How complex are complex words? Evidence from linearization[☆]

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Abstract

There is considerable disagreement between theories of morphology concerning the complexity attached to words consisting of more than one morpheme. While, e.g., Distributed Morphology views complex words as a hierarchical structure of individual pieces associated with morpho-syntactic features, inferential frameworks such as A-Morphous Morphology and Paradigm Function Morphology treat complex words as morphologically simplex, consisting merely of a phonological string without any morphological constituent structure. Based on evidence from the Bolivian language Baure this paper argues that the restrictiveness of the latter view prevents an elegant analysis of certain syncretism patterns. The pervasive property of the Baure paradigm is that all agreement markers may appear in word-initial and work-final position. This pattern can only be directly expressed in the analysis if complex words actually have more than just phonological structure. The argument thus challenges rule-based frameworks of morphology.

Keywords: clitic placement, hierarchical morphological structure, inferential vs. lexical theories, Baure language

1. Introduction

A general dimension along which theories of morphology differ is the question of whether morphologically complex elements are hierarchically structured or not. The first position is adopted by *piece-based* approaches[1] like classical lexicalist accounts (e.g., Lieber 1980, Williams 1981, Selkirk 1982, Di Sciullo and Williams 1987, and Ackema and Neeleman 2004, 2007) or Distributed Morphology (Halle and Marantz, 1993, 1994; Marantz, 1996, 1997, 2007). While Distributed Morphology (DM) differs from lexicalist accounts in that it takes morphological structure to be syntactic in nature, both families

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[1]In the classification of Stump (2001), this family of theories are termed *lexical*.

of accounts agree that morphological complexity involves such structure. Under this general perspective, a complex word like *cats* consists of a hierarchical arrangement of atomic pieces: a root *cat* and an exponent *s*, which is directly associated with a plural specification: $cat{+}s_{\text{PL}}$.

A very different position is defended in various *word and paradigm* approaches, such as A-Morphous Morphology (Anderson, 1982, 1992) and Paradigm Function Morphology (Stump, 2001).[2] In contrast to the piece-based approaches introduced above, these frameworks do not treat morphological exponents as lexical pieces but as mere by-product of some morphological rule that modifies a given phonological representation in some well-defined way if its context is met.[3] As an example, *cats* would be the result of a morphological rule which applies to phonological string [k^hæt] if it is associated with the feature plural and maps it onto the phonological string [k^hæts]. Crucially, such accounts reject the view that the resulting structure (viz., *cats*) is morphologically complex. What the morphological rule produces is a purely phonological string. As a consequence, [s] is taken to be nothing more than a phoneme and neither directly associated with a plural specification nor marked as a suffix separate from the stem. Hence, *cats* is morphologically complex only *derivationally*, in the sense that a non-trivial number of word formation rules has applied to produce it. It is not, however, associated with any *representational* morphological complexity in the way that it is in piece-based approaches. This view allows one to

> abandon the notion that constituent structure – whether flat or nested – is a necessary property of morphological representations.[*footnote omitted*] On this view, nesting exists among the rules in the definition of a paradigm function schema . . . , but not among the parts of the morphological structures that such schemata define. (Stump 1997, 236)

The claim that representational morphological complexity is non-existent is explicitly adopted by Anderson (1992) and Stump (2001, 12), who sets apart inferential frameworks from lexical ones in that only the former adhere to the principle in (1).

(1) An uncompounded word's morphological form is not distinct from its phonological form.[4]

What (1) states is that morphological rules at no point apply to representations involving more than just phonological complexity. I will presuppose here a reading of (1) under which it holds of morphological representations in general, including intermediate ones. A weaker reading of (1), according to which only the final representation has to conform to it, is virtually trivial and fully compatible with piece-based accounts as well. As just

[2] Stump (2001) uses the term *inferential* for these types of accounts.

[3] For arguments and motivation of this line of approach see, e.g., Janda (1983) and Anderson (1992). The position that complex words are merely phonologically complex is explicitly or implicitly adopted in other inferential theories as well, as such accounts invoke the successive application of rules, each producing a phonological string. Examples are Matthews (1972), Corbett and Fraser (1993), Aronoff (1994), Steele (1995), Brown et al. (1996), Blevins (2004), and Baerman et al. (2005).

[4] Stump (2001) maintains that compounds do have hierarchical structure, a point irrelevant for our discussion.

discussed, the stronger reading of (1) holds of inferential approaches such as Paradigm Function Morphology, but not of piece-based theories such as Distributed Morphology.

Frameworks adopting (1) impose strict constraints on the form that morphologically complex structures may take: They are phonological strings. It follows that any operation applying to an output of a morphological rule may only be sensitive to phonological properties. Approaches that do not subscribe to (1), on the other hand, make no such commitment. If morphological representation comprise phonological as well as morpho-syntactic information and structural layering, operations applying to such representations may be considerably more complex. Along this dimension, at least, approaches that adhere to (1) are more restrictive than ones that do not. The goal of this paper is to develop an argument to the effect that the additional restrictiveness brought about by (1) is empirically undesirable. The condition should hence be abandoned as a general principle underlying morphological computation.

There is widespread agreement among the proponents of word and paradigm approaches that affixes and clitics are to be treated in a theoretically uniform fashion and that both affixes and clitics are the output of morphological rules (Stump, 1980; Anderson, 1992; Spencer, 2000; Bonami and Boyé, 2007). Clitics are conceived of as "phrasal affixes" (Anderson, 1992, 198), distinguished mainly by the type of structure that morphological rules apply to. Given this assumption, the behavior of affixes and clitics alike can be used to evaluate the claim in (1).

In this paper, I will present an argument against (1) based on a well-known property of clitic systems: one and the same clitic may appear in proclitic and enclitic position, where the choice is conditioned by non-phonological factors. Although the positional variability of clitics has been noted in several languages, the surface systems are often blurred by apparently idiosyncratic morphological alternations, irregularities and the like. I will base my argument on the Arawak language Baure, which exhibits variable clitic placement in a remarkably clear and systematic way. The hallmark property of the ϕ-agreement system in Baure is that the same clitic may occur in various positions, depending on the grammatical function of the agreement trigger. As an example, 1SG subject and object agreement are realized by the same exponent (*ni*), which, crucially, occurs in proclitic position in the case of subject agreement and in enclitic position if realizing object agreement. This flexibility of exponents with respect to their position is exceptionless and completely systematic. To capture the fact that both subject and object agreement involve the same marker (albeit as proclitic in the first case and as enclitic in the second), the word formation rule introducing it has to be underspecified for the linearization of *ni*, which in turn must be supplied by a second mechanism. Since linearization is not conditioned by phonological properties but by grammatical function, this mechanism cannot be a phonological one. This, I will show, stands in direct contradiction to (1). As a consequence, any account subscribing to (1) has to state the phonological content of the clitics and their placement simultaneously, resulting in one statement introducing *ni* as a proclitic and one as an enclitic. This fails to capture the overwhelming generalization that it is the same clitic that is introduced in the two cases. To the extent that capturing recurring patterns in paradigms is viewed as a desirable property of an analysis, such an account is dispreferred.

