Clitics Revisited[*]

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Second position clitics in Serbian have justifiably received a great deal of attention in the literature (beginning with Browne 1974), much of it from the point of view of how to characterize clitic placement within a model of the syntax/phonology interface. Is clitic placement primarily phonological or prosodic phenomenon (Halpern 1995, Radanović-Kocić 1996, Bošković 2001)?[1] Or is it determined primarily by syntactic mechanisms (Franks and Progovac 1994, Progovac 1996)? Or does some combination of the two approaches most adequately characterize the data?

However, an initial point of failure in many of these accounts is in not recognizing that there are differences among various types of sentences in terms of their "markedness". That is, it is not sufficient to merely judge grammaticality of sentences, but their appropriateness in a particular context must be assessed. If semantic or pragmatic factors play a role in clitic placement, then the problem needs to be approached from a broader view of the interfaces involved. Current research has also relied quite heavily on a relatively small database of native speaker judgments, much of it harvested from previously published work and based on the judgments of native speaker linguists. While this is not uncommon in the field of theoretical linguistics, there is clearly

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[1] These are of course rough categories and the accounts within them differ in various ways. For example, while Halpern (1995) invokes prosody to characterize clitic placement after the first word, Bošković (2001) and Radanović-Kocić (1996) characterize the domain of clitic positioning in prosodic terms. See also Bošković 2001 and Franks 2000 for overviews.

something to be gained from expanding both the database and the methodology - by corpus sources and experimental investigations. This approach not only reveals that an account of clitic placement must encompass a broader view of the grammar (including pragmatics) but also has potential typological implications.[2] In what follows I present not another theory of clitic placement, but an attempt to step back and take another look at the data, as a prelude to such a theory.

1. The Phenomenon

When viewed cross-linguistically, second position clitics can be placed either after the first word (1W), or after the first constituent (1P). This yields a 3-way classification, with Serbian falling into the third category in the taxonomy:[3]

(1)

	1st Wd	1st Phr	Cases
Type 1	✓		Hittite, Old Bulgarian
Type 2		✓	Czech, Slovenian, Malagasy
Type 3	✓	✓	Serbian, Ngiyambaa, Warlpiri

The existence of the third type, with two options, raises the question of the status of the two positions. The grammar could be exhibiting either

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[2] Pragmatic or discourse-oriented factors have been explored in analyzing clitic-doubling in a variety of languages, (see for example Suñer 1988, Dobrovie-Sorin 1990, Schick 2000, and Anagnostopoulou 2007). As noted by many (including Pancheva 2005), second-position clitic languages generally do not allow clitic-doubling. This does not in any way imply a corresponding absence of discourse-related effects with clitic placement, however.

[3] Sources for the descriptive characterizations in (1) are Garrett (1996) for Hittite; Pancheva (2005) for Old Bulgarian; Katičić (1986) for Croatian; Toman (1986) for Czech; Golden and Sheppard (2000) for Slovenian; Paul (2001) for Malagasy; Donaldson (1980) and Klavans (1982) for Ngiyambaa; Legate (2008) and the references therein for Warlpiri.

optionality or two mutually exclusive choices. That is, to what extent are the two sentences below interchangeable?

(2) a. Taj zadatak *je* veoma važan.
        that task is-Cl very important
        'That task is very important.'
    b. Taj *je* zadatak veoma važan
        that is-Cl task very important
   'That task is very important.'

Diesing, Filipović-Djurdjević and Zec (2009, henceforth DFZ) present a multi-modal study investigating this question, consisting of a corpus study and psycholinguistic experiments. They begin with the hypothesis that matrix declarative sentence containing second position clitics can be classified into four types based on whether the initial constituent is an argument or a predicate and whether the clitic in each case follows the first word or first phrase. They further claim that rather than being interchangeable, each of these four types has a distinctive intonation pattern. As my review in the following sections demonstrates, their results show that clitic placement is dependent on both syntactic and pragmatic factors.

