

A Prosodic Analysis of Romanian Pronominal Clitics

Anca Chereches*

1 Introduction

This paper argues that Romanian pronominals have a variety of surface forms as a result of how they are grouped into Prosodic Words within the general phonological grammar of Romanian. Previous research has claimed that Romanian pronominals alternate idiosyncratically and that this can only be captured by positing different allomorphs (Barbu 1999, Monachesi 2005:61). However, at least one study has shown that it is possible to derive the surface form of Romanian pronominals from a single underlying form (Popescu 2000). My goal is not only to show that the surface forms of pronominals are not idiosyncratic (as argued by Popescu 2000), but also that they are predictable from the general phonology of Romanian.

What follows is an overview of the data in Section 2, where I subclassify pronominals into two major groups based on the vocalic alternations they undergo. In Section 3, I establish the relevant phonological constraints responsible for pronominal alternations based on general properties of Romanian and rely on them to determine the prosodic constituency of pronominals. I then show in Section 4 how this constituency is obtained in OT. Crucially, I show that prosody is sufficient to account for the shapes of pronominal clitics, and argue against the morphology based approach in Popescu 2000.

2 Pronominal Alternations: the Data

Modern Romanian retains from Old Romance a paradigm of direct and indirect object pronominals which appear before the verb in most syntactic contexts. They are traditionally referred to as “atonic pronouns”, “pronominal clitics”, or “clitic pronouns”, because they are similar to pronouns, but they have different surface forms, a different distribution (always verb-adjacent), they cannot stand on their own, and they are always unstressed. However, the precise morphosyntactic status of pronominals is still debated in the literature.¹ Because of this and because their morphosyntax does not play a role in my phonological analysis, I drop the term “clitic” and simply refer to this class of pronouns as “pronominals”, to distinguish them from full pronouns.

Direct object and indirect object pronominals can co-occur with each other, as well as with other pre-verbal morphemes, forming a strictly ordered verbal complex.

(1) Romanian verbal complex

Negation > Dative pronominal > Accusative pronominal > Tense/Aspect Auxiliary
> Adverbial intensifier > Perfective > Adverbial intensifier > verb

Nu *ți* **le** **-ar** **mai** **fi** **tot** **băgat** **pe** **gât**
not you.DAT them.ACC COND.3.SG anymore PERF continually shoved on throat

dacă ar fi știut că nu îți plac chiftelele.

‘She wouldn’t have kept shoving them down your throat if she had known you don’t like meatballs.’

All pre-verbal morphemes (with the exception of Negation) are unstressed, but it is only the pronominals that have multiple surface forms. These forms are listed in Table 1.²

The first form given in each cell, which I will call “the long form”, is used in most contexts: when a pronominal is followed by an adverbial intensifier, the perfective morpheme, or the verb (2a). When pronominals are followed by an auxiliary, the surface form depends on the segmental

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	ACCUSATIVE		DATIVE	
	SG	PL	SG	PL
1	mΛ, m	ne, ne _̃	im ^j , m ^j , mj, mi	ne, ne _̃ , ni, nj
2	te, te _̃	vΛ, v	its ^j , ts ^j , tsj, tsi	vΛ, v
3M	il, l	ij, j, i	ij, j, i	le, le _̃ , li, lj
3F	o	ij, j, i	ij, j, i	le, le _̃ , li, lj
3REFL	se, se _̃ , s	if ^j , f ^j , fj, fi	se, se _̃ , s	if ^j , f ^j , fj, fi

Table 1: All surface forms of Accusative and Dative pronominals, in IPA. See footnote 2 for details on the symbols used.

makeup of the auxiliary. Consonant-initial auxiliaries require the long form, just like verbs (2b), but a short form is required before a vowel-initial auxiliary (3a) or another pronominal (3b).

(2) Long form

a. Pronominal + verb

Anca **îți** ([its^j]/*[tsi]) explică.
Anca **you.DAT** explains
'Anca explains to you.'

b. Pronominal + C-initial auxiliary

Îți ([its^j]/*[tsi]) va explica.
you.DAT FUT.3.SG explain
'(S)he will explain to you.'

(3) Short form

a. Pronominal + V-initial auxiliary

Anca **ți**- ([tsj]/*[its^j]) a explicat.
Anca **you.DAT** PERF.3.SG explained
'Anca explained to you.'

b. Pronominal + pronominal

Anca **ți** ([tsi]/*[its^j]) le explică.
Anca **you.DAT** them.ACC explains
'Anca explains them to you.'

