

Function words, prosodic structure and morphological dependency

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This paper addresses the grammatical status of pronominal clitics in European Portuguese (henceforth EP). Based on properties displayed by the clitic-clitic sequence and the verb-enclitic combination, it is argued that object pronouns in this language must be derived in the morphological component. Among other affix-like properties, it is shown that they undergo allomorphic variation and induce stem allomorphy on the verb. These non-productive phonological alternations support the view that enclitics are in morphological construction with the verb.

1. Introduction

Within the theory of prosodic phonology, Romance pronominals are generally treated as prosodically deficient function words. It is assumed that they combine with the verb in the syntax and attach through purely phonological processes (cf. Peperkamp 1997, for Spanish and Italian). Vigário (1999b) supports this view for EP pronominal clitics, but argues that the morphophonological effects taking place between verbs and enclitics cannot be simply derived through rules of phrasal phonology. To account for the data, she develops a detailed analysis within the theory of Precompiled Phonology (Hayes 1990) and treats object pronouns as phrasal allomorphs.

The goal of this paper is to challenge the view that cliticisation in EP takes place across syntactic word units. It is shown that the morphosyntactic factors determining allomorphic alternation pose serious problems to a 'precompiled' approach. Giving special emphasis to the verb-enclitic combination, it is claimed that object pronouns are inflectional affixes and that cliticisation is therefore a morphological operation (Spencer 1992, Crismann 1997, Luís 2002a).

The paper is organised as follows. Section 2, motivates the morphological analysis and reviews some basic facts regarding the clitic-clitic sequence and the verb-enclitic combination. Section 3 examines the 'precompiled' treatment of allomorph selection presented in Vigário (1999b), and section 4 briefly sketches an alternative analysis and shows how an inflectional approach provides an elegant and insightful account of the facts.

2. The facts

Recent work on clitic pronouns in French and Italian (Miller&Sag 1997, Monachesi 1999) has convincingly shown that the regularities underlying the formation and placement of clitic clusters display many properties that are typical of affixes. In this section, I provide an overview of the affixational status of object pronouns in European Portuguese by outlining the internal properties of the clitic cluster and the idiosyncrasies of the verb-enclitic construction¹ (Spencer 1992, Crysmann 1997, Luís 2002a).

2.1. The clitic-clitic sequence

The pronominal system in EP comprises reflexive, accusative and dative pronouns, as given in (1):

(1)

	Refl	Dat	Acc
1.S	me		
2.S	te		
3.S.M	se	lhe	o
3.S.F			a
1.Pl	nos		
2.Pl	vos		
3.Pl.M	se	lhes	os
3.Pl.F			as

Similar to other Romance languages, the order in which pronominals can combine is quite limited. In EP, only two types of clusters can be found: the reflexive-dative cluster (with reflexives preceding datives), and the dative-accusative cluster (with datives preceding accusatives).

Idiosyncratic co-occurrence restrictions apply within both types of clitic sequences. As shown in (2), within the reflexive-dative cluster, only 3rd reflexives can combine with datives. Similarly, only 3rd accusatives combine with dative pronouns, within the dative-accusative cluster, as in (3):

(2)

	1S.Dat	2S.Dat	3S.Dat	1Pl.Dat	2Pl.Dat	3Pl.Dat
3.S.Refl	se-me	se-te	se-lhe	se-nos	se-vos	se-lhes
3.Pl.Refl	se-me	se-te	se-lhe	se-nos	se-vos	se-lhes

¹ This paper will not address the nature of the proclitic-verb combination. Unlike in the other Romance languages, proclitics in EP display distributional/scopal idiosyncrasies which suggest that preverbal and postverbal attachment are different in status. The proclitic cluster however is in all respects like the enclitic cluster. For further details about proclitic placement, see Crysmann 2001 and Luís&Sadler (to appear).