The paper proceeds as follows: The Baure facts that the argumentation is based on are laid out in section 2. In section 3, I argue that these facts cannot be elegantly

captured in an analysis subscribing to (1). In order to illustrate that the Baure pattern is by no means an outlier and attested in a variety of languages I will provide some examples in section 4. Section 5 demonstrates that frameworks rejecting (1) are capable of stating the syncretism pattern. Finally, section 6 concludes.

2. Φ-Agreement in Baure (Danielsen, 2007; Danielsen and Granadillo, 2008)

Baure is a near-extinct Arawak language spoken in Bolivia (Danielsen, 2007; Danielsen and Granadillo, 2008). The main focus of attention will be the morphological system of ϕ-agreement on verbs, nouns, and adjectives. In a nutshell, the overarching pattern is that an exponent's segments (i.e. its *internal* properties) are consistently determined by ϕ-features. Its linear position with respect to the stem (its *external* properties), by contrast, is predictably conditioned by grammatical relations. Thus, internal and external properties have distinct sources and are cross-classified in a highly systematic manner. Importantly, both properties have non-phonological sources. Φ-Agreement is marked in Baure by the elements in table 1.

Table 1 – Baure agreement clitics

		singular	*plural*
1		ni	vi
2		pi	yi
3	MASC	ro	no
	FEM	ri	

As will be illustrated immmediately, all kinds of agreement relations are invariably expressed by the markers in table 1: Subjects, direct objects, indirect objects, and possessors all control agreement realized by these markers. The position of the clitics in table 1, however, is variable. For instance, subject agreement is expressed via a proclitic, whereas object agreement appears in enclitic position. Thus, agreement clitics in Baure are syncretic only with respect to their segmental information, *not* regarding their linearization.

2.1. Intransitive verbs

Consider intransitive verbs first. The subject agrees with the verb by means of the markers in table table 1 in *proclitic* position. This illustrated in (2).[5]

[5] I use the following abbreviations:

APPL	applicative				
ART	article	DU	dual	NOM	nominalizer
ATTR	attributive	F	feminine	PERF	perfective
AUX	auxiliary	IND	indicative	PL	plural
BEN	benefactive	INTJ	interjection	PRFLX	prereflexive
CL	clitic	LK	linker morpheme	PRIV	privative
COP	copula	LOC	locative	SG	singular
COS	change of state	M	masculine	TNS	tense
DEM	demonstrative	NEG	negative		

(2) a. *ro*=šim teč aren
3SG.M=arrive DEM2.M bird
'A bird arrived.'
b. piti' *pi*=kotoreko-wo maiyok
2SG 2SG=work-COP much
'You work a lot.'
c. *vi*=šim ač *vi*=kowyo-po ač *vi*=imok
1PL=arrive and 1PL=bathe-PRFLX and 1PL=sleep
'We arrive, we take a bath (bathe ourselves), and we sleep.'

As exemplified by (2c), Baure generally allows *pro-drop* of contextually salient DPs, which is, however, generally optional (see (2a,b)). All types of arguments may in principle be dropped (Danielsen, 2007, 319).

2.2. Transitive verbs

Transitive verbs agree with both arguments, in both cases making use of the markers in table 1. Subject agreement is realized in *proclitic* position, objects trigger *enclitic* agreement. (3) provides some examples. In contrast to subject agreement, object agreement is optional. It may, however, co-occur with an overt object DP, as in (3c).

(3) a. *pi*=am=*ri* wapoeri-ye *pi*=kowyo-čo ti monči
2SG=take=3SG.F river-LOC 2SG=bath-APPL DEM1.F child
'Take her to the river, and bathe the child.'
b. heni, ver *ni*=ikomorik=*ro*
yes PERF 1SG=kill=3SG.M
'Yes, I already killed it.'
c. boen, nti' *ri*=invitači=*ni* tič eton
well 1SG 3SG.F=invite=1SG DEM2.F woman
'Well, that woman invited me.'
d. roti *ro*=imono=*ro*
3SG.M 3SG.M=buy=3SG.M
'He bought it.'

The example in (3d) is especially relevant for present purposes. Both subject and object are 3rd person singular masculine, and consequently agreement is realized by *ro* in both cases. In other words, the markers in both cases are syncretic for their internal but not for their external properties.

2.3. Ditransitive verbs

Ditransitive verbs agree with all three arguments. As before, subjects control *proclitic* agreement, and object agreement surfaces in *enclitic* position. The agreement marker of the indirect object occurs before agreement with the direct object. As expected, all positions are filled with markers out of the inventory in table 1. See (4) for illustration.[6]

[6]Danielsen (2007, 177) notes that various combinations of direct and indirect object are ruled out. Specifically, the two objects must not both be 3rd person. This gap seems to be accidental and not reducible to

(4) a. *pi*=pa=*ni*=*ro*
2SG=give=1SG=3SG.M
'You give it to me.'
b. *ni*=pa=*pi*=*ro*
1SG=give=2SG=3SG.M
'I give it to you.'
c. *pi*=ihek-ino=*ni*=*ro*
2SG=comb-BEN=1SG=3SG.M
'You comb him for me.'

2.4. Possessor agreement

Within DPs, possessors control ϕ-agreement on the head noun, which is again realized by the general markers in table 1. Within this context, they appear as *proclitics* (see (5)). The possessor may be optionally dropped, as in (5a,b), or overt, as in (5c).

(5) a. *vi*=tovian
1PL=neighbour
'our neighbour'
b. to *ni*=ašok
ART 1SG=grandpa
'my grandfather'
c. to *ro*=wer to *ni*=tovian
ART 3SG.M=house ART 1SG=neighbour
'my neighbour's house'

2.5. Non-verbal predicates

If a noun or adjective forms the predicate of a clause, a copula morpheme has to be used. The copula is attached to the noun or verb stem in suffix position. There are two copula morphemes that can, for our purposes, be treated as identical, as they differ only semantically. First, the morpheme *-wo* 'COP' is a copula with a stative interpretation. Second, *-wapa* 'cos' leads to an inchoative reading. With regard to ϕ-agreement and linearization, both behave alike. In contrast to verbal subject agreement, agreement between the subject and non-verbal predicates appears in *enclitic* position, to the right of the copula element. This is exemplified in (6) for nominal predicates and in (7) for adjectives.[7]

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independent properties of the language. Two 3rd person objects are, however, allowed if they do not control verbal agreement. Furthermore, as Danielsen (2007) argues, the indirect object has to be 1st or 2nd person, while the direct object must be 3rd. Swintha Danielsen (p.c.) informs me that combinations of 3rd person indirect objects and 1st or 2nd person direct objects, though rare, are in fact attested.

