

What Are Clitics? Evidence from Balkan Languages*

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1. The Clitic Challenge

Clitics are linguistic entities which do not fit neatly in the traditional division of labor: phonology, syntax, and morphology. Because they typically are subject to special positioning requirements besides being prosodically weak, one prominent view has long maintained that pronominal clitics are syntactically independent elements manipulated by the syntax. They are either heads (Sportiche 1992) or XPs (Kayne 1975, 1994). An alternative view is that they are affix-like agreement markers spelling out phi-features. The corresponding argument position is filled with a coindexed empty category (e.g. Borer 1984, Jaeggli 1986).

In contrast, non-pronominal clitics have been widely assumed to be independent syntactic objects. For example, Balkan tense/aspect auxiliaries have been assumed to head functional projections whether they are clitics or not (e.g. Dobrovie-Sorin 1994, Rivero 1994, Monacchesi, 2000). Other clitics, including question particles and negative particles have been analyzed similarly, the former in C (e.g. Tomić 1996), the latter typically as head of a NegP. Relevant examples from three Balkan languages, Bulgarian (B), Romanian (R), and Macedonian (M) are given in (1).

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|-----|--|---|
| (1) | Auxiliaries: Bulgarian (B) | Romanian (R) |
| a. | Pročel <i>sîm</i> knigata.
read be-1 book-the
'(I) have read the book' | d. <i>Am</i> cîntat.
'(I) sang/have 1SG sung' |
| | Pronouns: Macedonian (M) | R |
| b. | <i>Go</i> , imam videno Petar.
him have 1SG seen Peter
'(I) have seen Peter' | e. <i>L-am</i> văzut pe Ion.
him have 1SG seen Peter
'(I) have seen John' |
| | Question and negation particles: B | B |
| c. | V□dal <i>li</i> go e?
'Has (he) seen him?'
<i>Ne ŢTE li</i> go V□daš?
'Will (you) not see him?' | f. <i>Ţte</i> go V□daš <i>li</i> ?
'Will (you) see him?'
<i>Ne MU li</i> IZpratix KNIGata?
'Didn't (I) send him the book?' |

Some Balkan languages (e.g. B) impose second-position restrictions on their clitics. Such languages are often analyzed as having clausal clitics. These elements are often thought to move to the left edge of the clause in the syntax and subsequently undergo rightward movement at PF/in the morphological component (e.g. Halpern 1995, Marantz 1988). In contrast, languages like R have verbal clitics (i.e. clitics are positioned with respect to the verb). As a consequence, the lexicon is assumed to contain both a clitic feature for some lexical items and specification of positional type, clausal vs. verbal clitics.

2. My Proposal

Here I take issue with those widely held views and argue that Balkan clitics are in fact phrasal affixes (Klavans 1985, Anderson 1992). They are not present as independent lexical items in the syntax. Rather they are the morpho-phonological spell-out of features attached to verbal heads in the syntactic representation. I shall review evidence that all Balkan clitics (auxiliaries and pronouns alike) are syntactically inert. In addition I shall demonstrate that they do not exhibit properties of word-level affixes and their distribution is in some cases determined by phonological properties.

I further claim that verbal clitic languages differ minimally from clausal clitic languages and the difference does not involve a lexical specification of clausal or verbal position. Specifically, I argue that their clustering effects as well as their overall positioning in a clause is subject to a set of conflicting but violable syntax-PF interface constraints. One set favors spelling out a given feature at the left edge of a phrasal domain, the other favors its positioning away from the left edge of an intonational phrase. These conflicts are

resolved differently in different languages because of alternative rankings of the relevant alignment constraints (Optimality Theory, Prince and Smolensky 1993).

3. Romanian clitic auxiliaries

Romanian has two kinds of auxiliaries, a non-clitic modal *a putea* 'can, may' as well as perfect, future, and conditional clitic auxiliaries that enter in compound tenses. It is quite striking that only the non-clitic modal may undergo subject-aux inversion (SAI) in questions.

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|-----|------|------------------------|----|--------------------------------|
| (2) | R a. | Cînd vine Ion? | c. | Cînd poate Ion veni mîine? |
| | | when come3SG John | | when can3SG John come tomorrow |
| | | 'When is John coming?' | | 'Can John come tomorrow?' |
| | b. | Ce <i>a</i> spus Ion? | d. | *Ce <i>a</i> Ion spus? |
| | | what aux3SG said John | | |
| | | 'What has John said?' | | |

This pattern only makes sense if the status of head is a necessary condition for SAI or I-to-C movement and clitic auxiliaries do not head a functional projection. This conclusion, in turn, predicts that clitic auxiliaries should not undergo any further syntactic movement.

