

On prosodic boundaries

Željko Bošković

University of Connecticut

1. Introduction

This note examines one aspect of the placement of Serbo-Croatian (SC) clitics, which comprise auxiliary, pronominal, and question particle clitics and cluster in the second position (2P) of their clause (1), showing that SC clitic placement is sensitive to the distinction between utterance and intonational phrase boundaries, a distinction that is not frequently observed (throughout the paper, the clitics are given in italics).

- (1) a. Mi *smo mu je* predstavili juče.
we are him her introduced yesterday
'We introduced her to him yesterday.'
- b. Moji prijatelji *su mu je* predstavili juče.
my friends are him her introduced yesterday
'My friends introduced her to him yesterday.'
- c. Zašto *smo mu je* predstavili juče?
why are him her introduced yesterday
'Why did we introduce her to him yesterday?'
- d. Ona tvrdi da *smo mu je* mi predstavili juče.
she claims that are him her we introduced yesterday
'She claims that we introduced her to him yesterday.'
- e. Predstavili *smo mu je* juče.
introduced are him her yesterday
'We introduced her to him yesterday.'
- g. Voli *li* Mariju?
loves Q Marija
'Does he love Marija?'

2. Second position and prosody

Until recently it has been standardly assumed that SC clitics cluster syntactically in the same head position. However, there is strong evidence against this position. For example, Bošković (2001) shows that while auxiliary clitics can, object clitics cannot occur above subject-oriented adverbs (2). Thus, while the adverb can have both the manner and the subject-oriented reading in (2b) it can only have the former reading in (2a), which indicates that the auxiliary clitic occurs above, and the pronominal clitic below subject-oriented adverbs. This provides evidence that auxiliary and object clitics do not occur in the same head position (the structure proposed by Bošković 2001 is given in (3)).¹

- (2) a. Oni *su joj* pravilno odgovorili.
 they are her_{DAT} correctly answered
 ‘They gave her a correct answer/*did the right thing in answering her.’
- b. Oni *su* pravilno odgovorili Mileni.
 they are correctly answered Milena_{DAT}
 ‘They gave her a correct answer/did the right thing in answering her.’

(3) [_{AgrsP} aux-clitics [_{TP} sent. adverb [_{TP} object clitics

Interestingly, *pravilno* still cannot intervene between *su* and *joj*.

- (4) *Oni *su* pravilno *joj* odgovorili.
 they are correctly her_{DAT} answered

Bošković (2001) argues that there is nothing wrong with (4) syntactically: it is unacceptable because it violates the 2P requirement, which is a PF, not a syntactic requirement. (5) illustrates the 2P effect (placing *smo ga* in any other position would lead to unacceptability), which is traditionally stated in syntactic terms: clitics must be second within their clause.

1 A number of operations can split the clitic cluster in SC, which confirms that clitics do not occur in the same head position. As noted by Stjepanović (1998), this for example holds for VP ellipsis (see Bošković 2001 and Franks 1998 for other cases).

(i) Oni *su ga* otpustili, a i vi *ste ga* otpustili (takodje).
 they are him fired and also you are too
 ‘They fired him, and you did too.’

- (5) a. Mi/zašto *smo ga* upoznali juče
 we why are him met yesterday
 ‘We met him yesterday./Why did we meet him yesterday?’
- b. Ona tvrdi da *smo ga* upoznali juče.
 she claims that are him met yesterday

The traditional statement that SC clitics are second within their clause is clearly incorrect. As the following examples show, certain elements, such as appositives, fronted heavy constituents, and parentheticals, can cause clitics to occur further than the 2P of their clause.

- (6) Sa Petrom Petrovićem sreća *se* samo Milena.
 with Petar Petrović met self only Milena
 ‘With Petar Petrović, only Milena met.’
- (7) Znači da, kao što rekoh, oni *će* sutra doći.
 means that as said they will tomorrow arrive
 ‘It means that, as I said, they will arrive tomorrow.’
- (8) Ja, tvoja mama, obećala *sam ti* sladoled.
 I your mother promised am you.dat ice cream
 ‘I, your mother, promised you an ice cream.’