This may suggest that the choice between the long form and the short form depends both on phonological and on morphological factors. However, I will show that a simple phonological description is sufficient if we consider how the pre-verbal morphemes are parsed into the prosodic hierarchy.

The differences that we observe between the different surface forms of pronominals can be summarized under two headings: hiatus resolution and i-alternation.³

Hiatus resolution Hiatus resolution affects all pronominals that end in a vowel when they are followed by another vowel-initial pronominal or auxiliary. The hiatus resolution strategy is always to modify the first vowel, the one belonging to the pronominal, as illustrated in (4).

useful discussions. All remaining errors are my own.

¹ Barbu (1999) and Monachesi (2005) argue that Romanian pronominals are affixes, while Popescu (2000) and Gerlach (2002) argue that they are clitics.

²The [e] is the traditional notation for the onset of the Romanian diphthong /ea/. This initial mid glide is lower than /j/, thus making the diphthong /ea/ acoustically distinct from the glide-vowel sequence /ja/ (Chitoran 2002a). In the orthography, [i] is ⟨î⟩ and [Λ] is ⟨ă⟩. The superscripted [j] represents a secondary palatalization gesture on the preceding consonant. Vowel-semivowel and vowel-glide-secondary palatalization gesture distinctions are not represented orthographically.

³Other, more restricted kinds of alternation, may be observed in Table 1. For instance, Datives ending in /e/ have /i/-allomorphs which are used when an Accusative pronominal follows, in a kind of dissimilation process. Finally, the reflexive /se/ is atypical in having the allomorph [s], where the mid-vowel completely disappears, whereas similar morphemes like the 2.SG.ACC /te/ and the 1.PL.DAT /ne/ do not have vowelless allomorphs. I will not address these issues here.

- (4) **i glides:** [i] before C-initial pronominal in (4a) > [j] before V-initial pronominal or auxiliary (4b)

- | | |
|--|--|
| <p>a. I [i] le dai?
her.DAT them.ACC give.2.SG
'Do you give them to her?'</p> | <p>b. I- [j] ai dat chiftele?
her.DAT PERF.2.SG given meatballs
'Did you give her meatballs?'</p> |
|--|--|

Δ deletes: [mΔ] in (4c) > [m] in (4d)

- | | |
|--|--|
| <p>c. Mă auzi?
me.ACC hear.2.SG
'Do you hear me?'</p> | <p>d. M- a auzit?
me.ACC PERF.3.SG heard
'Did (s)he hear me?'</p> |
|--|--|

e diphthongizes: [ne] in (4e) > [ne̯] in (4f)

- | | |
|--|---|
| <p>e. Ne auzi?
us.ACC hear.2.SG
'Do you hear us?'</p> | <p>f. Ne- a auzit?
us.ACC PERF.3.SG heard
'Did (s)he hear us?'</p> |
|--|---|

o encliticizes: [o] left of verb in (4g) > [o] right of verb in (4h)

- | | |
|---|--|
| <p>g. O auzi?
her.ACC hear.2.SG
'Do you hear her?'</p> | <p>h. A auzit -o?
PERF.3.SG heard her.ACC
'Did (s)he hear her?'</p> |
|---|--|

i-insertion The i-alternation group contains all pronominals which feature the high central vowel [i]. [i] never appears when another pronominal or a vowel-initial auxiliary follows, but in all other contexts it is obligatory (5), unless the pronominal can be re-syllabified into an adjacent word.

- (5) **i inserted:** [i] before a pronominal > [ij] before a verb

- | | |
|---|---|
| <p>a. I [i] le dai?
her.DAT them.ACC give
'Will you give them to her?'</p> | <p>b. Îi [ij] dai chiftele?
her.DAT give.2.SG meatballs
'Do you give her meatballs?'</p> |
|---|---|

Another notable feature of the i-group is that it includes all pronominals with a final high vowel (e.g., 1.SG and 2.SG Datives). Interestingly, final [i] only surfaces as such before a consonant-initial pronominal, where [i] does not interfere (5a). Elsewhere it is reduced to a glide (5b) or a secondary palatalization gesture (2).

3 Vowel Alternations

In Section 2, I summarized how vowels in pronominal surface forms alternate, in order to avoid hiatus (4) or for reasons which are not as transparent at first glance (5). These alternations are obligatory only when two pronominals (one Dative, one Accusative) co-occur, or when pronominals are followed by a vowel-initial auxiliary. This environment will turn out to be less bizarre as I determine how these morphemes are grouped phonologically (Section 4). I deduce this grouping from what we know about the domain of the general phonological constraints which lead to vocalic alternations in pronominals.