The prediction is correct. Italian has SAI and Aux-to-Comp movement (Rizzi 1982; Giorgi and Pianesi 1996). This means that in (3a) the participle *avendo* is assumed to have moved to C. R does not allow clitic auxiliaries to undergo Aux-to-Comp (Dobrovie-Sorin 1994:13). Yet, R allows Aux-to-Comp with the lexical auxiliary *a putea*, exactly what is predicted under the present characterization of SAI.

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|----------|--|------|---|
| (3) I a. | Avendo Gianni perso il treno, arrivammo in ritardo | R b. | Putînd Ion să meargă la țară, Radu <i>a</i> plecat. |
| | having G missed the train arrived-we late | | able Ion subj go the country, R left |
| | 'Gianni having missed the train, we arrived late' | | 'Ion being able to go to the country, Radu left' |

In the R inversion pattern in (2c), what clearly occupies C in wh-questions is the complex lexical verb + auxiliary. In other words, V-movement proceeds *as if the auxiliary were not there*.

The SAI pattern is hardly an isolated pattern in R and Balkan in general. In the interest of space, I only mention two here and refer the reader to Legendre (2000a,b). First, the position of adverbs in R and B is restricted only in the presence of clitic auxiliaries. They cannot be separated from the lexical verb by an intervening adverb. Secondly, unlike lexical verbs, two distinct clitic auxiliaries cannot be conjoined. Moreover, clitic auxiliaries do not have scope over the coordination. They must appear in both conjuncts, a characteristic property of affixes (Miller and Sag 1997).

I conclude that Balkan clitic auxiliaries are syntactically inert. Their behavior is therefore inconsistent with analyzing them as heads of a functional projection. Instead, I propose a morphological analysis. To be specific, functional features of verbal heads do not have to be realized in the syntax; in many instances they are only realized at PF, as is the case when they are clitics or word-level affixes. Formalizing this idea in OT, features of the verbal head belong to the input to optimization. Whether they are realized as heads of a projection or not depends on the ranking of relevant constraints.

Space limits preclude a discussion of pronominal clitics in the same languages. It can however be easily demonstrated that they too fail to undergo coordination and display other properties of agreement markers.

4. The Alignment Analysis

The challenge of a PF analysis is to explain the following five properties as emerging from a single ranking of alignment constraints: i) clitic clustering, ii) rigid but crosslinguistically variable order within the cluster, iii) overall positioning of the cluster (domain-initial vs. second-position clitics), iv) variable positioning (e.g. imperatives, gerunds), and v) prosodic effects (e.g. R *o*; B *li*).

4.1. The OT Theory of Morphology

The proposed analysis relies on the notion of *alignment* with the (right or left) edge of a particular constituent (Prince and Smolensky 1993). The specific constraints active in the positioning of clitics are based on the generalized schema of McCarthy and Prince (1993a,b), namely ALIGN (Category₁, Edge₁; Category₂, Edge₂):

- (4) EDGEMOST(X, LEFT) = E(X): A feature [X] is left-aligned with the edge of a projection of the head [X] is associated with.
 (5) NONINITIAL(X): [X] is not realized in intonational phrase-initial position.

In OT, cross-linguistic variation solely results from constraint reranking. Reranking EDGEMOST(X) above NONINITIAL(X) yields clitics which occur in domain-initial position: NONINITIAL(X) is violated in order to satisfy EDGEMOST(X). This is the basic ranking of R. B shows the alternative ranking.

- (6) Possible rankings:
 i) EDGEMOST(X) >> NONINITIAL(X) = domain-initial clitics (R)
 ii) NONINITIAL(X) >> EDGEMOST(X) = second-position clitics (B)

Each feature is realized as a separate morpheme and all are subject to individualized alignment constraints. The clustering effect results from the fact that all features compete for the same slot but only one gets it. The others come as close as possible to that slot, incurring *minimal violations* of their respective EDGEMOST constraints. Thus the conflict inherent to EDGEMOST constraints is resolved by ranking them relative to one another.

4.2 . The Formal Analysis

As shown in T1, the candidate set includes all alternative orderings of input elements. I assume that the input includes lexical items, argument structure specification, as well as functional features. As is common in any optimization, T1 only yields a partial ranking, namely one involving two sets of constraints. EDGEMOST(DAT), EDGEMOST(ACC) dominate all others.