(3)

	1 Sg	2 Sg	3.Sg. M.Acc	3.SG. F.Acc	1 Pl	2 Pl	3.M. Pl. Acc	3.Pl. F.Acc
1.S.Dat			me+o	me+a			me+os	me+as
2.S.Dat			te+o	te+a			te+os	te+as
3.S.Dat			lhe+o	Lhe+a			lhe+os	lhe+as
1.P.Dat			nos+o	nos+a			nos+os	nos+as
2.P.Dat			vos+o	vos+a			vos+os	vos+as
3.P.Dat			lhes+o	lhes+a			lhes+os	lhes+as

Cluster internally, object pronouns generally exhibit phonological alternations. For example, the 3rd accusative pronouns *o, a, os, as* ('him, her, them.masc, them.fem') alternate with *lo, la, los, las* when they are preceded by a 1st/2nd plural dative pronoun. In this context, the dative loses its final consonant.

- (4) a. A Maria *compra-nos-o.
 b. A Maria compra-no-lo.
 the Maria buy-3SG.MASC.DAT-3SG.MASC.ACC
 'Maria buys it for us'

The complete inventory of clusters combining 1st/2nd plural datives with 3rd accusatives is given in (5):

(5)

	3.Sg.M. Acc	3.Sg.F.Acc	3.Pl.M.Acc	3.Pl.F.Acc
1.Pl.Dat	(nos+o) → no-lo	(nos+a) → no-la	(nos+os) → no-los	(nos+as) → no-las
2.Pl.Dat	(vos+o) → vo-lo	(vos+a) → vo-la	(vos+os) → vo-los	(vos+as) → vo-las

Idiosyncratic phonological effects are also found when 1st/2nd singular & 3rd plural dative pronouns combine with 3rd accusatives. In this case, an opaque portmanteau unit is formed, as the complete list below shows:

(6)

	3.Sg.M.Acc	3.Sg.FAcc	3.M.Pl.Acc	3.Pl.F.Acc
1.Sg.Dat	(me+o) mo	(me+a) ma	(me+os) mos	(me+as) mas
2.Sg.Dat	(te+o) to	(te+a) ta	(te+os) tos	(te+as) tas
3.Sg.Dat	(lhe+o) lho	(lhe+a) lha	(lhe+os) lhos	(lhe+as) lhas
3.Pl.Dat	(lhes+o) lho	(lhes+a) lha	(lhes+os) lhos	(lhes+as) lhas

Interestingly, when 3rd datives co-occur with 3rd accusatives, the dative plural features are neutralised giving rise to syncretism. Each of the forms therefore corresponds to two different feature combinations: e.g. *lho* can mean either 'dat.1.SG-ACC.3.SG.MASC' OR dat.1.PL-ACC.3.SG.MASC'.

2.2. *The verb-enclitic combination*

At the distributional level, clusters cannot constitute an utterance on their own, they cannot be topicalised, coordinated or modified. Instead, enclitic pronouns are in strict adjacency with the verb and nothing can intervene between them:

- (7) a. O João deu-lhe livros.
 the John gave-3.SG.DAT books
 ‘John gave him/her books’
 b. *O João deu livros-lhe.
 the John gave books-3.SG.DAT
 ‘John gave him/her books today.’

As mentioned earlier, 3rd accusative pronouns change their phonological form in combination with datives. Similar effects are found when 3rd accusatives follow the verb. In particular, if the verb ends in -r, -s or -z, then the *l*-form must be selected (i.e. *-lo, -la, -los, -las*) (8a):

- (8) a. O João [*diz-o]. → O João di-lo.
 the João says-3.SG.MASC.ACC
 ‘João says it’
 b. Os meninos [*levam-os] → Os meninos levam-nos.
 the boys take-3.PL.ACC
 ‘the boys take them’

Alternatively, 3rd accusatives surface as *-no, -na, -nos, -nas* if they follow a 3rd plural verb form. These verbs generally end in a nasal diphthong (8b). However the choice of the *n*-accusative is not phonologically conditioned, since 3sg verbs ending in a nasal do not generally induce allomorphy.