3.1 Word-internal Hiatus Resolution

As described in Section 2, a good number of the surface forms we observe in pronominals are due to final vowels being modified to avoid hiatus with a vowel-initial pronominal or a vowel-initial auxiliary. As proposed by Popescu (2000), this is most naturally captured with a NOHIATUS constraint. But is it indeed the case that hiatus is avoided in Romanian?

In fact, hiatus is not hard to find in the language, as illustrated in the monomorphemic words in (6). Hiatus with high vowels /i/ and /u/ is particularly common and easy to find in native vocabulary (6a), even though pronominals avoid it (4a–b).⁴ Mid vowels also enter into hiatus with other mids and lows (6b) instead of avoiding it like pronominals do (4e–h), but this is a feature of newer lexical strata (Chitoran 2002b:§4.4).⁵

(6) Monomorphemic hiatus

a.	'ta.ur	'bull'	b.	re.'al	'real'
	'vi.e	'vineyard'		ko.a.'li.tsi.e	'coalition'
	gΛ.'i.nΛ	'hen'			
	ma.'ri.a	'Maria' (proper name)			

There is, however, a domain where hiatus does seem to be routinely avoided: the inflectional domain. Take, for instance, the deletion of /Λ/ and the gliding of /e/ before /a/, which I described for pronominals and auxiliaries (4c–f). /Λ/ and /e/ also happen to be feminine desinences, which are added to the stems of feminine nouns (7a,b), while /a/ is also the definite article for feminine nouns, which is added to the stem after the desinence (7a',b'). When the definite article /a/ is added, the desinence /Λ/ deletes, while /e/ glides, forming the diphthong [ɛa]. This precisely parallels what happens in the pronominal + auxiliary context (4c–f).

(7) Feminine desinences Λ and e (a,b) reduce before the definite article a (a',b').

a.	fata	a'.	fata	(NOT *fatΛa)
	girl-FEM		girl-DEF	
	'girl'		'the girl'	
b.	karte	b'.	karte[̃]a	(NOT *kartea)
	book-FEM		book-FEM-DEF	
	'book'		'the book'	

Similarly, we can illustrate the /ia/ > [ja] alternation (4a–b) using the plural marker /i/ and the definite article /a/.

(8) Plural suffix i (a,b; here word-final, so desyllabified as in (13)) glides before the definite article a (a',b').

a.	aceft[̃]i	a'.	aceftja	(NOT *aceftia)
	this.MASC-PL		this.MASC-PL-DEF	
	'these'		'these'	
b.	atits[̃]i	b'.	atitsja	(NOT *atitsia)
	so.many.MASC-PL		so.many.MASC-PL-DEF	
	'so many'		'so many'	

This suggests that the hiatus resolution we see in pronominals is not idiosyncratic. All Romanian words are subject to the NOHIATUS constraint, but stems are protected from across-the-board hiatus resolution. To capture this intuition, I define the NOHIATUS constraint with the Prosodic Word as its domain, which I rank below faithfulness constraints whose domain is the stem. By contrast, general faithfulness constraints, working against hiatus resolution in any domain, are violable. Since the morphemes in the Romanian pre-verbal complex (pronominals, auxiliaries, etc.) are not stems, they are not protected from hiatus resolution.

(9) NOHIATUS-PWd

Hiatus is not allowed inside Prosodic Words.

⁴Some linguists hear these instances of hiatus as involving a glide. For instance [vi.e] is heard as [vi.je], [ta.ur] is heard as [ta.wur].

⁵Mid-mid and mid-low hiatus is also common in morphologically derived words. For example, prefixes *re* and *co* always enter into hiatus with vowel-initial stems ([re.a.na.li.zΛ] 'reanalysis', [ko.a.u.tor] 'co-author').

(10) MAX-STEM, DEP-STEM, IDENT-STEM \gg NOHIATUS-PWd \gg MAX, DEP, IDENT

However, for hiatus resolution to apply as described in Section 2, the domain of the constraint NOHIATUS-PWd must be met. In other words, the environment for hiatus must form a PWord.