T1. Procliticization to finite verbs in R: ‘(He) gives it to me’

I: [dat] [acc] [F]	E(DAT)	E(ACC)	E(F)	NIN(F)	NIN(X)
a. [_V mi-o dă] dat acc F		⊗	⊗⊗		⊗
b. [_V mi dă o]		**!	*		*
c. [_V dă mi-o]	*!	**		*	*

[F] stands for finiteness ([X] stands for all features other than [F]). All functional features are subject to alignment, though their domain may be phrasal (clitics) or lexical (word-level affixes). EDGEMOST is a gradient constraint and this property eliminates candidate b in T1: Regardless of how distance from the edge is measured, two violations of EDGEMOST(ACC) yields a worse result than one. NON-INITIAL is a non-gradient constraint: A form is either in initial or non-initial position in the relevant domain.

R is a null subject language and finite lexical verbs appear in clause-initial position. This is evidence for another partial ranking.: EDGEMOST(F) >> NONINITIAL(F) .

- (7) R Citesc cărți. √ EDGEMOST(F), * NON-INITIAL(F)
 read1SG books
 ‘(I) read books.’

B is also a null subject language. Finite lexical verbs appear in clause-initial position, but clitics

typically encliticize, rather than procliticize, to the verb (which they do in R). B clitics cluster in second position.

T2. Encliticization to finite verbs in B '(I) showed it to him'

Input: [dat] [acc] [F]	NIN(X)	E(DAT)	E(ACC)	E(F)	NIN(F)
☞ a. [_V pokazax mu go] F dat acc		⊗	⊗⊗		⊗
b. [_V mu go pokazax]	*!		*	**	

Note that [F] is not always realized at the left edge of the clause in B. In the presence of negation, all clitics precede F and encliticize to their host, the negative clitic particle *ne*. Thus, the grammar of B includes yet another partial ranking: EDGEMOST(DAT,ACC) >> EDGEMOST(F). The higher-ranked constraint eliminates candidate b in T3.

- (8) B *Ne mu go pokazax*
neg dat acc show-1sg
'(I) didn't show it to him'

T3: Procliticization to finite verbs in negative B clauses: '(I) did not show it to him'

Input: [neg] [dat] [acc] [F]	E(NEG)	NIN(X)	E(DAT)	E(ACC)	E(F)	NIN(F)
☞ a. [_V ne mu go pokazax] [neg] [dat] [acc] [F]		⊗	⊗	⊗⊗	⊗⊗⊗	
b. [_V ne pokazax mu go]		*	**!	***	*	
c. [_V ne mu pokazax go]		*	*	***!	**	

However, B is not a strict second-position clitic language. The negative clitic can appear in initial position and host further clitics to their right. This simply means that EDGEMOST(NEG) outranks NONINITIAL(NEG) (subsumed under NONINITIAL(X) in T3). As a result, NONINITIAL(X) is violated by all candidates and the EDGEMOST constraints next in line become decisive. Compared with optimal candidate a, candidate b is eliminated because of an additional violation of EDGEMOST(DAT); candidate c is eliminated because of an additional violation of EDGEMOST(ACC). Crucially, EDGEMOST(F) is lower-ranked still, hence its violations -- worse for optimal candidate a than for its competitors -- do not affect the outcome in T3.

At first glance, the present analysis might be construed as merely a PF implementation of the Mirror Principle (Baker 1985). The fact that the relative ranking of EDGEMOST(F) does not mirror its surface position across contexts/optimizations (e.g. T2 vs. T3) shows that this is not the case.

As Anderson (2000) notes, the rigid order of clitics does not generally reflect the relative scope of functional categories. For example, the first person form of the *be* auxiliary, *s'um*, precedes clitic pronouns while the third person form, *e*, follows them in B and other related languages. Clustering is predicted by the ranking of EDGEMOST constraints: EDGEMOST(DAT) >> EDGEMOST(ACC) >> EDGEMOST(F). The relative order of clitics within the cluster is predicted not to change because the constraint ranking is fixed for a given language.

As predicted by the present analysis, some languages rely on both right alignment and left alignment, for different features. In the Northern Italian dialect Borgomanerese, subject clitics are left-aligned and object clitics right-aligned in the verbal domain (Tortora 2000).

4.3. The Domain of Alignment

An alignment domain can in principle be defined syntactically or prosodically. As it turns out, both domains

are relevant to the positioning of Balkan clitics.

Under economy of structure (*STRUCTURE, Prince and Smolensky 1993) and the now standard VP-internal subject hypothesis, a clause need not involve more than a VP -- if morphological properties are handled without head movement. If, in addition, null subjects result from DROPTOPIC (Grimshaw and Samek-Lodovici 1998), then a null-subject clause is a V', the syntactic domain at the left edge of which clitics are positioned. If EDGEMOST is defined w.r.t. a syntactic domain, R clitics ought to follow overt subjects. And they do:

- (9) R a. Ion *il vizitează.*
John him visit3SG
'John is visiting him'

The domain of of NONINITIAL(F) can only be determined in languages with second-position effects. If its domain were also V', clitic auxiliaries ought to appear in second position in a null subject context, but in third position in the presence of an overt subject. (10c) is ungrammatical in M, contrary to this prediction.