[7](5c) involves the verb *pero* 'be lazy,' which has been nominalized by *-no* 'NOM1'. The resulting noun plus the copula *-wo* then forms the predicate of the clause. One could also have used *pero* as a verb directly (Danielsen, 2007, 101). This would have lead to proclitic agreement with the subject and a slightly different interpretation, as shown in (i):

(i) *ni*=apero-wo
1SG=be.lazy-COP
'I am lazing around.'

The example in (i) furthermore demonstrates that the linearization of the agreement morpheme is not conditioned by the stem itself but rather by its functional environment.

(6) *Nominal predicate*

a. te *ni*=šir ver hir-wapa=*ro*
DEM1.M 1SG=son PERF man-COS=3SG.M
'My son is already a man.'

b. nka pero-no-wo=*ni*
NEG be.lazy-NOM1-COP=1SG
'I am not a lazybones.'

(7) *Adjectival predicate*

a. a te erawok napiri 'ver moniko-wapa=*ro*
and DEM1.M plantain.tree also PERF pretty-COS=3SG.M
'And this plantain tree – it is also very pretty.'

b. ver ane-wapa=*ni*
PERF old-COS=1SG
'I am already old/an old person.'

The data in (6) and (7) demonstrate that linearization of the markers in table 1 is not exclusively conditioned by the grammatical function of the agreement controller but is also influenced by the presence of other morphemes. More instances of individual morphemes conditioning the placement of the agreement marker will be encountered in the next section.

Nominal predicates may also have a possessor, which, like all other possessors, triggers *proclitic* agreement on the head noun. This is illustrated, with varying degrees of embedding, in (8).

(8) a. tič eton *ni*=torie-wo=*ri*
DEM2.F woman 1SG=friend-COP=3SG.F
'That woman is my friend.'

b. tič ti *ro*=eto-wo=*ri* to *ni*=avinon
DEM2.F DEM1.F 3SG.M=sister-COP=3SG.F ART 1SG=husband
'This (she) is the sister of my husband.'

As (8c) shows, embedding is in principle unbounded and can be of considerable complexity. Nevertheless, the content and position of the exponents of ϕ-agreement are completely predictable. In (8c) the (covert) 1SG possessor controls proclitic agreement on *avinon* 'husband,' which in turn is the possessor of *eto* 'sister,' triggering 3SG.M proclitic agreement. This whole DP then forms a nominal predicate and is consequently marked for 3SG.F subject agreement by an enclitic.

2.6. Exceptional linearization

The preceding sections have laid out the general system of ϕ-agreement in Baure. The verb *eto* 'finish' idiosyncratically and non-predictably realizes agreement with all arguments in enclitic position. Interestingly, the actual form of the agreement marker is not affected. This observation provides further support for the need to systematically sever segmental and linearization information associated with the agreement markers. As shown in (9b), the subject agreement clitic =*ri* is attached to the right of *eto*. If there is also an object present, as in (8b), both the subject and object agreement markers

appear after the stem. Note incidentally that subject agreement shows up to the right of object agreement in (9b).

(9) a. ver eto=*ni* to *ni*=vesa-čo
PERF finish=1SG ART 1SG=read-NOM2
'I finished reading.'
b. ač ver eto=*ro*=*ni*
and PERF finish=3SG.M=1SG
'And I already finished it (the weeding and cleaning of the field).'

Although Danielsen (2007, 186) calls the agreement pattern of *eto* "completely exceptional," this is not entirely true. While the position of the agreement morpheme is certainly idiosyncratic, the exponents themselves are just the regular ones, as used for every other verb. In order to systematically express the fact that *eto* involves irregular positioning of an otherwise regular exponent, a notion of exponents underspecified for their actual position is required.

2.7. Empirical summary

This section has laid out the empirical pattern that my argument is based on. The hallmark property of the Baure ϕ-agreement paradigm is that the same markers (expressing ϕ-features) may appear in various positions (determined by the grammatical function of the agreeing element as well as some lexical idiosyncrasies of other morphemes). The position of the agreement exponents in the various environments is summarized in (10), where '√' designates the stem.

(10) a. Intransitives:
SUBJ-√
b. Transitives:
SUBJ-√-OBJ
c. Ditransitives:
SUBJ-√-IND.OBJ-DIR.OBJ
d. Nominal possessors:
POSSESSOR-√
e. Non-verbal predication:
√-COP-SUBJ
f. Possessed nominal predicates:
POSSESSOR-√-COP-SUBJ

To account for this system while stating the insight that it is the same clitics that appear in multiple positions, it is necessary to dissociate a marker's segmental information from its linear position. As will be discussed in the next section, such a dissociation of an exponent's internal and external properties is out of reach if (1) is adopted.

3. The problem for inferential approaches: An illustration for Paradigm Function Morphology

In this section I will elaborate the claim that the pervasive partial syncretism found in the Baure paradigm cannot be stated as such in Paradigm Function Morphology (PFM), which adopts the principle in (1). I will start the discussion by briefly laying out the background assumptions of PFM that are central to the discussion.

As outlined in the introduction, Paradigm Function Morphology (Stump, 2001; Steward and Stump, 2007) is a rule-based account that does not view morphological

exponents as independent lexical pieces assembled in a hierarchical structure. Instead, exponents are the by-product of *exponence rules*, functions from phonological structures into phonological structures.[8] Adopting the notation of Steward and Stump (2007), exponence rules have the general format in (11), where both X and Y are phonological representations, σ is a set of morpho-syntactic features, and C is a syntactic category.

(11) *General format of exponence rules*

$X_C, \sigma \rightarrow Y$

What (11) states is that a phonological representation X is mapped onto a phonological representation Y for elements of category C associated with features σ. Because both X and Y are purely phonological in nature, (1) follows as a theorem. As a consequence, the output of an exponence rule does not involve morphological pieces that subsequent operations could be sensitive to. Only phonology can operate on and thus modify the resulting structure Y.

As mentioned in section 1, adherents of word and paradigm approaches to morphology have argued that morphological rules should account for the behavior of clitics as well. Based on the empirical observation that affixes and clitics show largely the same empirical properties,[9] Anderson (1992, 2002, 2005) argues that there is no principled distinction between affixes and clitics, which are mere "phrasal affixes" (Anderson 1992, 198). He concludes that

> 'special clitics' are actually the 'morphology' of phrases, parallel in fundamental ways to the morphology of words. Uniformity across the class of affixes and clitics that we have seen are quite substantial. In particular, word-level and phrase-level 'morphology' share the same formal apparatus (Anderson 1992, 221)

As a consequence, Anderson concludes, word formation rules must be general enough to account for the behavior of both affixes and clitics. In the same vein, Stump (1980) argues that French clitics fall into the domain of morphology and are to be handled by the same operations that take care of affixes. In a more recent study on the same subject, Miller and Sag (1997) reach the same conclusion, viz. that these clitics are affixal in nature and should be treated as such. The view that clitics fall into the domain of word formation rules is also endorsed by, e.g., Spencer (2000) and Bonami and Boyé (2007).[10]

With these cursory remarks in place, let us examine how exponence rules fare with respect to the Baure syncretism pattern. I will proceed by discussing various possible modes of implementation and argue that none of them succeeds in capturing the overarching generalization.