2. The Corpus Study

The intent of the corpus-based component of the DFZ study was to estimate the proportions of the four cases of clitic placement. The methodology was similar to that used in by Pereltsvaig (2008) in her corpus-based study of split phrases in Russian, and in Pancheva's (2005) corpus-based study of clitics from a historical perspective. The study utilized two sources. The first a corpus from the Serbian daily press compiled by Ebart Media Documentation (www.arhiv.co.yu), consisting of printed media, comprised of more than 700,000 texts, approximately 70 million words. The second corpus comprised literary prose, the Corpus of Serbian Language (www.serbian-corpus.edu.yu). The full corpus consists of approximately 11 million words ranging from the 12th century to contemporary times; the contemporary literary prose component from which DFZ drew their samples comprises over 1 million words.

Excerpted sentences were limited to declarative sentences containing auxiliary and pronominal clitics. All sentence types in which there is no second position placement of clitics were excluded: main and subordinate clause beginning with question words, and various types of subordinate clauses: relative, temporal, conditional, comparative and consequential clauses. After following these principles of selection, a total of 2993 sentences remained: 1323 sentences from the daily press and 1670 sentences from the literary prose corpus. Each of these sentences was placed in one of the four categories: Argument-Initial: 1W/1P; Predicate-Initial:1W/1P. The tabulation of the results yields a clear and striking asymmetry:

(3) Percent of four sentence categories found in two corpora (percents calculated within a corpus, DFZ 2009, 64)
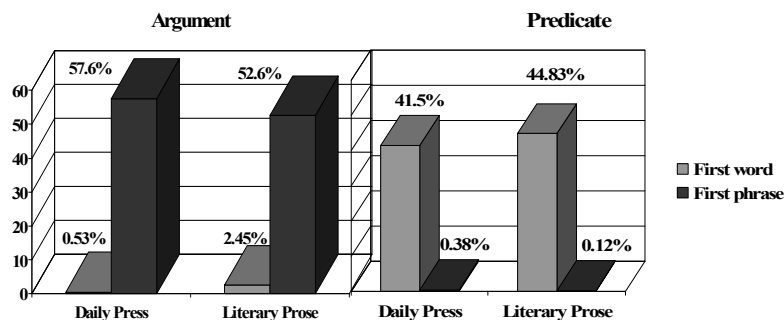
First word placement of the clitic is more common when the initial constituent is an argument, while first phrase placement is far more common when the initial constituent is a predicative phrase. There are also differences between the press and literary samples – 1W/Arg placement is more common in literary prose, but 1P/Pred placement is more common in daily press. Thus, the corpus data confirm the proposed typology and also show that the argument-initial and the predicate-initial sentences differ in the preferred clitic placement.

3. Experimental Study

The experimental component consisted of two parts: a production task, and an on-line comprehension task. Both experiments used the same

sentence stimuli. The sentences included two sets, 60 in each, one for the argument and the other for the predicate case. Within the set of argument-initial sentences, there were three subtypes, each represented by 20 sentences, with the subject, object, and prepositional phrase arguments in preposed position. An orthogonal further division within the set of argument sentences was the presence of either a determiner or an adjective within the argument noun phrase. The set of predicate-initial sentences was divided into three groups, with 20 sentences in each, representing three types of predicates, adjectival phrase (AP), noun phrase (NP) and verb phrase (VP).