- (10) M P2 clitics: NONINITIAL(F) >> EDGEMOST(F)

- | | | | |
|------|--|----|--|
| M a. | [_{VP} Dojden <i>sum</i>].
come be-1
'(I) have come' | b. | [_{VP} Jas [_V <i>sum</i> dojden]]. *NONINITIAL(PERF)
I be-1 come |
| | | c. | [_{VP} *Jas [_V dojden <i>sum</i>]]. √NONINITIAL(PERF) |

Extending Radanović-Kocić's (1996) second-position evidence in Serbo-Croatian dislocations and parentheticals to B and R, (11a,b) clearly show that clitics are positioned with respect to the prosodic boundary in each language. Therefore, the domain of NONINITIAL has to be something like the Intonational Phrase.

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|-----------|---|------|---|
| (11) B a. | Knigata, Penka <i>ja e dala</i> na Petko.
book-the P it-acc be-3 given to Petko
'As for the book, Penka gave it to Petko' | R b. | Ion, zice Radu, <i>a plecat.</i>
John, says-3 R have-3 left
'John, radu says, has left' |
|-----------|---|------|---|

To conclude the discussion, I have argued that clitic positioning takes place at PF, subject to two interface constraints. One aligns the PF realization of functional features at the left edge of a syntactically-defined domain (V-bar for clitics), the other disfavors realizing features at the left edge of the intonational phrase containing V. The two constraints can be re-ranked, yielding two basic positions, domain-initial (R clitics) and second-position (B clitics). Clitic clustering falls out of the analysis because there is competition among features needing to be realized at the same edge.

5. Clitics are Phrasal Affixes

On a realizational view of morphology (e.g. Anderson 1992, Stump 1992), morphology is a set of rules or well-formedness constraints, each describing some modification of an existing lexical item that relates it to other forms. Klavans (1985) and Anderson (1992, 1996, 2000) argue, largely on the basis of second-position effects shared by infixes as well as clitics cross-linguistically, that clitics are to a phrase what affixes are to a stem. The difference is not one in kind, but rather of domain of application of the same rules/constraints.

R is not a second-position clitic language; yet, it offers substantial independent evidence for a phrasal affix analysis of clitics. First, clitics are moveable. The clitic cluster may appear preverbally or postverbally, depending on particular functional features borne by their verbal host. These include imperative and gerund features, as shown in (12). Word-level affixes, in contrast, have a fixed position with respect to a root or stem.

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|-----------|---|------|--|
| (12) R a. | <i>Mi- o dă.</i>
medat itfem give3sg
'(He) gives it to me.' | R c. | <i>Lasă-mă!</i>
leaveimp meacc
'Leave me!' |
|-----------|---|------|--|

- R b. Văzîndu-l...
'Seeing him...'

In terms of left alignment with a phrasal domain, the shift in position is the consequence of interacting constraints that favor aligning certain features, [gerund], [imperative] over others [accusative], [dative].

Secondly, R treats inflectional and derivational morphology differently. The distribution of prefixes versus suffixes is regular: All inflectional morphemes are suffixes.

- (13) R a. kînt 'sing-1sg; kînt-sj 'sing-2sg'
 b. -bat- 'beat' > dez-bat 'to debate'; răz-bat 'to advance'; stră-bat 'to wander'; a-bat 'to divert'
 c. stuf 'reed' > stufar-is 'reed thicket'; stejar 'oak' > stejar-is 'oak forest'
 d. Noun to Verb: zeu 'god' > zeu-fîca 'to deify'
 Adjective to V: perfect 'perfect' > perfect-a 'to perfect'

In terms of their content, clitic auxiliaries and pronouns are part of inflectional morphology. Yet, their unmarked preverbal position is inconsistent with the regular pattern of word-level inflectional affixes in the language -- exclusively suffixal. On a word-level affix theory of clitics, clitics constitute an important and unexplained exception to the general pattern in the language.

Third, a typical property of word-level affixes is that of triggering stem allomorphy. In R, prefixation never triggers allomorphy on the root -- which suffixation does. Suffixation can also trigger changes in the stem vowel (14a), due to stress shift away from the stem to the suffix (Chitoran 1995).