Having addressed the phonological changes suffered by pronouns, I will now show that verbs also exhibit interesting variations. Unlike in most of the Romance languages, object pronouns in EP induce phonological changes on the verb. For example, 3rd accusatives trigger final consonant deletion on verbs ending in -s, -z or -r (i.e. the set of verbs which selects the *-lo, -la, -los, -las* forms). In this case, we get reciprocal allomorphy, namely a simultaneous phonological change on the pronoun and on the verb (8a). This phenomenon is restricted to the clitic cluster and the verb-enclitic unit.

Another idiosyncratic case of stem allomorphy appears when 1st/2nd plural pronouns *-nos* and *-vos* trigger consonant deletion on 1pl verb forms, regardless of tense/mood/aspect properties (9):

- (9) Nós [*vêmos-nos] hoje. → Nós vêmo-nos hoje.
 we see-1.PL.REFL today
 ‘We see each other today’

This deletion only takes place if the verb final -s represents a 1pl ending. It fails to apply in contexts where it realises a different set of features, such as

2sg, as given in (10). This indicates that the alternation is morphologically conditioned and not determined on phonotactic grounds:

- (10) Tu recibes-nos.
 you.SG receive-2.SG.ACC
 ‘You receive us’

Finally, object pronouns also seem to interact with internal layers of affixation:

- (11) As crianças dá-los-ão aos pais. (not: *dar-os-ão)
 the children give-3.PL.MASC.ACC-FUT to the parents
 ‘The children will give them to their parents’

As (11) illustrates, the cluster intervenes between the verb stem and the future/conditional agreement marker, in what seems to be a typical case of morpheme reordering. In word-internal position, the accusative induces similar phonological changes on the verb.

2.3. Conclusion

The above outline of the data shows that the regularities underlying EP pronominals are quite typical of affixes. Fixed clitic order and co-occurrence restrictions contrast sharply with the combinatorial possibilities available for nominal phrases and do not follow from general syntactic principles. Similarly, the morphophonological changes taking place inside the cluster cannot be derived through productive rules of phonology. Crucially, verbs undergo stem allomorphy and cannot be separated from enclitics. To sum up, the properties presented in this section clearly suggest that a morphological analysis of EP pronominals should be preferred (Spencer 1992, Crismann 1997, Luís 2002a).

3. The idiosyncrasies of the verb-enclitic combination

In a different vein, Vigário (1999a,b) argues against the morphological status of object pronouns in EP. On the basis of several phonological rules, it is claimed that object pronouns and function words belong to the same syntactic category and combine post-syntactically with the host².

Surprisingly, despite going to great lengths to challenge the morphological attachment of enclitics, Vigário (1999b) supports the view that the phonological effects presented above cannot be derived through standard phrasal phonology. To maintain both claims, i.e. that object pronouns are syntactic units and that they undergo rules of lexical phonology, Vigário provides an analysis of the verb-enclitic combination within the theory of Precompiled Phonology (Hayes 1990). The leading idea of this account is that

² Cf. Luís (2002b) for a critical discussion of the phonological evidence provided by Vigário (1999a,b).

words can have allomorphic variants in the lexicon. Under this view, the *l*-forms and *n*-forms of accusative pronouns are derived as phrasal allomorphs and inserted in the syntax postlexically.

This might at first seem a plausible approach to pronominal alternants, but upon closer inspection, the data in EP involves more than just the selection of pronominal forms. To account for the overall morphophonological effects, Vigário introduces significant extensions to the framework which seriously challenge the spirit of the theory of precompilation. This is a clear indication that object pronouns should not be derived as phrasal allomorphs, but as inflectional affixes in the morphology.

3.1. Precompiled phonology

To provide a background against which to compare Vigário's proposal for EP, I will first provide a brief summary of the phenomena that motivated Hayes (1990) theory of Precompiled Phonology. These are untypical cases of phonological alternations which are dependent on syntactic information but, crucially, do not generalise over prosodic domains and, so, fall out of the scope of phrasal phonology. Two of the phonological rules which seem to have direct access to syntax are a) the alternation in the feminine article *la* in Spanish which becomes *el* before nouns beginning in stressed /á/, and b) the rule of vowel shortening in Hausa which applies to the final long vowel of verbs when they are preceded by a full NP direct object.