(11) Prosodic constituency of pronominals, preliminary proposal based on hiatus resolution data
a. (Pro Pro)_{PWd} b. (Pro Aux)_{PWd} c. (Pro Pro Aux)_{PWd}

A second argument for including the auxiliary in the same PWd as the pronominal(s) (11b–c) is the behavior of the 3.SG.FEM.ACC /o/ under hiatus resolution. /o/ does not, as would be expected, reduce to form the (otherwise perfectly valid) diphthong [ɔa] before vowel-initial auxiliaries like the PERF.3.SG [a]. Instead, it “runs away” to the other side of its verbal host, as in (4h). Previous analyses invoke morpheme minimality constraints (e.g., Popescu 2000:794), but if this were the issue, then the 3.SG.DAT /i/ should also avoid reduction, which it does not (4b).⁶

Instead, I argue that speakers avoid [ɔa] because of a phonotactic constraint on this diphthong. Due to its historical conditioning, [ɔa] simply does not appear in the last syllable of prosodic words (Chitoran 2002b:213). Thus, if the 3.SG.FEM.ACC pronominal /o/ forms a prosodic word with a vowel-initial auxiliary like PERF.3.SG [a] (as proposed in (11b) above), then the resulting PWd, (ɔa)_{PWd}, incurs a violation of this phonotactic constraint and can be excluded. Hiatus still needs to be resolved in some other way, and the optimal way in this case just happens to be encliticization. Fixing hiatus by changing direction of cliticization is fascinating in its own right, but I must gloss over the solution to this problem for lack of space (see Popescu 2000:fn.24 for a sketch of a solution). The take-away message from this data point is that minimality cannot explain the lengths that /o/ goes to in order to avoid the diphthong [ɔa], but the phonotactic constraint $\left. \begin{array}{l} *_{\text{Qa(CODA)}} \\ \end{array} \right)_{\text{PWd}}$ does, which implies that pronominals form a prosodic word with a following auxiliary.

3.2 Word-final High Vowel Alternations

As observed in Section 2, some pronominals end in a final high vowel [i], which alternates with the palatal glide [j] and (in pronominals with consonants) with a palatal gesture [ʲ] that functions as a secondary point of articulation for the preceding consonant. Even though [i] only surfaces before a consonant-initial pronominal, I take it to be underlying. In hiatus resolution contexts (before a V-initial pronominal or a V-initial auxiliary, as discussed in the previous section), the /i/ becomes a glide: [j]. But the subject of this section is what happens in the elsewhere case.

In the elsewhere case (preceding C-initial auxiliaries or any other morpheme), /i/ surfaces as the [j] glide when it follows a vowel (as in the 3.SG.DAT and the 3.PL.ACC; e.g., see (5b)), or the palatalization gesture [ʲ] when it follows a consonant (as in the 1.SG.DAT, 2.SG.DAT and 3.PL.REFL; e.g., see (2)). This is the result of a general process of word-final high vowel desyllabification in Romanian (Alkire and Rosen 2010:§10.1.8), for which I adopt the constraint in 12. The general case is exactly like the case of pronominals: (a) when following a vowel, final /i/ stays on as a glide, and (b) when following a consonant, final /i/ modifies this consonant by adding a secondary palatalization gesture before being deleted. For example, the 2.SG suffix *-i* for the present indicative becomes [j] when added to a vowel-final root (13a'). In (13b') on the other hand, the plural marker for masculine nouns *-i* reduces to a palatalization gesture word-finally, but stays a full vowel when followed by extra inflectional material, such as the dative-genitive ending *-lor* in (13b'').

(12) $\left. \begin{array}{l} *V[+\text{HIGH}] \\ \end{array} \right)_{\text{PWd}}$

High vowels are not allowed at the end of a Prosodic Word.

(13) Word-final /i/ alternations

- | | | |
|--------------------|--------------------|---------------------------------|
| a. da 'give' (INF) | a'. daj 'you give' | |
| b. lup 'wolf' | b'. lupʲ 'wolves' | b''. lupilor 'of/to the wolves' |

⁶In Popescu's analysis, the 3.SG.DAT pronominal is not exactly parallel to the 3.SG.FEM.ACC /o/ in that it has an extra underlying mora: / μ i/. The mora is there as a placeholder for the vowel i, which appears in some surface forms of this pronominal as a support vowel. Even so, it is still not clear how a surface form like [j] can escape the minimality requirement, while [ɔ] does not.