- (14) R a. kapak 'lid' > kăpătS-el
 R b. kînt 'sing1SG; kînt-sj 'sing2SG'

In contrast, R clitics never trigger root allomorphy, nor do they ever trigger changes in stem vowel, even when they appear as enclitics with gerunds and positive imperatives (see (12)). Clitics exhibit a phonological process of their own, vowel truncation, which is never found in prefixes nor suffixes. If a clitic ends in a schwa (spelled *ă*) or the reflexive clitic *se* precedes a verb beginning with unstressed *a* or *o*, vowel truncation is optional (15a). Vowel truncation in the clitic pronoun is obligatory in the presence of a clitic auxiliary like *a* (15b).

- (15) R a. *Mă aşteaptă / m-aşteaptă*
 meACC wait3SG
 'He waits for me'
 R b. *M-a invitat / *mă a invitat*
 meACC have3SG invited
 'He has invited me'

Similar evidence can be adduced from B: The vocative case suffix *-e* triggers palatalization on the final consonant of the stem (16a). Palatalization is not triggered by the clitic auxiliary *e* (16b).

- (16) B a. Bog > Bo□e
 God Oh God!
 B b. Bog *e* suzdał sveta.
 God be-3 created world-the
 'God has created the world'

7. Phonologically-based positioning: The R feminine singular accusative clitic *o*

Finally, we turn to evidence that Balkan clitics are also subject to phonological constraints. In the interest of space, I shall limit my discussion to one case, that of R. For a discussion of the far more complex B pattern, see Legendre (2000a).

First the facts. Like its non-feminine counterparts, the R object clitic *o* precedes its finite verbal host in simple tenses and non-clitic auxiliary structures (17a,c) but follows it in gerunds. With conditional and perfect auxiliaries however, *o*, unlike its non-feminine counterparts, encliticizes to the non-finite verb (17b).

- (17) R a. *O vede.*
 R c. *O pot vedea.*

R b. '(I) see her'
Am văzut-o.
 '(I) have seen her'

R d. '(I) can see her'
 **o am văzut.*

My proposal is that this 'unexpected' distribution is phonologically based and thus provides additional support for a PF theory of clitics. Specifically, I propose that two important factors are involved. One, R economizes on phonological material in particular contexts as long as morphemes conveying important featural information are recoverable -- R imposes severe restrictions on the number of non-stressed syllables which can precede a prosodic (verbal) head. As noted in de Kok (1989), R dative and accusative clitics typically undergo desyllabification processes including vowel elision (*îmi* > *mi-*; *mă* > *m-*; *îi* > *i-*; *îl* > *l-*) and diphthongization (*i-am dat* [iam]) before a following vowel. Two, *o* is the only clitic pronoun which consists of a single vowel. Presumably, it cannot undergo phonological reduction without loss of corresponding featural information.

Consider the evidence. First, *o* surfaces normally as a proclitic in contexts where no reduction takes place (18b). Secondly, the feminine plural accusative clitic *le* includes a consonantal segment and its position is completely regular (18a,c).

(18) R a. *Le-a văzut.*
 fem/pl have-3sg seen
 '(He) has seen them '
 R b. *o va vedea.*
 '(He) will see her'

R c. *Le va vedea.*
 'He will see them'

In essence, encliticization of *o* is an instance of repair by repositioning. In R, EDGEST(MOST(ACC)) is dominated by constraints on Vowel reduction, 'Realize Morpheme', and a general constraint against epenthesis.

8. Concluding Remarks

There is considerable evidence that Balkan clitics are best analyzed as phrasal affixes. They are to phrases what word-level affixes are to stems. The evidence adduced is of three kinds: clitics are syntactically inert but they are not word-level affixes. Yet, they are partly subject to phonological constraints. This is hardly surprising if they are morphological categories.

A general PF analysis of clitics is a clear departure from the standard generative assumption that inflectional morphology is subsumed under syntax. While popular since Pollock (1989), this assumption raises important, unresolved, theoretical questions about parametric variation in functional projections (Iatridou 1990, Dobrovie-Sorin 1994) and the explanatory value of making V movement dependent on abstract features, i.e. [strong] vs. [weak], that are not tied to actual morphology (Thráinsson 1996). For example, Motapanyane (1991) relies on weak agreement in compound tenses vs. strong agreement in simple tenses, translated into different structural representations, to explain the position of adverbs and clitic pronouns in R. Morphologically speaking, the number of distinct agreeing forms in simple and compound tenses, however, is the same (five or six different forms, based on examples in Mallinson 1986: 274-276). Hence, the morphology is uniformly rich, and the 'strength' of agreement is not motivated independently of the word order problems it is intended to solve.

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