Assuming that phonology cannot have direct access to the syntax, Hayes (1990) develops a framework in which word classes may have allomorphic variants. Crucial for this proposal is the fact that each one of the phrasal allomorphs is accompanied by a frame indicating where it may be inserted in the syntax³. For Spanish, for example, it is assumed that the lexical entry for the feminine article contains two allomorphs, i.e. *la* and *el*, and two environments for syntactic insertion, as in (12). Under the Elsewhere Condition, the insertion context of *el* is the more specific and takes precedence over the more general context of *la*.

$$(12) \left(\begin{array}{l} /el/ \quad _ \quad [N \acute{a}] \\ /la/ \quad / \quad (\text{elsewhere}) \end{array} \right)$$

For Hausa, Hayes derives phrasal allomorphy by lexical rule on the grounds that the phonological change of vowel shortening affects whole classes of words. The lexical phonological rule in (13a) derives the verb forms and the phonological instantiation frame in (13b) inserts these forms into their relevant syntactic context:

³ It is important to point out that precompiled phonology assumes a late insertion model of syntax. Words are represented through abstract markers and phonological instantiation takes place post-syntactically (Hayes 1990).

- (13) a. V: → V / [... ___]_[Frame1]
 b. Frame 1: / [_{VP} ___ NP ...], NP non pronominal

The above summary showed that the data analysed by Hayes (1990) is significantly different from the morphophonological effects displayed by EP: a) in EP, phonological changes are reciprocal in that they affect both the selected pronominal allomorph *and* its context of insertion, b) the context within which allomorphy takes place must make reference to the specific inflectional features of the elements involved, and c) EP pronouns only combine with verbs from which they are inseparable, therefore lacking the syntactic freedom of the Spanish and Hausa categories.

3.2. A precompiled approach to EP object pronouns

This section presents the precompiled account by Vigário (1999b) and discusses the problems that emerge from a postlexical view of the verb-enclitic combination.

As mentioned before, object pronouns combine into clusters, and any account of the data must be able to explain how these sequences are formed. In Vigário (1999b), single object pronouns are lexically listed words. As to combinations of pronouns, they are represented as phonologically opaque units listed together with individual pronouns. Although this may be the right approach for portmanteau clusters, object pronouns are also well known for forming transparent sequences of concatenated units. Viewing all clusters simply as phonological units inevitably blurs the distinction between transparent sequences of pronouns and portmanteau clusters, and also fails to capture cluster internal regularities. Of course, deriving clusters as the combination of two individual pronouns in the syntax poses serious difficulties (Anderson 1992), however, in the morphology, as I will try to show later, assigning individual exponence to pronouns follows from the nature of inflectional affixation. Failure to take into account the internal composition of clusters seriously weakens any analysis.

Let us now look at the lexical rules and insertion contexts set up by Vigário. It was previously shown that the phonological form of 3rd accusative pronouns in EP is dependent on whether a) the final consonant of the verb ends in -s, -z, -r or on whether b) the verb is inflected for 3pl. To account for pronominal allomorphy, Vigário produces a lexical entry for 3rd accusatives where each allomorph is individually specified for its context of insertion (14).

- (14) $\left(\begin{array}{l} \text{a. no / [...] Vb}_{[3pl]} \text{ ___} \\ \text{b. lo / [... }_{[+cons]} \text{] Vb ___} \\ \text{c. o / elsewhere} \end{array} \right)$ e.g. *davam* ‘they gave’
 e.g. *davas* ‘you.sg gave’
 e.g. *dava* ‘I/he/she gave’

Then, consonant deletion on verbs is captured by deriving verbal allomorphs through the lexical rule in (15) and by inserting them into the contexts specified in (16).