It follows that pronominals in the elsewhere case (when followed by any morpheme except V-initial auxiliaries) must be word-final: $(\text{Pro})_{\text{PWd}}$. The question now is: how can we reconcile this new finding with our previous proposal in (11), where we saw that auxiliaries are included into the PWd of the pronominals? The most straightforward solution is a recursive PWd, as in (14) below.⁷ The recursive prosodic word gives us the two domains we need: the word-internal domain for hiatus resolution between pronominals and a vowel-initial auxiliary, and the word-final domain for desyllabification of final /i/ before a consonant-initial auxiliary. In the following section, we will see that /i/-forms also support this prosodic constituency.⁸

(14) Prosodic constituency, updated proposal based on word-final high vowel alternations

- | | |
|---|--|
| a. $(\text{Pro})_{\text{PWd}} (\text{Vb})_{\text{PWd}}$ | a'. $(\text{Pro Pro})_{\text{PWd}} (\text{Vb})_{\text{PWd}}$ |
| b. $((\text{Pro})_{\text{PWd}} \text{Aux})_{\text{PWd}} (\text{Vb})_{\text{PWd}}$ | b'. $((\text{Pro Pro})_{\text{PWd}} \text{Aux})_{\text{PWd}} (\text{Vb})_{\text{PWd}}$ |

3.3 Prosodic Minimality and the Support Vowel

The high central vowel [i] in the surface forms of some pronominals is commonly analyzed as not present underlyingly. For Popescu, it is introduced to fill an underlying mora. For instance, the 3.SG.M.ACC [il] is underlyingly / μ l/ and the 3.PL.M.ACC [ij] is / μ i/. Because of this, Popescu needs to make sure that this mora is deleted when the pronominal in question is followed by another pronominal or by a vowel-initial auxiliary (as per the obligatory reduction illustrated in (3)). She achieves this by using syllable markedness constraints (ONSET penalizes the morpheme-initial [i]) and structural economy constraints (ALIGNL(PWd, Stem) incurs one violation for each syllable in the pre-verbal complex). This works only to the extent that we ignore all pre-verbal morphemes which do not trigger [i]-less pronominal forms. For example, Popescu's analysis cannot explain why we get [its^j] before the future auxiliary [voj] in (2a). After all, [tsivoj] would clock in at the same number of syllables, but would not incur ONSET and NOCODA violations.

Instead of assuming that something gets deleted in [i]-less forms, I will assume that something gets added in [i] forms: a support vowel. Analyzing [i] as a support vowel is not a new idea: see for instance Renwick's (2012:§2.10) description of cases where [i] seems to act as a support vowel, including pronominals. But what has not been clearly addressed in previous studies is why pronominals need "support" everywhere except when followed by a second pronominal or a V-initial auxiliary.

To explain this, I will assume a very basic prosodic minimality condition: a PWd must contain at the very least one syllable (15), meaning at least one syllabic nucleus (onsets and codas are optional). This constraint never comes into play when two pronominals combine in a prosodic word (14a', b'); in these cases, there is always enough material to form at least one syllable. The problematic cases are prosodic words composed of individual pronominals (14a, b), in particular pronominals which do not have an underlying vowel for a syllabic nucleus (the 3.SG.M.ACC /l/) and pronominals ending in a high vowel, which obligatorily desyllabifies as per our discussion in the previous section and so cannot form a syllabic nucleus. In these cases, [i] is inserted to avoid a violation of $\text{PWord} \geq 1\sigma$.

- (15) $\text{PWord} \geq 1\sigma$
 Prosodic words consist of at least one syllable.

4 Phonological Grouping: the PWord

Section 3 argued that, once the right prosodic constituency is in place, the wide range of pronominal surface forms can be derived using three independently motivated constraints outranking segmental faithfulness constraints. What is left is obtaining the PWd boundaries in (14) in a principled way.

⁷For discussions of recursive PWds, see e.g., Inkelas 1990, Selkirk 1996, Zec 2005 and references therein.

⁸There is one alternative prosodic grouping that we could consider: having separate PWds for pronominals and auxiliaries, with V-initial auxiliaries being included, and C-initial auxiliaries being excluded from the PWd of the pronominals. This approach quickly runs into overgeneration problems, where V-initial auxiliaries will be drawn into any preceding V-final PWd.

The first step is setting up a general approach to how morphemes like pronominals and auxiliaries will be parsed into the prosodic hierarchy. I adopt the approach that Zec (2005) lays out for Standard Serbian function words. The basic idea is that all morphosyntactic words would like to be independent prosodic words, as in (16a), which can be accomplished by a highly ranked alignment constraint like $MWORD = PWORD$. However, some MWords may not get to be PWords for various reasons, such as a highly ranked PWord minimality constraint (16b); these MWords may be introduced into the prosodic hierarchy as so-called “free clitics”, directly dominated by a prosodic phrase. Alternatively, they can get absorbed into the PWD of another MWord, as in the case of “affixal clitics” (16c) and “internal clitics” (16d).⁹ In Zec’s (2005) analysis, this is accomplished using prosodic subcategorization frames¹⁰ in the lexical entry of the MWords in question, alongside a highly ranked faithfulness constraint $PROSODICAFFIX$ which sanctions deviations from this prosodic prespecification.