The first task involved a pencil-and-paper questionnaire in which subjects were presented sentences with the crucial clitic missing, and the possible clitic positions replaced with blanks to be filled in. The dependent variable was thus the participants' placement of a clitic in one of the two possible positions for each of the two sentence categories, argument or predicate. The results revealed a dramatic difference between clitic positions across the two sentence categories. For argument-initial sentences nearly 93% choose first phrase placement, while for predicate-initial sentence nearly 98% choose first word placement. The dispreferred choices were selected less frequently, but they were not non-existent. A logistic regression performed on participants' responses revealed that the observed difference was significant: $\chi 2(1) = 1557.16$, $p<0.0001$

(4) Percent of participants placing a clitic after the first word (light gray), and after the first phrase (dark gray) when completing argument (left), and predicate sentences (right) in experiment 1. (DFZ 2009, 67)
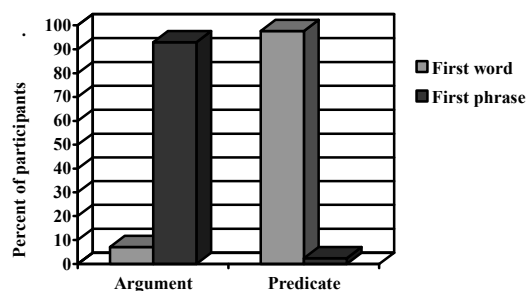
The second experiment investigated the differences in clitic positions at the level of language perception, or processing, using the sentence list used the first experiment. The sentences were presented on a computer screen (until the subject's response, maximum 8 seconds), and the subjects were to judge the grammaticality. Reaction times were recorded; only the times attached to responses marking the acceptance of a sentence as grammatical were analyzed. Times for sentences judged ungrammatical and times out of a range of 2.5 standard deviation units were excluded. The dependent variables were the percent of acceptance and reaction time. A logistic regression of yes/no answers in the acceptability tasks revealed a significant main effect of sentence type ($\chi2(2) = 232.65$, $p < 0.0001$), a significant main effect of clitic position ($\chi2(2) = 228.12$, $p < 0.0001$) and a significant interaction between the two ($\chi2 (1) = 181.24$, $p < 0.0001$). Argument sentences with first phrase placement had a higher acceptance probability that first word placement; predicate sentences with the clitic placed after the first word had a higher acceptance probability than first phrase placement.

(5) Mean acceptance rates for the argument, and predicate sentences with a clitic positioned after the first word (light gray), and after the first phrase (dark gray) observed in experiment 2. (DFZ 2009, 69)
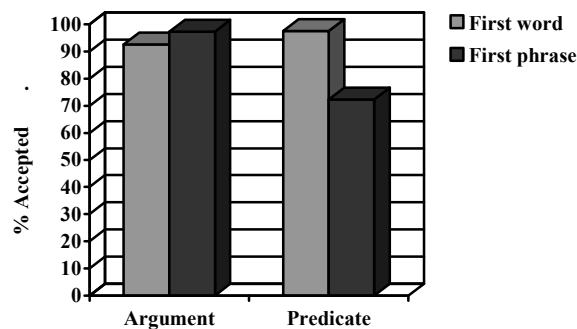
A mixed effect regression of reaction times with participants and sentences as random effects and sentence type and clitic position as fixed effects revealed a significant main effect of sentence type (F(1, 4477) = 5.543, $p < 0.05$), a main effect of clitic position ((1, 4477) = 13.543, $p <$

0.001), and a significant interaction between the two (F$_{(1, 4477)}$ = 174.521, p < 0.0001). Argument sentences with a clitic positioned after the first phrase were processed faster than those with first word placement; predicate sentences with a clitic positioned after the first word were processed faster than those with first phrase placement.

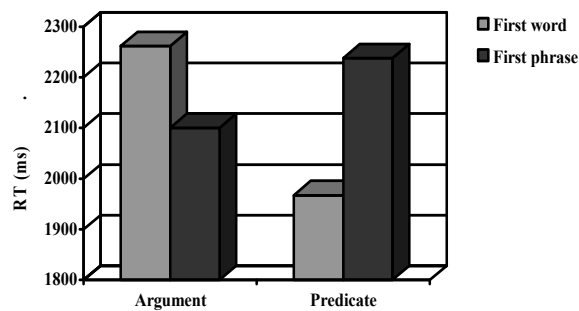(6) Mean reaction times for the argument and predicate sentences with a clitic positioned after the first word (light gray), and after the first phrase (dark gray) observed in experiment 2 (DFZ 2009, 69)