(15) C → Ø / [... _ ...] [Frame 1] [Frame 2]

- (16) a. Frame 1: ... [..._] Vb [...] cl [acc]
 b. Frame 2: ... [..._] Vb [1pl] [...] CL (nos/vos)

Frame 1 inserts the consonant-less verb form before an *l*-accusative, and Frame 2 specifies that the deleted consonant is part of a 1pl verb form and that it occurs either before a 1pl or 2pl pronoun. Let us now discuss Vigário's proposal.

1. Starting with the lexical entry in (14a), *n*-forms correspond roughly to the Spanish determiner, since all that seems to be necessary is to select an allomorph and find the right syntactic context for it. The problem is that the context of insertion is not just based on phonological or syntactic properties, but crucially on inflectional features of the verb form. As Vigário correctly indicates, the *-no,-na,-nos,-nas* allomorphs must follow verb forms with 3pl features⁴, however specific combination of inflectional features should only play a role in the morphological derivation of words. Phonological effects that are motivated by morphosyntactic features are generally regarded as clear evidence for morphological status. This point is also made by Hayes (1990), in his discussion about true morphological alternations:

'rules of [inflectional] allomorphy have diverse structural conditions: they may refer to phonological environment, to *inflectional features*, and to the identity of individual morphemes (...).' (Hayes 1990:90) (my underlining)

Similarly, Vigário also defines the context of insertion in (16b) on the basis of very specific inflectional properties. Although the rules in (16) seem to draw an analogy between the placement of Hausa verbs and EP verbs, there is one important difference between both. Whereas the context of insertion for Hausa verbs is purely syntactic and phonological, for EP it must be defined in terms of a restricted set of pronominal person and number features. As already mentioned, if inflectional features must play a significant role in analysing the data, then pronouns should be derived as inflections attached on a verbal stem.

Even though not sufficient work has been carried out within precompiled phonology to ascertain the exact nature of the insertion frames, in Hayes (1990) they are clearly based on phonological and syntactic information. The fact that EP pronouns cannot be derived by merely addressing purely phonological or syntactic contexts suggests that they do not constitute the set of phenomena precompilation was designed to account for.

2. The rule deriving consonant-less verb forms in (15) also raises two questions. The rule is formulated very much like the rule of Vowel Shortening for Hausa verbs, but here again are important differences. First, whereas in the

⁴ In some varieties of EP, the selection of *n*-accusatives seems to be more general, being determined by any verb-final nasal (Cunha&Cintra 1987). In these cases, the context of insertion is simply phonological and syntactic. However, in the variety analysed in Vigário (1999b) the triggering factors are inflectional.

It also remains unclear how the verb forms triggering the *l*-accusative can refer back to the pronoun and use it both as trigger (for the lexical rule in (15)) and as context of insertion (in (15a)). However regardless of how it is done, it makes the prediction that two phrasal allomorphs can be placed side by side, and have a mutual effect on each other. Once again, reciprocal allomorphy is far more typical within morphology than syntax.

To conclude: As this section has shown, a precompiled account of EP poses several conceptual problems: a) allowing precompiled rules to refer to inflectional properties seriously damages the differences between precompiled allomorphy and true inflectional allomorphy; b) treating verbal stems as fully inflected words makes wrong predictions about what constitutes a well-formed word in the verbal paradigm of EP, and c) placing phrasal allomorphs side by side and/or inserting them outside their phrasal context is rather counter-intuitive. On the contrary, within an inflectional approach, the data can be derived as a typical case of suffix selection and stem allomorphy. This then supports the view that the morphophonological idiosyncrasies displayed by the verb-enclitic combination do not fall within the scope of precompiled phonology.

The proposal I make in the following section is also based on the assumption that the morphophonological properties of the verb-enclitic combination are best derived in the lexicon (cf. Spencer 1992 and Crysmann (1997) for similar view). But unlike Vigário (1999b), I assume that object pronouns are inflectional suffixes and that clitic sequences are morphological units with an internal structure.