- (16) Prosodization options of morphosyntactic words, cf. Selkirk 1996, Zec 2005
- | | | |
|---------------------------|--------------------------|-------------------------------------|
| a. free word | $(MWord)_{PWD}$ | $MWORD = PWORD \gg C$ |
| b. free clitic | $(MWord (P_{WD}))_{PPh}$ | $C \gg MWORD = PWORD$ |
| c. affixal clitic | $(MWord (P_{WD}))_{PWD}$ | prosodic subcategorization + |
| | $(P_{WD} MWord)_{PWD}$ | $PROSODICAFFIX \gg NON-RECURSIVITY$ |
| d. internal clitic | $(MWord MWord)_{PWD}$ | prosodic subcategorization + |
| | | $PROSODICAFFIX \gg MWORD = PWORD$ |

This understanding of phonological “clitics” as morphosyntactic words which do not form an independent prosodic word is very different from what Popescu (2000) assumes. Popescu argues for the “clitichood” of pronominals and auxiliaries based on a mixture of morphological and phonological properties. From this standpoint, she rejects a purely prosodic grouping of pronominals and auxiliaries, arguing instead for a morphosyntactic unit, the “clitic sequence”. Prosodically, she assumes that clitics are automatically underspecified for syllable and foot structure and therefore must be integrated into an adjacent phonological word. Although Popescu does not go into detail here, she mentions the lack of stress on pronominals and auxiliaries as motivation for this assumption. However, stress is quite a contentious issue in Romanian phonology. Many scholars argue that Romanian stress is lexically specified, while Chitoran proposes an analysis of stress as rightmost on the stem (see Chitoran 2002b:§3 and references therein). Pronominals and auxiliaries are clearly not stems, so either way we do not need to assume a deficient prosodic structure to account for their lack of stress. Accordingly, the prosodic constituency I propose in (14) is not based on assumptions of prosodic deficiency, but on the domains of the phonological processes that apply to pronominals.

But how can we obtain the proposed prosodic constituency? In terms of the framework sketched out in (16), the requirements are that: (i) the pronominal acts as internal clitic when followed by another pronominal, but free word elsewhere; (ii) the auxiliary acts as an affixal (en)clitic when preceded by a pronominal, but free word elsewhere. We obtain this by associating subcategorization frames to the lexical entries of pronominals (17) and auxiliaries (18). The prosodic subcategorization must be able to access the morphosyntactic identity of the clitic “host” because we only see patterns of alternation in combinations of pronominals and auxiliaries, and not in combinations of pronominals/auxiliaries with other functional or lexical MWords.

- (17) Lexical entry for pronominals
 $(\text{--- } Pro)_{PWD}$
- (18) Lexical entry for auxiliaries
 $((Pro)_{PWD} \text{---})_{PWD}$

⁹The terminology for the different ways of including morphological words into the prosodic hierarchy is from Selkirk 1996. Note that this usage of the term “clitic” is purely phonological, divorced from the morphosyntactic properties of the element in question.

¹⁰For prosodic subcategorization in lexical entries, see Inkelas 1990.

If the conditions specified in the prosodic subcategorization frames above are met, then pronominals and auxiliaries become input to the phonological grammar with segmental *and* suprasegmental information (the prosodic word configurations in their lexical entries) (e.g., see the input in (22)). The ranking of prosodic faithfulness constraints (PROSODICAFFIX) determines the prosodic make-up of the final output. Otherwise, pronominals and auxiliaries are prosodized just like any other MWord: according to the ranking of constraints affecting the prosodic hierarchy. In Romanian, they become free words, as discussed in the previous sections and as the tableau in (21) illustrates.

(19) Prosodic constraints

MWORD = PWORD: For any MWord, there exists some PWord, such that the left edge of the MWord is aligned with the left edge of PWord, and the right edge of the MWord is aligned with the right edge of PWord.¹¹

NON-RECURSIVITY: For any prosodic category C^n , no C^i dominates C^j , $j = i$.