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[8] More precisely, exponence rules map ordered sets of phonological representations and morpho-syntactic features into ordered sets of phonological representations and morpho-syntactic features. The morpho-syntactic features of in- and output are always identical (Stump, 2001, 33, 43). For ease of exposition, I will make use of the more sloppy, though less cumbersome, formulation.

[9] The identical properties of affixes and clitics has been noted at least since Kayne (1975). Also see, e.g., Halpern (1998) for a recent overview of the discussion.

[10] Recall furthermore from section 4 (ex. (20)) that the dual affix in Kiwai shows the same variability in placement.

As a first attempt, consider the set of exponence rules for in (12).

(12) *Exponence rules* (to be rejected)

a.	X_C, σ : {AGR(subj) : {PER:1, NUM:sg}}	→	*ni*X
b.	X_C, σ : {AGR(obj) : {PER:1, NUM:sg}}	→	X*ni*
c.	X_C, σ : {AGR(subj) : {PER:2, NUM:sg}}	→	*pi*X
d.	X_C, σ : {AGR(obj) : {PER:2, NUM:sg}}	→	X*pi*
e.	X_C, σ : {AGR(subj) : {PER:3, NUM:sg, GEND:masc}}	→	*ro*X
f.	X_C, σ : {AGR(obj) : {PER:3, NUM:sg, GEND:masc}}	→	X*ro*
	⋮		⋮

(12a) attaches an enclitic *ni* if subject agreement is 1SG. Conversely, (12b) attaches *ni* in front of the stem if object agreement is 1SG. The same holds for the 2SG agreement, given in (12c,d). Analogous pairs may then be constructed for all the other markers in table 1. An analysis parallel to (12) is suggested by Miller and Sag (1997) for French.

This set of rules derives the observable forms of subject and object agreement. Against this measure, it is successful. However, it does so at the price of missing a generalization: As it stands, the analysis in (12) involves an entirely independent characterization of subject and object agreement. It is thus nothing more than a curious coincidence that for each clitic preceding the stem there is an identical clitic following it. The rules in (12) hence do not capture the fact that each pair of rules adds the same segments, albeit in different positions.[11] Furthermore, they leave unaccounted the observation that subject agreement on verbs consistently occurs to the left of the stem, while object agreement is attached to the right. The situation becomes even worse once non-verbal predicates and possession structures are taken into account. Two additional rules must then be added in each case to (12) for possessor agreement and subject agreement on non-verbal predicates (as it is realized by an enclitic). Therefore, even if one ignores the exceptional linearization properties of *eto* 'finish' (cf. section 2.6), one nevertheless ends up with four distinct rules for each exponent in table 1, each of which inserts the same phonological material in the environment by the same ϕ-features, with no connection between them whatsoever.

The problem with (12) is thus that it fails to capture an insight and multiply states predictable information. It is systematically redundant. Note that this argument is parallel to the one put forth by Stump (2001) in favor of realizational and against incremental theories. Stump's reasoning is that realizational theories are compatible with underspecification of exponents and thus systematically account for instances of syncretism. Incremental theories, by contrast, are forced to postulate several accidentally homophonous exponents. This, Stump concludes, is unsatisfactory. The argument against (12) employs a similar line of reasoning.

To overcome the problem associated with (12), we must sever segmental and linearization information from each other. This move has been independently suggested by Spencer (2000) and Luís and Spencer (2005). Based on verbal clitics in European

[11] A review points out that proponents of the analysis in (12) might resort to a historical explanation of the pattern without encoding it in the synchronic grammar.

Portuguese, Luís and Spencer (2005) argue that, given a morpho-syntactic feature set σ, one set of rules determines, based on σ, the segmental phonological features of the clitics. The resulting clitic cluster is then linearized with respect to the verbal root by a second set of rules, whose application is also conditioned by features in σ. This line of reasoning is not feasible for the Baure paradigm. Consider the hypothetical analysis in (13). The rules of exponence in (13a) produce two separate phonological strings, which are then combined (i.e., linearized) by the linearization function *f* in (13b).

(13) *Severing exponence and linearization* (to be rejected)

a. Rules of exponence

(i) X_C, σ : {AGR : {PER:1, NUM:SG}} → ⟨*ni*, *X*⟩

(ii) X_C, σ : {AGR : {PER:2, NUM:SG}} → ⟨*pi*, *X*⟩

(iii) X_C, σ : {AGR : {PER:3, NUM:SG, GEND:masc}} → ⟨*ro*, *X*⟩

⋮

b. Linearization rules

(i) $f(\langle Y, X\rangle)$ = /YX/, if AGR(subj) ⊂ σ

(ii) $f(\langle Y, X\rangle)$ = /XY/, if AGR(obj) ⊂ σ

The rules of exponence (13a) are sensitive only to ϕ-features but not to grammatical functions, while the linearization rules (13b) only track grammatical functions. Crucially, the output of *f* is conditioned by the *entire* feature set σ. Assume the feature set (14), corresponding to the clitic sequence '*ni*=√=*ro*' (cf. (3b)).

(14) σ = {AGR(subj) : {PER:1, NUM:SG}, AGR(obj) : {PER:3, NUM:SG, GEND:masc}, . . .}

The system in (13) does not produce the right output for (14). (13ai) yields ⟨*ni*, *X*⟩, but *f* as defined above is incapable of linearizing this output because it inspects σ as a whole, which contains both AGR(subj) and AGR(obj). Put differently, a clitic realizing object agreement may appear in the position of subject agreement because there is also subject agreement with another argument. (13b) is furthermore incapable of making the relevant distinction for *ni* and *ro*, as σ is indentical for both.[12]

[12]That it is the entire feature set rather than a proper subset that is relevant here follows from the architecture of the system. Since the rules of exponence in (13a) are formally segregated from the linearization rules in (13b), the only way of ensuring that both track the same argument is by encoding that the clitics produced by (13a) realize either subject or object agreement and making linearization sensitive to this distinction. As discussed shortly, this runs counter to (1), since the output of the exponence rules now includes morpho-syntactic information (i.e., grammatical function) and is hence no longer merely phonological.