As discussed in Radanović-Kocić (1988) and Bošković (2001), the distribution of SC clitics can be stated in very simple prosodic terms:

- (9) SC clitics occur in the second position of their intonational (I-) phrase.

Prosodic structure, with the standardly assumed hierarchy utterance-intonational phrase-phonological phrase-phonological (prosodic) word,² is determined by syntactic structure. It is standardly assumed (see for example Nespor and Vogel 1982, 1986, Selkirk 1986, Hayes 1989) that unless interrupted by an element that forms a separate intonation domain, each clause is mapped to a single I-phrase, with the CP edge corresponding to an I-phrase boundary. Some elements, such as

2 There is some controversy regarding the existence of clitic group (for relevant discussion see Zec and Inkelas 1992 and references therein, as well as Talić 2014a,b for a more recent discussion; see also these works for some discussion of prosodic properties of SC clitics). The issue will not be relevant to the discussion below.

appositives, parentheticals, and heavy fronted constituents, form separate I-phrases, evidence for which is provided by the fact that they are followed by pauses. Under the most natural pronunciation clitic second examples in (5) then contain only one I-phrase. In (6)-(8), on the other hand, the relevant clauses are parsed into more than one I-phrase, since the fronted heavy constituent, the parenthetical, and the appositive form separate I-phrases. This means that a new I-phrase starts after these elements, which are in fact obligatorily followed by a pause. Given this, the clitics are located in the 2P of their I-phrase in (6)-(8). When a clitic is placed in the third position of its I-phrase, violating (9), we get ungrammatical examples.³

- (10) a. *Petra srela *je* samo Milena.
 Petar.acc met is only Milena_{NOM}
- b. *Ja obećala *sam ti* sladoled.
- c. *Znači da oni *će* sutra doći.

The correct generalization regarding the distribution of SC clitics is then that they are second within their I-phrase, not their clause, which shows that the 2P effect is a PF effect.

A confirmation of (9) is provided by Bošković's (2001) examples in (10)-(11).

- (11) *Ko koga *je* poljubio?
 who whom is kissed
 'Who kissed who?'
- (12) Koji čovjek, koju *je* knjigu kupio?
 which man which is book bought
 'Which man bought which book?'

Given Rudin's (1988) claim that fronted wh-phrases in SC do not form a constituent, (11) violates (9) (assuming straightforward mapping from syntactic to prosodic constituents) since *je* is not located in the 2P of its I-phrase. (11) improves with heavier wh-phrases, as in (12). The first wh-phrase in (12) must be followed by a pause, an indication of an I-phrase boundary. As a result, *je* is located in the

3 (10a) becomes acceptable if *Petra* is emphatically stressed and followed by a pause, but in this case an I-phrase boundary follows *Petra* (see Bošković 2001).

2P of its I-phrase. (9) easily captures the contrast between (11) and (12). On the other hand, it is difficult to see how the contrast can be accounted for under a purely syntactic account since the proposed analyses of multiple wh-fronting assign the same syntactic structure to (11) and (12).

Bošković (2001) gives an account of (9) on which SC clitics must encliticize to a constituent that is left-adjacent to an I-phrase boundary (i.e. the left edge of the constituent that the clitic becomes a part of must be adjacent to an I-phrase boundary) because of their PF lexical properties. As a result, they must be second within their I-phrase. The analysis forces phonological clustering of I-phrase-mate clitics, but not clause-mate clitics. It does not force their syntactic clustering in the sense that it does not force clitics to occur in the same head position. (13) is then ruled out in PF because the prosodic properties of *ga* are not satisfied. (*Ga* violates (9).)