While the results of the first experiment clearly establish that the preferred position in the argument case is after the first phrase and after the first word in the predicate case, the results of the second experiment are more complex and reveal a more nuanced view. The reaction times show a difference which mirrors that shown in both the first experiment and the corpus study, but the acceptance rates show more modest differences. This suggests that the subjects do in fact regard all four types of sentences as grammatical. [4]

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[4] It should be noted that all instances of predicate-initial sentences involving second-position clitics in which the predicate is a VP are ungrammatical. Non-verbal predicates (such as AP, NP, and PP) are possible. This no doubt contributes somewhat to the very low numbers of acceptable cases of the predicate type. Interestingly, a similar prohibition against second position clitics with sentence-initial VP predicates holds in Chamorro (Chung 2003, 556) – clitics can follow a DP or PP predicate, but not a VP or AP predicate. This is all the more striking given the fact that typologically Chamorro is V-initial.

DFZ (2009) thus clearly establish for argument and predicate sentence types distinct patterns in clitic placement. For argument sentences, clitics positioned after first phrase are more common in the corpora, comprise a higher percent of participants' placements, and yield faster processing and higher acceptance rates. In predicate sentences, clitics positioned after first word are vastly more common in the corpora, comprise a higher percent of participants' placements, and yield
faster processing and higher acceptance rates. Thus, clitic placement is not simply a matter of free choice between two equal options. In the next section I examine another factor which plays a role, that of context.

4. Contextual Effects – Argument/1W

A closer look at some examples of the argument-initial type from DFZ (2009) shows a close correlation between first word placement and a Contrastive Focus (or Topic) interpretation. Below are examples of initial object NPs – the first with an adjective followed by a head noun and the second with a demonstrative followed by a head noun. The (a) examples show 1P placement, the (b) examples 1W placement.

(7) a. Loše igrače *ćemo* izbaciti iz prve ekipe.
       bad players will-Cl kick out from first team
       'Bad players will be kicked out from the first team.'

    b. Loše *ćemo* igrače izbaciti iz prve ekipe.
       bad will-Cl players kick out from first team
       'BAD players will be kicked out from the first team.'

(8) a. Ove igrače *ćemo* izbaciti iz prve ekipe.
       these players will-Cl kick out from first team
       'These players will be kicked out from the first team.'

    b. Ove *ćemo* igrače izbaciti iz prve ekipe.
       these will-Cl players kick out from first team
       'THESE players will be kicked out from the first team.'

In comparing the adjective vs. demonstrative cases, DFZ found that first word placement (the marked case with argument-initial sentences) was

more likely if the first word was a demonstrative than an adjective. Acceptance rates were also higher for the demonstrative as well (DFZ 2009, 71).

The explanation for this lies in the fact that the 1W cases also have a contrastive interpretation, as indicated by the glosses (capitalization indicates a contrastive intonation). Thus, the preferred status of the demonstrative in the first word case can be attributed to the pragmatics of the demonstrative - a demonstrative (as a deictic and/or specific determiner in a language that does not otherwise have determiners) is more likely to be a point of contrast than an adjective. A broader hypothesis based on this finding is that the argument cases with the clitic after the first word supply a point of contrast in pre-clitic position consistent with either contrastive focus or contrastive topic interpretations. Similar claims have been made regarding "split NPs" in Croatian by Fanselow and Ćavar (2002) and Russian by Pereltsvaig (2008).

But what of the other sentence types? Are they also contextually conditioned? In the next section I will survey a range of contexts and interpretations. In addition to the notions of Contrastive Focus and Contrastive Topic, I will draw upon the concepts of Given/New (Selkirk 1995, Schwarzschild 1999) and F-marking (indicated prosodically by pitch accent, Selkirk, Rooth 1992, among others).