5. An alternative proposal

My claim is that through the ordered application of inflectional rules, pronominal clusters can be derived as morphological sequences of affixes. Standard inflectional mechanisms capture quite naturally co-occurrence restrictions inside the cluster, feature neutralisation and portmanteau formation.

I adopt the realisational theory of Paradigm Function morphology (henceforth PFM) developed by Stump (2001) which derives inflections as morphophonological realisations of morphosyntactic features. In line with previous work on Slavic clitics (Spencer 2001) and French pronominals (Miller&Sag 1997), it is shown that PFM can successfully account for the realisation and placement of pronominal clitics in EP. In what follows, I illustrates briefly how the proposal derives single and multiple occurrences of object pronouns, and how it deals with cluster placement.

5.1 The internal structure of the cluster

As shown in section 2, there are several facts about object clitics that must be accounted for. For example, pronominals combine in a rigid order (i.e., reflexives before datives and datives before accusatives) and are restricted to specific co-occurrence patterns (i.e., only 3 reflexives combine with datives,

and datives only combine with 3 accusatives). Some clitic sequences have an opaque structure and others can have more than one interpretation. Any account of cliticization should be able to derive these regularities.

We will begin with the realisation rules (RRs) that are necessary to generate EP pronouns. These can be stated, in a simplified way, as in (18):

- (18) Block I: RR_I {REFL:+} (X) ⇒ [se]
 Block II: i. RR_{II} {1, SG} (X) ⇒ [me]
 ii. RR_{II} {2, SG} (X) ⇒ [te]
 iii. RR_{II} {1, PL} (X) ⇒ [nos]
 iv. RR_{II} {2, PL} (X) ⇒ [vos]
 v. RR_{II} {DAT, 3, SG} (X) ⇒ [lhe]
 vi. RR_{II} {DAT, 3, PL} (X) ⇒ [lhes]
 Block III: i. RR_{III} {ACC, 3, SG, MASC} (X) ⇒ [no/lo/o]
 ii. RR_{III} {ACC, 3, SG, FEM} (X) ⇒ [na/la/a]
 iii. RR_{III} {ACC, 3, PL, MASC} (X) ⇒ [nos/los/os]
 iv. RR_{III} {ACC, 3, PL, FEM} (X) ⇒ [nas/las/as]

Within a realisation view of morphology, inflections exist only after the application of inflectional rules, and it is the rules themselves which associate a given feature content to a phonological form. For EP, rule block I supplies the 3rd singular and plural reflexive pronouns, block II supplies rules for the 1st/2nd pronouns (regardless of case) and for 3rd singular and plural datives; Rule Block III realises the 3rd accusative pronouns.

Rule blocks capture cluster-internal linearisation very naturally. The order in which rule blocks are organised reflects the order in which object pronouns combine. As such, rule block I applies before rule block II, thus capturing that 3 reflexives must precede datives. Similarly, rule block III applies after rule block II deriving datives before 3rd accusatives. When two pronouns co-occur, the rigid order falls out naturally without any additional restrictions, as shown in (19):

- (19) For $\sigma = \{(\text{REFL: +, ACC, 3, SG}); (\text{DAT, 3, SG})\} \Rightarrow$
 (RI ° RII_i) (X) ⇒ < [se-lhe], X >

(19) shows, in a very simplified way, that the combined morphosyntactic features of 3rd reflexive and 3rd dative determine the application of block I and block II in the expected order.

As to co-occurrence restrictions inside the cluster, these are also derived from the ordering of rule blocks. Based on the principle that each rule block can only apply once, pronouns can be prevented from co-occurring if they are assigned to the same block. Rule block II in (18) therefore captures that 1st and 2nd pronouns may never combine with each other. This processual approach then accounts for all restrictions on clitic combinations, except for one, namely the restriction on reflexive-accusative clusters. For this case, a constraint such as (20) must be introduced stating that the realisation of reflexives rules out the occurrence of accusatives (Miller&Sag 1997):

(20) ‘If REFL, then *ACC’

The incidence of portmanteau affixes is also a very common in inflectional morphology and can be found in pronominal clusters. For e.g., in EP, as mentioned earlier (cf. section 2.1), the combination of dative pronouns (except 1/2pl) with 3rd accusatives takes the form of an unanalysable affix. In our proposal, the status of affixes realising two (or more) exponents is captured by the rules given in (21) which associate one affix simultaneously with the morphosyntactic features pertaining to two affixes.