- (13) ...**da su juče ga istukli.*
 that are yesterday him beaten
 ‘that they beat him yesterday’

In Slovenian a clitic host also must be adjacent to an I-phrase boundary. However, Slovenian differs from SC in that its clitics can be either enclitics or proclitics. As a result, prosodically, nothing prevents breaking of a clitic cluster in Slovenian by an element that is adjacent to an I-phrase boundary. As noted in Bošković (2001), examples of this type are indeed acceptable in Slovenian. This confirms the relevance of prosodic requirements to clitic clustering in the languages in question.

- (14) *So včeraj ga pretepli?*
 Are yesterday him beaten
 ‘They beat him yesterday?’

Further confirmation is provided by the fact that clause-mate clitics in SC in fact do not need to cluster together as long as they are located in separate intonational phrases, as in the following examples from Bošković (2001) (see also Wilder and Čavar 2002 on the second example). The underlined clause-mate clitics in (15) and (16) do not cluster together.

- (15) ?Oni su, kao što *sam vam* rekla, predstavili se Petru.
 they are as am you said introduced self Petar

‘They, as I told you, introduced themselves to Petar.’

- (16) Dali ga Mariji Ivan i Stipe su.
given it Marija(dat) Ivan and Stipe are
‘Give it to Marija, Ivan and Stipe did.’

In contrast to (13), where the intervening material is not heavy enough prosodically to be parsed as a separate intonational phrase hence the clitics occur within the same intonational phrase, the underlined clause-mate clitics (15) and (16) are not located within the same intonational phrase, due to the presence of a parenthetical in (15) and a heavy fronted constituent in (16). Since an I-phrase boundary is placed in the end of these elements, each clitic in (15) and (16) is located in the second position of its intonational phrase. The clustering requirement thus holds for I-phrase-mate clitics, not clause-mate clitics.

2. Clitic placement and prosodic boundaries

2.1. First word vs first constituent placement

Having summarized the role of prosody in the 2P requirement, I will now examine the role of prosodic boundaries in SC clitic placement, in particular, their role in the choice between traditional 1W (after the first word) and 1C (after the first constituent) placement.

Consider (12) more closely. The possibilities for clitic placement in this example are given below.

- (17) a. Koji *je* čovjek koju knjigu kupio?
which is man which book bought
b. Koji čovjek *je* koju knjigu kupio?

The examples are not surprising. In (17a) the clitic has 1W placement and in (17b) 1C placement; in other words, in (17a) the clitic is “hosted” by a prosodic word and in (17b) by a phonological phrase.

What is somewhat surprising is that the following example is degraded.

- (18) ??Koji čovjek koju knjigu *je* kupio?
which man which book is bought

As discussed above, an intonational phrase boundary follows *koji čovjek* here. Notice that we are dealing here with an intonational boundary that causes delayed clitic placement. For ease of exposition I will refer to such intonational phrase boundaries as DI-boundaries. Considering the contrast between (17b) and (18), it appears that 1W placement is preferred after a DI-boundary. That this indeed may be the case is confirmed by the following contrast.

- (19) a. da u velikoj sobi taj je čovjek poljubio Mariju...
 that in big room that is man kissed Marija
 ‘that in the big room, that man kissed Marija.’
- b. ??da u velikoj sobi taj čovjek je poljubio Mariju...

Here, there is a DI-boundary after *sobi*. Again, 1W placement is preferred. Regarding the judgments, it should be noted that the informants were asked to explicitly compare the constructions with 1W and 1C placement,⁴ which was important given that none of the relevant examples are fully ungrammatical.⁵ Such explicit comparisons are generally not done in the literature for examples where 1W placement is not ruled out for syntactic reasons so it is difficult to rely on examples given in the existing literature for our purposes.⁶ Still, it may be significant that delayed clitic placement is generally illustrated with 1W clitic placement. For example, there are 43 examples with delayed clitic placement reported in Bošković (2001) (25 examples), Browne (1975) (6 examples), and Ćavar and Wilder (1994) (12 examples); all of them involve 1W clitic placement. There are occasional examples involving 1C placement in the literature. Thus,

4 For this reason, I have confined my attention here to examples where 1W placement is in principle possible though it should be noted that there are some differences across speakers in the naturalness of some left-branch extractions, an important interfering factor given that left-branch extraction is often involved in 1W placement.