(20) Faithfulness constraints¹²

MAX: Every segment in the input has a correspondent in the output.

DEP(V): Every vocalic segment in the output has a correspondent in the input.

DEP(C): Every consonantal segment in the output has a correspondent in the input.¹³

PROSODICAFFIX: Any prosodic prespecification in the input must have a correspondent in the output.¹⁴

In (21), we see a single /i/-final pronominal, which is given as input only with segmental information. The prosodic constraint MWORD = PWORD ensures that the pronominal becomes a free word, even if this means faithfulness violations in order to meet the requirements placed on PWords by $*V[+HIGH]_{PWd}$ and $PWord \geq 1\sigma$. Faithfulness constraints must therefore be ranked low.

(21) A single pronominal (the 2.SG.DAT /tsi/ before the verb /dΛ/ ‘gives’), parsed as a free word.

Input: /tsi dΛ/	$*V[+HIGH]_{PWd}$	$PWord \geq 1\sigma$	MWORD = PWORD	DEP(V)
a. tsi (dΛ)			*!*	
b. (tsi dΛ)			*!*	
c. (tsi) (dΛ)	*!			
d. (ts ^j) (dΛ)		*!		
e. ts^j (its ^j) (dΛ)				*

In (22), the Dative pronominal *ne* combines with another pronominal, the Accusative *o*, according to its prosodic prespecification. It is then passed on as input to the phonological grammar. Since the prosodic faithfulness constraint PROSODICAFFIX is ranked higher than the general prosody constraint MWORD = PWORD, which tries to make every MWord into a free PWord, the two pronominals remain prosodically grouped. Due to the highly ranked DEP(C), they must now find a way to please the NOHIATUS-PWd constraint that does not involve epenthetic consonants as in (22b).

(22) Two pronominals (the 1.PL.DAT /ne/ and the 3.SG.F.ACC /o/) in the expression *ne-o dă* ‘(s)he gives her/it to us.’

¹¹Since this constraint in effect collapses two alignment constraint, I mark one violation per each misaligned edge.

¹²IDENT is also relevant here, but it is very low ranked, so I omit it.

¹³I distinguish between DEP applied to vowels versus consonants because Romanian never uses epenthetic consonants (e.g., to break hiatus), but as we have seen, epenthetic vowels are used to meet prosodic minimality.

¹⁴If an underlying affixal clitic surfaces as an internal clitic, I mark one violation. If it surfaces as a free word or a free clitic, I mark two violations.

Input: /((ne o) dΛ/	NOHIATUS-PWd	Dep(C)	PROSODICAFFIX	MWORD = PWORD
a. (neo) (dΛ)	*!			**
b. (neCo) (dΛ)		*!		**
c. [☞] (ne ^o) (dΛ)				**
d. (ne) (o) (dΛ)			*!*	

What happens when a pronominal combines with an auxiliary is even more interesting. The tableau in (23) shows that a pronominal followed by a vowel-initial auxiliary enters into hiatus due to its prosodic constituency (23a). If we avoid hiatus by deletion (which we can do because MAX is so low-ranked as to be omitted in this tableau), as in (23b), the PWd of the pronominal only contains a consonant, which is naturally resyllabified as onset to the following /a/ in (23c-d) and the non-recursive prosodization is chosen since it is the least marked. Note that we cannot resolve the /Λa/ hiatus by simply re-prosodizing the pronominal and the auxiliary into free words, as in (23e), because the prosodic faithfulness constraint PROSODICAFFIX is ranked higher than MWD = PWD.

- (23) As in (4d), the 1.SG.ACC pronominal reduces before a vowel-initial auxiliary in the expression *m-a auzit* ‘(s)he heard me.’

Input: /((mΛ)a) auzit/	NOHIATUS-PWd	PWord ≥ 1σ	NON-RECURS.	PROSODICAFFIX	MWD = PWD
a. ((mΛ)a) (auzit)	**!		*		*
b. ((m)a) (auzit)	*	*!	*		*
c. ((ma) (auzit)	*		*!	*	**
d. [☞] (ma) (auzit)	*			*	**
e. (mΛ) (a) (auzit)	*			**!	

