crucial because formal approaches to theme vowels are often centred around a Romance (or even more specifically Latin) prototype, with a plethora of extensions that may have little in common. Recent studies, such as those in Kovačević et al. (2022), illustrate that the term *theme vowels* is employed in various senses beyond merely describing ornamental elements, and is even used to describe elements that are explicitly claimed to have semantic and syntactic content.

Acknowledgments

This research was funded in whole by the Austrian Science Fund (FWF, Grant-DOI 10.55776/I6258).

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