The same problem occurs if one takes one set of rules to insert a linearly ordered clitic placeholder (*Af* in (ia) that is then phonologically realized by rules only sensitive to ϕ-features (see (ib)).

(i) a. 1) X_C, σ : {AGR(subj)} → *Af*X

2) X_C, σ : {AGR(obj)} → X*Af*

b. Af_C, σ : {PER:1, NUM:SG} → *ni*

Given the input in (14), this system wrongly generates *ni* in enclitic position, precisely because the grammatical function licensing the application of the second rule in (ia) need not be linked to the ϕ-features that form the input to (ib). I am grateful to Brian Dillon for discussion of this line of approach.

To overcome these problems, the linearization function *f* has to have access to the information whether a given clitic has been introduced by subject or object agreement, a distinction which the rules of exponence have to be insensitive to in order to capture the syncretism. One way to achieve this result has been suggested to me by Greg Stump (p.c.) and is given in (15).[13]

(15) *Severing exponence and linearization* (Greg Stump, p.c.)

a. Exponence rules
   Where α = subj, obj, poss, etc.
   (i) X_C, σ : {AGR(α) : {PER:1, NUM:sg}} → *f*(α, *ni*, X)
   (ii) X_C, σ : {AGR(α) : {PER:2, NUM:sg}} → *f*(α, *pi*, X)
   (iii) X_C, σ : {AGR(α) : {PER:3, NUM:sg, GEND:masc}} → *f*(α, *ro*, X)
   (iv) X_C, σ : {AGR(α) : {PER:3, NUM:sg, GEND:fem}} → *f*(α, *ri*, X)
   (v) X_C, σ : {AGR(α) : {PER:1, NUM:pl}} → *f*(α, *vi*, X)
   (vi) X_C, σ : {AGR(α) : {PER:2, NUM:pl}} → *f*(α, *yi*, X)
   (vii) X_C, σ : {AGR(α) : {PER:3, NUM:pl}} → *f*(α, *no*, X)

b. Linearization rules
   (i) *f*(subj, *y*, X) = *f*(poss, *y*, X) = *y*X
   (ii) *f*(obj, *y*, X) = X*y*

The system in (15) manages to capture the underlying syncretism pattern because a clitic's phonological content is stated and determined independently of its linearization. In contrast to (13a), *f* in (15a) has access to proper subparts of σ, namely the grammatical function associated with the features that led to the introduction of segmental material in the first place. It thus manages to produce the correct output for the feature set (14) by 'remembering' information about grammatical functions.

One objection to (15) is that is does not derive the fact that all exponents are subject to the same linearization pattern. It is, after all, a purely idiosyncratic property of the exponence rules in (15a) that all of them map their input to outputs containing *f*.

More importantly, though, (15a) is able to express the syncretism pattern only because it does not conform to (1). To store the grammatical function information, the system in (15) employs a triple (GF, *y*, X), GF being a grammatical function, and *y* and X being phonological strings. This triple forms the input to *f*. Importantly, this is not a purely phonological representation, as it involves statement of a grammatical function, and thus information that is obviously not phonological in nature. We have already seen that this grammatical function feature is vital to the proper characterization of *f*. Once this information is left out, the system runs into the same problems that (13) encounters. Put differently, the triple (GF, *y*, X) pairs a subpart of the overall phonological representation

[13] An approach rather similar to the one necessary to make the exponence rules in (14) work is in fact suggested in passing by Stump (1993, 174–5) on the basis of Swahili and Fula. In both cases some markers in the paradigm appear in prefix and suffix position. Given that the position alternation is very limited in these two cases, Stump (1993) ultimately accepts an analysis that does not derive the pattern as systematic but rather invokes two rules, in a way akin to (13). The significance of the Baure data is that the pattern is overwhelming here, making it clear that a systematic account is needed. Stump (1993) mentions the possibility of underspecifying the word formation rule (called *morpholexical rule* there) for the linear position of the phonological material attached.

with a subpart of the morpho-syntactic feature set. This is equivalent to a hierarchical structure in which (y, X) forms a morphological piece combining with the rest of the word. In sum, then, the success of (15a) crucially depends on its violating the principle in (1). The account in (15) is compatible with (1) only if the latter is taken to hold of the very final representation only. As noted above, this would reduce (1) to vacuity. This corroborates the claim that (1) prevents theories from expressing the Baure syncretism at a systematic level.

A final option I will discuss is to invoke a *Symmetrical Syncretism Metarule* (Stump, 2001, 222). A metarule states a bidirectional implication between two sets of rules. For the case at hand, the metarule might be formulated as in (16).

(16) *Metarule* (to be rejected)

$$\mathrm{X_C}, \sigma : \{\textsc{agr}(\mathrm{subj}) : \tau\} \rightarrow \omega\mathrm{X}$$
$$\updownarrow$$
$$\mathrm{X_C}, \sigma : \{\textsc{agr}(\mathrm{obj}) : \tau\} \rightarrow \mathrm{X}\omega$$

The metarule (16) states that every exponence rule realizing the subject agreement features τ and inserting a phonological string ω to the left implies and is implied by a second exponence rule realizing the object agreement features τ and adding ω to the right. It thus indicates that, e.g., the exponence rules (a) and (b) in (12) entail each other (thus, $\tau = \{$PERS:1, NUM:SG$\}$, $\omega =$ *ni*). It also correlates all other pairs of pro- and enclitic agreement. If the rule inventory contains one of them, it also contains its counterpart.

Importantly, the metarule (16) is stated *in addition to* all the exponence rules in (12). Thus, if we restrict ourselves to 1SG agreement for convenience, an account involving the metarule (16) *also* involves all the exponence rules in (12). (16) does not produce the effects of one exponence rule from the other but merely states that one such rule implies the existence of the other. Thus, (16) is merely a redundancy statement over the set of exponence rules.

As a consequence, (16) does not in fact capture the observed syncretism, but merely restates the facts, simply because (16) does not obviate the need for any of the two rules in (12). Put differently, (16) merely states a generalization over an idiosyncratic inventory of exponence rules but does not in fact reduce this inventory. As such, (16) does little more than to acknowledge the fact that some systematic property of this set of rules remains unaccounted for. This is especially obvious in light of the fact that (16) might be completely left out of the system without affecting its empirical coverage at all. I conclude from these considerations that employing a metarule does not in fact solve the problem identified for (12) but aggravates it. It fails to capture the syncretism in the Baure paradigm in a systematic—viz., non-redundant—way.

Summing up this section, I have argued that the principle in (1), embodied in PFM, prevents PFM from capturing the pervasive and highly systematic syncretism identified in section 2. While it is of course impossible to conclusively demonstrate that there is no possible PFM analysis of the Baure paradigm that captures the syncretism pattern, I have discussed here what appeared as initially plausible approaches to me and argued that all of them either fail to derive the syncretism in a systematic manner or violate (1).