(21) Block IV: $R_{II/III}$ i. {(DAT, 1, SG); (ACC, 3, SG, MASC)} (X) \Rightarrow [mo]
 ii. {(DAT, 1, SG); (ACC, 3, PL, MASC)} (X) \Rightarrow [mos]
 iii. ...

Crucially, portmanteau rules are in paradigmatic opposition with the rules realising each pronoun individually and therefore pre-empt their ordered application, in accordance with the Maximal Subset Override (Stump 2001).

Syncretism is another typical inflectional phenomenon and develops when one affix (i.e., its phonological form) has more than one morphosyntactic value. As mentioned before, in EP the plural interpretation of the 3rd dative pronoun is neutralised when 3rd plural datives combine with 3rd accusatives. To derive ‘3 dative syncretism’ (cf. section 2.1), we assume that, for e.g., the rule for *lho* realises the feature specification {DAT, 3} rather than the specification {DAT, 3, SG}, as shown in (22). This solution then derives the observed homophony, by generating one phonological form for both the plural and singular interpretation:

(22) Block IV: $R_{II/III}$ i. {(DAT, 3); (ACC, 3, PL, MASC)} (X) \Rightarrow [lhos]
 ii. {(DAT, 3); (ACC, 3, SG, FEM)} (X) \Rightarrow [lha]
 iii. ...

One further affix-like property of EP pronouns is the incidence of allomorphy in the verb-enclitic combination. Starting with pronominal allomorphy, it was mentioned earlier that the form of the 3rd accusative is dependent on a complex combination of phonological and morphosyntactic properties of the preceding verb: a) the *n*-form is selected if the verb is 3pl, b) the *l*-form follows verbs ending in -s, -z, -r, and, finally, c) the vowel initial accusative is selected by default. In our proposal, we capture the various alternants by enriching the inflectional rules in Block III (cf. (18)) with information about the grammatical and phonological contexts that influence the realisation of 3rd accusative pronouns, as shown in (23):

(23) Block III: i. RR_{III} {ACC, 3, SG, MASC} (X) \Rightarrow [o]
 a. [n-], before 1pl verb
 b. [l-], before -s/-z/-r

Which allomorph gets realised is also determined by the linearisation rules which place the pronoun in preverbal or postverbal position (cf. 5.2).

Finally, as to the phonological alternations on the verb, two types of stem allomorphy have been identified: a) consonant-final verbs lose their final consonant when followed by an *l*-accusative, and b) the 2pl marker gets deleted if the following pronoun is either 1st pl or 2nd pl. It is worth noting again, that the factors determining the allomorphy refer to a restricted class of word categories (i.e., verbs and pronominal clitics) and to specific grammatical features of the verb and the pronoun.

To capture the data, two rules are introduced which express the association between the inflectional rules realising/linearising pronominal affixes and the morphophonological regularities induced by them. Simplifying somewhat, these morphophonological metageneralisations can be formulated as follows (Stump 2001):

- (24) Where $V=X$,
- i) 'If X ends in *-s*, *-z* or *-r* and if X is followed by an accusative suffix, then the final consonant is absent'
 - ii) 'If X is 1pl and if X is followed by a 1st/2nd pl pronominal suffix, then the final *-s* consonant must be deleted'⁵

5.4 The cluster as a morphological unit

Having shown how the structural properties of the cluster can be derived within realisational morphology, this section briefly addresses the behaviour of the clitic cluster as a morphological unit. It is well-known that clusters can never be broken up, and that the order of clitic inside the cluster remains the same regardless of whether the cluster is placed before or after the host (Anderson 1992). Both of these properties are an indication that clitic sequences must be analysed as an autonomous unit. In this paper, the idea that sequences of affixes behave as one whole is formalised by deriving the cluster as a composed unit through function composition, adopting PFM (Stump 1992, Spencer 2001)⁶.