5 The lack of a sharp distinction does not affect the main point of this note; that there is a difference suffices for the point made below (the preference in question can be affected by giving 1W/1C alternations different discourse/prosodic properties, a factor which will be controlled for below as much as possible; in this respect the most natural pattern for the examples with clitics in embedded clauses is the one where only the delayer is old information or the whole embedded clause is new information).

6 Though see Diesing (2010) and Diesing and Zec (2011) for such a comparison in the cases where clitic placement is not delayed.

Percus (1993) gives the following examples, though without an explicit comparison of the two.

(20) Ja mislim da u ovoj sobi Markova žena je sretna.
I think that in this room Marko's wife is happy

(21) Ja mislim da u ovoj sobi Markova je žena sretna.
I think that in this room Marko's is wife happy

Schütze (1994:89), however, observes the following: “Ljiljana Progovac (p.c) apparently finds examples like (20) substantially worse than (21). I have nothing to say about this difference.”⁷ Furthermore, Werle (2009:196) gives the following statement regarding (20): “As far as I can determine, such examples are virtually unattested in natural contexts.”

We are then led to the following conclusion: after an I-boundary, both 1W and 1C clitic placement are possible, while after a DI-boundary only 1W clitic placement is possible.⁸ But there is another way to cut the pie here. The relevant non-DI-boundaries are in fact always sentence initial. The only context where this is not the case concerns embedded clauses like (1d), where the clitic follows the complementizer. But here, we are again dealing with a 1W placement.⁹ In light of this, the facts under consideration can be captured in the following way, where

7 Similarly, Schütze (1994) gives the example in (i). However, an explicit comparison shows that (ii) is preferred to (i).

(i) Ove godine taj pesnik *mi je* napisao knjigu.
this year that poet me.dat is written book

(ii) Ove godine taj *mi je* pesnik napisao knjigu.

8 It should be noted that for an unclear reason the difference between I-boundaries and DI-boundaries is more salient in embedded than in matrix clauses (though not for all speakers).

9 In indirect questions, a clitic follows a *wh*-phrase. However, as noted in Bošković (2002), since SC indirect questions formally look exactly like matrix questions, it is possible to parse them as matrix questions, with what precedes the question being treated as an adsentential. For this reason, indirect questions are not really informative here. However, it should be noted that even here, there is a slight preference for 1W placement, i.e. there is a slight preference for left-branch extraction, although such extraction is otherwise always in principle fully optional.

(i) ?Mirko i Petar ne znaju kojem muškarcu *smo ih* predstavili.
Mirko and Peter not know which man.dat are them.acc introduced
'Marko and Peter don't know to which man we introduced them.'

(ii) Mirko i Petar ne znaju kojem *smo ih* muškarcu predstavili.

there is no need to appeal to the concept of a DI-boundary, which otherwise seems to have no independent justification. In (24), the lack of anything preceding # (an I-phrase boundary) indicates that the # is sentence initial.

(22) X# prosodic word clitic

(23) ??X# phonological phrase clitic

(24) # prosodic word/phonological phrase clitic

What is the difference between the #s in (22)-(23) and (24)? The difference is that the # in (24) in fact also corresponds to an utterance boundary, which is not the case with the #s in (22) and (23). I conclude therefore that 1C placement is fully acceptable only after utterance boundaries, pure intonational phrase boundaries require 1W placement. (22)-(23)/(24) can then be restated as follows (|| indicates an utterance boundary).