Finally, a pronominal with a word-final /i/ will always incur a violation of *V[+HIGH]_{PWd}. When a consonant-initial auxiliary follows (24), this is fixed by desyllabification, which in turn leads to a violation of PWord ≥ 1σ (24b), which leads to the insertion of a support vowel (24c). Somehow, this complex chain of repairs is preferable to the simpler solution of just getting rid of the PWd boundary after the pronominal (24d–e). This is exactly the opposite of what happens when a vowel-initial auxiliary follows, creating hiatus. In this case, the PWd boundary disappears, the /i/ glides, and the vowel-initial auxiliary gets an onset, analogously to (23d). In other words, the consonant-initial auxiliary (the future tense marker) resists becoming an internal clitic like vowel-initial auxiliaries. The former is particularly keen on retaining the prosodic constituency in the input. To obtain this behavior, we must add another prosodic faithfulness constraint indexed to the future auxiliary: PROSODICAFFIX(FUT). This is ranked higher than NON-RECURSIVENESS, since otherwise (24e) would also be a winning candidate.

- (24) The 1.SG.DAT pronominal /mi/ before the consonant-initial future auxiliary, in the expression *îmi va da* ‘(s)he will give me.’

Input: /((mi)va) da/	PROSODICAFFIX(FUT)	*V[+HIGH] _{PWd}	PWord ≥ 1σ	NON-RECURS.
a. ((mi)va) (da)		*!		*
b. ((m ^j)va) (da)			*!	*
c. [☞] ((im ^j)va) (da)				*
d. ((miva) (da)	*!			*
e. (miva) (da)	*!			

The tableaux in (21) through (24) demonstrate that we can obtain the surface form alternations described in Section 2 using well-motivated segment-level constraints (Sections 3.1–3.3) alongside prosodic constraints, ranked as below, operating on input which is prosodically prespecified in a limited number of cases (17–18).

- (25) PROSODICAFFIX(FUT), *V[+HIGH]_{PWd}, PWord $\geq 1\sigma$, NOHIATUS-PWd, DEP(C) \gg NON-RECURSIVITY \gg PROSODICAFFIX \gg MWORD = PWORD \gg DEP(V)

5 Conclusion

Romanian pronominals vary in their surface forms depending on what immediately follows them. Many authors have taken the resulting alternations to be idiosyncratic and have proposed different allomorphs. The only previous study which systematically derives this phenomenon is Popescu's (2000) OT analysis. The general intuition of this analysis is that pronominals "reduce" to minimize the number of syllables that come before the verbal stem. However, Popescu posits a number of phonological constraints which apply to what she refers to as the clitic sequence, without providing a general motivation from the perspective of the overall phonological grammar. Moreover, she does not discuss an important data point: consonant-initial auxiliaries, which do not trigger reduction.

In contrast, the main insight of this analysis is that different prosodization options for function words (Selkirk 1996) can account for Romanian pronominals. Deriving pronominal alternations from externally motivated phonological constraints allowed me to determine their phonological constituency. Thus, pronominals and auxiliaries are free prosodic words in all environments, other than when they combine with each other: two pronominals combine as internal clitics and auxiliaries combine with pronominals as affixal clitics.

This prosodic account has two main advantages: it accounts for pronominal-auxiliary combinations that do not work in Popescu's analysis, and it does so in a motivated and natural way, with fewer initial assumptions. The picture that emerges is one where the phonology of function words does not owe much to morphosyntactic information.

References

- Alkire, Ti, and Carol Rosen. 2010. *Romance Languages: A Historical Introduction*. Cambridge University Press.
- Barbu, A. M. 1999. Complexul verbal. *Studii si Cercetari Lingvistice* 1999:39–84.
- Chitoran, Ioana. 2002a. A perception-production study of Romanian diphthongs and glide-vowel sequences. *Journal of the International Phonetic Association* 32:203–222.
- Chitoran, Ioana. 2002b. *The Phonology of Romanian: A Constraint-Based Approach*, volume 56. Walter de Gruyter.
- Gerlach, Birgit. 2002. *Clitics between Syntax and Lexicon*. John Benjamins.
- Inkelas, Sharon. 1990. *Prosodic Constituency in the Lexicon*. Garland Publishing.
- Monachesi, P. 2005. *The Verbal Complex in Romance: A Case Study in Grammatical Interfaces*, volume 9. OUP Oxford.
- Popescu, A. 2000. The morphophonology of the Romanian clitic sequence. *Lingua* 110:773–799.
- Selkirk, Elisabeth. 1996. The prosodic structure of function words. *Signal to Syntax: Bootstrapping from Speech to Grammar in Early Acquisition* 187–213.
- Zec, Draga. 2005. Prosodic differences among function words. *Phonology* 22:77–112.

Department of Linguistics
Cornell University
Ithaca, NY, 14850
ac872@cornell.edu