Standardly, a sequence of realisation rules applies in a cyclic fashion such that each rule applies to the output of the previous rule. For cluster formation, the cyclic application has two shortcomings. If clitics were attached one-by-one to an anchor point, then preverbal clitics would be realised as prefixes whereas postverbal clitics would be linearised as suffixes. This would make it difficult to explain why the order of clitics inside the cluster is always the same, regardless of placement. Furthermore, attaching each clitic individually to the verb would also fail to explain why the cluster cannot be broken up.

The crucial aspect about deriving the clitic cluster as a composed unit is that clitics can be linearised without reference to a base or stem, as shown in (25).

- (25) For $\sigma = \{ \text{Refl+}, \text{Acc}, \text{3sg}; \text{Dat}, \text{3sg} \}$,

⁵ The metageneralisations proposed here bear a certain resemblance to the insertion contexts in Vigário (1999b). That is simply because the same factors are being addressed, however the rules here apply to morphological units and are part of the morphological derivation of the suffixed verb form.

⁶ For reasons of space, only an outline of the proposal made in Luis (2001) is provided.

$$\begin{aligned} \text{PF}(X, \sigma) &=_{\text{def}} (\text{R}_I \circ \text{R}_{II}) (X) \Rightarrow \\ (\text{R}_I \circ \text{R}_{II}) (X) &\Rightarrow \langle [\text{se-lhe}] \rangle (X) \end{aligned}$$

From the derivation in (25) it follows that cluster formation and cluster placement are independent processes. This idea is formalised by providing two sets of rules: cluster formation is carried out by the realisation rules in (18) and (25) which define the sequence of affixes, whereas cluster placement is determined by an independent set of linearisation rules, given in (26), which determines the linear ordering of the cluster with respect to the verb.

- (26) a. LR-preverbal: [se-lhe] is linearised as $\langle X [\text{se-lhe}] \rangle$, if certain conditions hold⁷
 b. LR-postverbal: [se-lhe] is linearised as $\langle [\text{se-lhe}] X \rangle$, elsewhere

This analysis, then, captures elegantly the fact that the same clitic sequence, as a morphological unit with an invariant order, can attach before or after the host.

Finally, the two-step derivation of clusters makes no claims as to the exact status of X , i.e. the host, in (26). In this sense, the linearisation rules may either attach the cluster to a syntactic head (e.g. the verb) or they may position it with respect to a phrasal domain. Within the morphology, the former would be analysed as a case of head attachment, whereas the latter would be a typical case of phrasal affixation. This then predicts that cross-linguistically clusters may attach to different types of hosts. More importantly, it also predicts that the same cluster could in principle attach to both a syntactic head and a phrasal domain. Clitic placement in EP illustrates exactly this type of non-uniform attachment, as proposed in Luís & Sadler (to appear).

6. Conclusion

The first of goal of this paper was to show that object pronouns in EP display many of the properties of affixes (Spencer 1992, Crysmann 1997, Luís 2001). The decisive criteria for our characterisation were a) rigid ordering, b) idiosyncratic co-occurrence restrictions, c) fusion, d) syncretism, e) allomorphic variation, and f) allomorphic alternations within the verb-enclitic unit. It was then argued that a precompiled analysis of the morphophonological effects of the data, as is assumed by Vigário (1999b), necessarily faces conceptual shortcomings because of the morphosyntactic nature of the data. As an alternative proposal, a brief outline of a morphological analysis was provided which derives i) the internal structure of pronominal sequences and ii) the idiosyncratic behaviour of postverbal pronouns. It was shown that clitic order and co-occurrence restrictions are derived through the linear ordering of inflectional rules, and that pronominal/verbal allomorphy follow from rules of affix selection and stem formation, respectively.

⁷ Cf. Luís & Sadler (to appear).

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