(25) # prosodic word clitic

(26) ??# phonological phrase clitic

(27) || prosodic word/phonological phrase clitic

Serbo-Croatian clitic placement is thus sensitive to the distinction between utterance and intonational phrase boundaries.¹⁰

2.2. *Clitic first constructions*

Another rather mysterious aspect of SC clitic placement may be looked at new light from the current perspective. As noted in Bennett (1987), Bošković (2001), Browne

10 There is one exception, namely coordinations (see Werle 2009 for discussion of clitic placement in this context). With coordinated clauses 1W and 1C placement seem equally possible in the second conjunct. I leave examining the nature of this exception for future research, merely noting that these data can be interpreted as indicating that sentence-internal intonational boundaries at the edge of (nonsubordinated) conjoined and subordinated clauses may not have the same prosodic status.

(i) Mi smo pozvonili i njegov otac *nam je* otvorio vrata.
we are rung and his father us.dat is opened door

‘We rang and his father opened the door for us.’

(ii) Mi smo pozvonili i njegov *nam je* otac otvorio vrata.

(1975), Percus (1993), and Schütze (1994), for most (though not all) speakers nowadays, clitics can occur after a pause induced by the presence of a heavy constituent, as illustrated by the following examples, with | indicating a pause.¹¹

- (28) a. Na taj izuzetno veliki kuhinjski sto| *sam* stavio narandžu.
on that extremely big kitchen table am put orange
‘On that extremely big kitchen table, I put an orange.’ (Percus 1993)
- b. Problemi o kojima ćemo razgovarati| *su* kompleksni.
problems about which will converse are complex
‘Problems that we shall discuss are complex.’ (Bennett 1987)

Such constructions are disallowed with pronominal clitics.

- (29) a. *Na taj izuzetno veliki kuhinjski sto| *ga* stavlja (Jovan)
on that extremely big kitchen table it puts Jovan
‘On that extremely big kitchen table, Jovan is putting it.’
- c. *Na taj izuzetno veliki kuhinjski sto| *sam ga* stavio.
on that extremely big kitchen table am it put
‘On that extremely big kitchen table, I put it.’ (Bošković 2001)

What could be going on here is that SC is becoming like Slovenian; SC clitics are starting to lose their obligatory enclitic hood. The fact that the process in question is restricted to some clitics may not be that surprising under Bošković’s (2001) analysis, where the formal property behind the process in question is stated as a lexical property, hence could vary across lexical items.

The situation is, however, more complicated. SC differs from Slovenian in that it does not allow constructions like (30) (such examples are acceptable in Slovenian). In fact, SC clitics can never appear sentence initially: the pause they follow cannot be a pause marking the beginning of an utterance.

- (30) a. **Si* vidio Ivana?
are seen Ivan
‘Did you see Ivan?’

11 The phenomenon is not found only with heavy fronted constituents, as shown by (i) (parentheticals cannot be tested here due to an interfering factor pertaining to an argument/adjunct asymmetry discussed in Percus 1993, Schütze 1994, and Bošković 2001).

(i) Ja, tvoja mama, *sam* oprala narandžu.
I your mother am washed orange
‘I, your mother, washed an orange.’

- b. **Su* poljubili Anu.
 are kissed Ana
 ‘They kissed Ana.’

How can we make sense of these data, in particular, the contrast between (28) and (30)? The contrast can actually be easily recast in terms of different types of prosodic boundaries. In both (28) and (30) the clitic is preceded by an I-phrase boundary. However, only in (30) is the clitic preceded by an utterance boundary. I therefore take the contrast in question to indicate that SC auxiliary clitics, which have started to lose their enclitic requirement, still cannot follow an utterance boundary.¹²

To conclude, I have provided two arguments that Serbo-Croatian clitic placement is sensitive to the distinction between utterance and intonational phrase boundaries, a rather rare phenomenon in this respect.¹³

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12 For an alternative approach, which complicates prosodic mapping by assuming two different stages of I-phrasing, see Schütze (1994) and Bošković (2001).

13 For another relevant work in this respect, see Shibata (2014), who establishes a prosodic constraint on particle-stranding ellipsis in Japanese.

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zeljko.boskovic@uconn.edu