If morphological analyses are taken to capture recurring patterns and generalizations, an analysis rejecting (1) is preferable as it enables us to state principles of paradigmatic organization that are out of reach for theories incorporating (1).

4. The general variability of clitic placement

A likely response to the argument made in the previous section is to treat the Baure pattern as an outlier. If the syncretism pattern under discussion is restricted to Baure, an analysis like (12) misses a generalization for this particular language but cannot be generally rejected precisely because the pattern is so restricted.

In response to this, this section presents data from several European and non-European languages that demonstrate that variable clitic and affix placement akin to Baure is widespread. These languages demonstrate that the variable clitic placement system of Baure that this paper focuses mainly on is not aberrant but an instance of what is plausibly a much more general pattern.[14] The inability of frameworks adopting (1) to capture the underlying generalization is hence a severe deficiency.

It is widely known that in many Romance languages clitics may precede or follow the stem. Often enough, proclitics have correspondents in enclitic position, suggesting an analysis that treats both as instantiations of the same item. An example are Italian object clitics, which precede the verb if it is finite but follow it if it is non-finite or imperative. This is illustrated in (17)–(19) (from Burzio 1986, 111, Monachesi 1999, 44, Anderson 2005, 247).

(17) a. Viene Giovanni a prender=*lo*
comes Giovanni to fetch=it
b. Giovanni *lo*=viene a prendere
Giovanni it=comes to fetch
'Giovanni comes to fetch it.'

(18) a. Mario vuole dar=*glie*=*lo*
Mario wants to.give=him=it
b. Mario *glie*=*lo*=vuole dare
Mario him=it=wants to.give
'Mario wants to give it to him.'

(19) a. *Me*=*lo*=spedisce
him=it=sends
'He sends it to me.'
b. Spedisce=*me*=*lo*
send=me=it
'Send it to me.'

It is obvious from these examples that the mechanism responsible for placing the clitics cannot be entirely phonological in nature as the relevant distinction (finite verbs vs.

[14]For helpful advice and discussion I am indebted to an anonymous reviewer, Rajesh Bhatt, Jochen Trommer, and Martin Walkow.

non-finite and imperative ones) is not a phonological one. As discussed by Rizzi (1982) and Burzio (1986), Spanish object clitics exhibit the same property. Other examples of variable linearization of arguably identical clitics are Portuguese (Madeira, 1992) and Bulgarian (Legendre, 2000).

There is a potential confound in some, though not all of these systems. Often times a proclitic seems sufficiently distinct from the corresponding enclitic to warrant treating them as separate items. As an example, object clitics in French appear after the verb in imperatives and before it otherwise. The 1SG as well as 2SG clitics are distinct in both positions, as shown in table 2.

Table 2 – French clitics (Miller and Sag, 1997, 596)

	proclitic	*enclitic*		*proclitic*	*enclitic*
1SG	me-	-moi	1PL	nous-	-nous
2SG	te-	-toi	2PL	vous-	-vous
3SG.MASC	le-	-le	3PL	les-	-les
3SG.FEM	la-	-la			

Romanian clitics, the paradigm of which is given in table 3, share this property. Most of the proclitics are phonologically identical to the corresponding enclitics, suggesting that they are instantiations of the same item. In some cells, however, the element occurring in pro- and enclitic position are related but distinct. Thus, while Romanian plausibly instantiates the same pattern as Baure it does so in a more convuluted way. Another example is Doceto Italian, illustrated in table 4.

Table 3 – Agreement clitics in Romanian (Monachesi, 2005, 61)

	proclitic	*enclitic*		*proclitic*	*enclitic*
1SG.DAT	mi-	-mi	1PL	ne-	-ne
1SG.ACC	m-	-mă	2PL	v-	-vă
2SG.DAT	ţi-	-ţi	3PL.DAT	le-	-le
2SG.ACC	te-	-te	3PL.ACC.MASC	i-	-i
3SG.DAT	i-	-i	3PL.ACC.FEM	le-	-le
3SG.ACC.MASC	l-	-l	REFL.DAT	şi-	-şi
3SG.ACC.FEM	o-	-o	REFL.ACC	s-	-se

Table 4 – Clitics in Doceto Italian (Cardinaletti and Repetti, 2008, 524)

	proclitic	*enclitic*		*proclitic*	*enclitic*
1SG	(ə)-	-jə	1PL	(ə)-	-jə
2SG	ət-	-ət	2PL	(ə)-	-v
3SG	əl-	-l	3PL	i-	-jə

While some of the alternations between pro- and enclitics in tables 2 to 4 might be attributed to general phonological processes (as, e.g., Cardinaletti and Repetti 2008 argue), this is not likely true for all cases (e.g., the French system in table 2 does not appear to be amenable to such an analysis).

Identity in form coupled with distinctness in position is restricted to neither Indo-European languages nor clitics. The Western Nilotic language Anywa employs both prefixes and suffixes to mark subject agreement on the verb (see table 5). The choice is conditioned by clause type. As in the cases just seen, there is a strong resemblance between prefixes and suffixes that realize the same agreement features but the match is not perfect.

Table 5 – Agreement prefixes and suffixes in Anywa (Reh, 1996, 189–196)

	prefix	*suffix*		*prefix*	*suffix*
1SG	ā-	-ā	1PL.INCL	ɔ́-	-ɔ́
			1PL.EXCL	wā-	-wā
2SG	ī-	-Yì	2PL	ū-	-Wū
3SG	ɛ̄-	-ɛ̄/-$^{-}$	3PL	gī-	-gī

A final example to be mentioned is Kiwai, where the dual marker *do* shows up as a suffix in present tenses and as a prefix in the future tenses, as exemplified by (20), where '√' designates the verbal root (Trommer, 2003, 284).

(20) a. *Present tense*
n-√-duru-*do*
1-√-TNS-DU

b. *Indefinite future*
ni-du-*do*-√-ri
1-TNS-DU-√-TNS

What all these data have in common is that there is a systematic congruency between proclitics and enclitics in most of the forms.[15]

In sum, I have presented evidence from several languages that suggests that the Baure facts, lacking idiosyncratic alternations, is a particularly clear instance of a more general pattern. This makes it clear that the price one has to pay for adopting (1) is the inability to systematically derive a quite general and cross-linguistically stable morphological pattern.

5. Distributed Morphology

Unlike PFM, DM takes morphologically complex words to consist of hierarchical arrangements of pieces containing morpho-syntactic information (see Halle and Marantz's

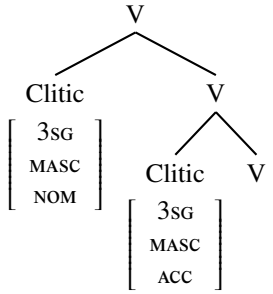
[15]Other potential examples of this system are Afar (Fulmer, 1991) and Huave (Noyer, 1994). However, as argued by Fulmer (1991) and Noyer (1994), the placement of the clitics/affixes in these two languages may be conditioned by phonological features alone, a property that would ultimately reconcile them with the principle in (1).

1993; 1994 concept of 'hierarchical syntactic structure all the way down'). Both types of information are clearly non-phonological, in violation of the principle in (1). This is sufficient to account for the Baure paradigm while capturing the overarching syncretism pattern.

Suppose that there is a subject clitic head A bearing some set of ϕ-features Φ and a case feature NOM, while an object clitic B bears Φ and a case feature ACC. If the marker inserted into the head is determined by Φ alone, while the head's linearization is determined on the basis of the case feature it contains, the desired result emerges: As both A and B contain Φ the same marker will be inserted into both. Moreover, as both carry distinct case features, A will be linearized to the left of its host, while B will be to the right. This derives the generalization that the marker inserted into clitic heads is identical regardless of the grammatical function of the clitic. Moreover, since linearization is determined on the basis of case features alone, all clitics containing NOM will be linearized to the left, irrespective of their ϕ-content. This captures the observation that all subject markers procliticize, regardless of the ϕ-features they realize.

Suppose, for instance, that two 3SG.MASC clitics have adjoined to a verbal head. A conceivable hierarchical structure is given in (21):[16]

(21)



The set of vocabulary items available for insertion is provided in (22). All the exponents are specified for morpho-syntactic features but not for case. Consequently, a single vocabulary item realizes 3SG.MASC nominative and accusative clitics.

(22) *Vocabulary items*

/ni/	↔	[1SG]	/vi/	↔	[1PL]
/pi/	↔	[2SG]	/yi/	↔	[2PL]
/ro/	↔	[3SG.MASC]	/no/	↔	[3PL]
/ri/	↔	[3SG.FEM]	/wo/	↔	[COP]

[16]It should be pointed out that the concrete implementation of cliticization is irrelevant for the point made here. Thus, (21) serves mainly expository purposes and plenty of alternatives are viable. It is, e.g., possible to treat the clitics as the realization of agreeing functional heads. In this case, the linearization rules in (23) can be made sensitive to categorial labels of nodes rather than their feature content. Since nothing hinges on the choice, I will use (21) for illustration.

I will presuppose without discussion that nominal and adjectival predicates are combined with their semantic arguments via a copula (i.e., 'linker') projection, which is realized as *wo*.

Linearization of (21) is brought about by an independent set of linearization rules that determine the linear order between sisters. In (23), the symbol '≻' designates linear precedence.

(23) *Linear precedence rules*
   a. [NOM] ≻ V
   b. V ≻ [ACC]
   c. [GEN] ≻ N
   d. Cop ≻ [NOM]

In the case of adjectival and nominal predicates the subject clitic is linearized with respect to the copula projection, i.e. by (23d). According to (23a), (clitic) nodes bearing a nominative feature precede a V sister, while (23b) requires that clitics containing an accusative feature follow their V sister. Combined, (22) and (23) correctly yield the string '*ro*=√=*ro*'. This system is straightforwardly extended to other clitics as well.[17]

It is evident from these remarks that the same marker (i.e., vocabulary item) is inserted into heads that wind up in proclitic or enclitic position. The syncretism is thus captured.

6. Conclusion

This paper has developed an argument against the claim in (1) that the representational structure of a complex word is entirely phonological and comprises neither a constituent structure nor morpho-syntactic features associated with morphemic pieces nor grammatical categories of constituents within such words. This principle is a common feature of inferential approaches to morphology.

(1) An uncompounded word's morphological form is not distinct from its phonological form.

Central to the argument was the observation that one and the same clitic may appear in proclitic position in some cases and in enclitic position in others, where the choice between the two is conditioned by non-phonological factors. The examples provided in section 4 demonstrate that this pattern is attested in a variety of languages. As a particularly clear instance of this more general pattern I have presented the ϕ-agreement system in Baure, which is not obstructed by allomorphy or idiosyncratic exceptions. In Baure, the position of an exponent is dissociated from, and thus orthogonal to, the

[17] There are other ways of implementing the linearization procedure. A reviewer suggests that clitics must attach to the edge of their hosts and, as a consequence, appear on the copula rather than a nominal or adjectival predicate. This restriction forced them into enclitic position in these cases. It should be noted that this take on linearization likewise relies on non-phonological information. That, e.g., subject clitics must attach to the right of nominal predicates is not due to general phonological processes of clitic placement because possessor clitics may occur to its left (cf. (8)).

segments that this exponent consists of phonologically. The pervasiveness and regularity of this pattern makes it rather clear that any analysis which stipulates separate clitics for the pro- and enclitic positions misses a generalization.

If an analysis is to capture the syncretism in a systematic way, it is necessary to sever the position of a clitic from its phonological content. To do so, it is necessary for linearization to make reference to non-phonological information. Such a system is out of reach if the axiom in (1) is adopted. Although the discussion was based on Paradigm Function Morphology for ease of concreteness, the argument affects all theories implicitly or explicitly subscribing to (1), including A-Morphous Morphology and Network Morphology.

References

Ackema, P., Neeleman, A., 2004. Beyond Morphology: Interface Conditions on Word Formation. Oxford University Press, Oxford.

Ackema, P., Neeleman, A., 2007. Morphology ≠ syntax. In: Ramchand, G., Reiss, C. (Eds.), The Oxford Handbook of Linguistic Interfaces. Oxford University Press, Oxford, pp. 325–352.

Anderson, S., 1982. Where's morphology? Linguistic Inquiry 13, 571–612.

Anderson, S., 1992. A-Morphous Morphology. Cambridge University Press, Cambridge.

Anderson, S., 2002. On some issues of morphological exponence. In: Booij, G., van Marle, J. (Eds.), Yearbook of Morphology 2001. Kluwer, Dordrecht, pp. 1–18.

Anderson, S., 2005. Aspects of the Theory of Clitics. Oxford University Press, Oxford.

Aronoff, M., 1994. Morphology by Itself. MIT Press, Cambridge, Mass.

Baerman, M., Brown, D., Corbett, G., 2005. The Syntax-Morphology Interface. A Study of Syncretism. Cambridge University Press, Cambridge.

Blevins, J., 2004. Inflection classes and economy. In: Müller, G., Gunkel, L., Zifonun, G. (Eds.), Explorations in Nominal Inflection. Mouton de Gruyter, Berlin, pp. 51–95.

Bonami, O., Boyé, G., 2007. French pronominal clitics and the design of Paradigm Function Morphology. In: Booij, G., Ducceschi, L., Fradin, B., Guevara, E., Ralli, A., Scalise, S. (Eds.), On-line Proceedings of the Fifth Mediterranean Morphology Meeting. Universitetà degli Studi di Bologna, pp. 291–322.

Brown, D., Corbett, G., Fraser, N., Hippisley, A., Timberlake, A., 1996. Russian noun stress and Network Morphology. Linguistics 34, 53–107.

Burzio, L., 1986. Italian Syntax: A Government and Binding Approach. Kluwer, Dordrecht.

Cardinaletti, A., Repetti, L., 2008. The phonology and syntax of preverbal and postverbal subject clitics in northern Italian dialects. Linguistic Inquiry 39, 523–563.

Corbett, G., Fraser, N., 1993. Network morphology: A DATR account of Russian nominal inflection. Journal of Linguistics 29, 113–142.

Danielsen, S., 2007. Baure: An Arawak Language of Bolivia. CNWS, Leiden.

Danielsen, S., Granadillo, T., 2008. Agreement in two Arawak languages: Baure and Kurripako. In: Donohue, M., Wichmann, S. (Eds.), The Typology of Semantic Alignment. Oxford University Press, Oxford, pp. 396–411.

Di Sciullo, A.-M., Williams, E., 1987. On the Definition of Word. MIT Press, Cambridge, Mass.

Fulmer, S. L., 1991. Dual-position affixes in Afar: An argument for phonologically-driven morphology. In: Halpern, A. (Ed.), Proceedings of the the 9th West Coast Conference on Formal Linguistics (WCCFL 9). CSLI, Stanford, pp. 189–203.

Halle, M., Marantz, A., 1993. Distributed Morphology and the pieces of inflection. In: Hale, K., Keyser, S. J. (Eds.), The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger. MIT Press, Cambridge, Mass., pp. 111–176.

Halle, M., Marantz, A., 1994. Some key features of Distributed Morphology. In: Carnie, A., Harley, H., Bures, T. (Eds.), Papers on Phonology and Morphology. Vol. 21 of MIT Working Papers in Linguistics. MITWPL, Cambridge, Mass., pp. 275–288.

Halpern, A. L., 1998. Clitics. In: Spencer, A., Zwicky, A. (Eds.), The Handbook of Morphology. Blackwell, Oxford, pp. 101–121.

Janda, R. D., 1983. 'Morphemes' aren't something that grows on trees: Morphology as more the phonology than the syntax of words. In: Richardson, J., Marks, M., Chukerman, A. (Eds.), Papers from the Parasession on the Interplay of Phonology, Morphology, and Syntax. Chicago Linguistic Society, Chicago, pp. 79–95.

Kayne, R., 1975. French Syntax: The Transformational Cycle. MIT Press, Cambridge, Mass.

Legendre, G., 2000. Morphological and prosodic alignment of Bulgarian clitics. In: Dekkers, J., van der Leeuw, F., van de Weijer, J. (Eds.), Optimality Theory: Phonology, Syntax and Acquisition. Oxford University Press, Oxford, pp. 423–462.

Lieber, R., 1980. On the organization of the lexicon. Ph.D. thesis, MIT, Cambridge, Mass.

Luís, A., Spencer, A., 2005. A paradigm function account of 'mesoclisis' in European Portugese. In: Booij, G., van Marle, J. (Eds.), Yearbook of Morphology 2004. Springer, Dordrecht, pp. 177–228.

Madeira, A., 1992. On clitic placement in European Portuguese. In: van de Koot, H. (Ed.), UCL Working Papers in Linguistics 4. UCL, London, pp. 95–122.

Marantz, A., 1996. 'Cat' as a phrasal idiom: Consequences of late insertion in Distributed Morphology, ms., MIT, Cambridge, Mass.

Marantz, A., 1997. No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. In: Dimitriadis, A. (Ed.), UPenn Working Papers in Linguistics, Volume 4.2. PLC, University of Pennsylvania, Philadelphia, pp. 201–225.

Marantz, A., 2007. Phases and words. In: Choe, S.-H. (Ed.), Phases in the Theory of Grammar. Dong In, Seoul, pp. 191–222.

Matthews, P., 1972. Inflectional Morphology: A Theoretical Study Based on Aspects of Latin Verb Conjugation. Cambridge University Press, Cambridge.

Miller, P., Sag, I., 1997. French clitic movement without clitics or movement. Natural Language and Linguistic Theory 15, 573–639.

Monachesi, P., 1999. A Lexical Approach to Italian Cliticization. CSLI, Stanford.

Monachesi, P., 2005. The Verbal Complex in Romance: A Case Study in Grammatical Interfaces. Oxford University Press, Oxford.

Noyer, R., 1994. Mobile affixes in Huave: Optimality and morphological wellformedness. In: Duncan, E., Farkas, D., Spaelti, P. (Eds.), Proceedings of the the 12th West Coast Conference on Formal Linguistics (WCCFL 12). CSLI, Stanford, pp. 67–82.

Reh, M., 1996. Anywa Language: Description and Internal Reconstruction. Köppe, Köln.

Rizzi, L., 1982. Issues in Italian Syntax. Foris, Dordrecht.

Selkirk, E., 1982. The Syntax of Words. MIT Press, Cambridge, Mass.

Spencer, A., 2000. Verbal clitics in Bulgarian: A Paradigm Function Morphology approach. In: Gerlach, B., Grijzenhout, J. (Eds.), Clitics in Phonology, Morphology, and Syntax. John Benjamins, Amsterdam, pp. 355–386.

Steele, S., 1995. Towards a theory of morphological information. Language 71, 260–309.

Steward, T., Stump, G., 2007. Paradigm Function Morphology and the morphology-syntax interface. In: Ramchand, G., Reiss, C. (Eds.), The Oxford Handbook of Linguistic Interfaces. Oxford University Press, Oxford, pp. 383–421.

Stump, G., 1980. An inflectional approach to French clitics. In: Zwicky, A. (Ed.), Clitics and Ellipsis. Working Papers in Linguistics 24, Ohio State University, pp. 1–54.

Stump, G., 1993. Position classes and morphological theory. In: Booij, G., van Marle, J. (Eds.), Yearbook of Morphology 1993. Kluwer, Dordrecht, pp. 129–180.

Stump, G., 1997. Template morphology and inflectional morphology. In: Booij, G., van Marle, J. (Eds.), Yearbook of Morphology 1996. Kluwer, Dordrecht, pp. 217–241.

Stump, G., 2001. Inflectional Morphology: A Theory of Paradigm Structure. Cambridge University Press, Cambridge.

Trommer, J., 2003. The interaction of morphology and syntax in affix order. In: Booij, G., van Marle, J. (Eds.), Yearbook of Morphology 2002. Kluwer, Dordrecht, pp. 283–324.

Williams, E., 1981. On the notions ‘lexically related’ and ‘head of a word’. Linguistic Inquiry 12, 245–274.