5. Contextual Conditioning

The claim is that the dispreferred, or marked placements require some sort of contextual conditioning. The unmarked placements are expected to be compatible with a variety of contexts, including "neutral" ones. This is in fact what we see in the case of Argument/1P placement:

Neutral Context: "You must be well-prepared…"
(9) a. Taj zadatak *je* veoma važan.   1P   → OK
       that task is-Cl very important
       'That task is very important.'

   b. Taj *je*   zadatak veoma važan.   1W   →   incompatible
       that is-Cl task very important
       'That task is very important.'

The contrastive intonation peak on *taj* 'that' in (9b) (along with the associated interpretation) is incompatible with the context given. The unmarked pattern in (9a) triggers no contrast, on the other hand, but instead gives rise to a "wide focus" or "new" interpretation.

This is quite different from the contexts which license Argument/1W placement:

Biased Context: "Let's talk about the tasks assigned to you: xeroxing, making coffee, and lobbying the dean for more funding for research on clitics…"

(10) a. Taj *je* zadatak veoma važan.   1W   → OK
      that is-Cl task very important
     'That task is very important.'

   b. Taj zadatak *je* veoma važan.   1P   → incompatible
     that task is-Cl very important
     'That task is very important.'

In this situation the contrastive emphasis on the demonstrative 'that' is quite natural.

Turning now to the predicate-initial sentences, in these cases it is the first word placement that is most compatible with "neutral" contexts.

Neutral Context: "You asked me what is important.."
(11) a. Veoma *je* važan   taj zadatak.   1W   → OK
      very   is-Cl important that task
     'That task is very important.'

   b. Veoma važan   *je* taj zadatak   1P   → incompatible
     very important   is-Cl that task
     'That task is very important.'

The interpretation that arises in this situation is an unmarked, topical interpretation. The marked 1P placement is incompatible with this interpretation. To be felicitous, the 1P placement requires a more specific, or biased, context:

Biased Context: "How can you minimize the importance of your duties? Your lackadaisical attitude will destroy us!"

(12) a. Veoma važan *je*   taj zadatak. 1P   → OK
       very important is-Cl this task
        'This task is very important.'

    b. Veoma *je* važan   taj zadatak. 1W   → incompatible
       very is-Cl important this task
       'This task is very important.'

Here the topic interpretation is not possible, and what arises instead is a Given-Focus interpretation (cf. Selkirk 1995).

      The neutral/preferred contexts and biased/dispreferred contexts for both the argument and predicate cases can be summarized in chart form as follows:

(13) a. Neutral/Preferred Contexts

Sentence Type	Clitic Placement	Interpretation
Arg	1st Phrase	New "Wide Focus"
Pred	1st Word	Topic

    b. Biased/Dispreferred Contexts

Sentence Type	Clitic Placement	Interpretation
Arg	1st Word	Contrastive Top/Foc
Pred	1st Phrase	Focus-Given

It is important to note that for the neutral contexts the placements and interpretations given are the preferred one. These contexts and clitic

placements also allow other interpretations. The biased contexts and marked clitic placements, on the other hand, are more restricted.[5]

Experimental results provide some confirmation of these observations. Diesing, Filipović-Djurdjević and Zec (in progress) conducted a series of experiments investigating clitic placement in neutral and biased contexts. In both argument and predicate sentences, presentation of a biased context increased the probability of preferring the less preferred clitic position.

6. Non-Branching Elements

All the examples considered so far have involved complex initial constituents – i.e. multi-word phrases which branch. A question that arises concerns the behavior of non-branching elements. Clitics placed following an initial non-branching element will have the superficial appearance of first word placement, but will it also have the pragmatic effects that are associated with 1W? Consider an example of the non-branching argument-initial type:

(14) Zadatak *je*   veoma važan.
    task   is-Cl very important
   '(the) task is very important.'

This sentence is compatible with neutral contexts like: "You must be well-prepared …" It is not compatible with biased contexts like: "Let's talk about the tasks assigned to you: xeroxing, making coffee, and lobbying the dean for more funding for research on clitics…" The non-branching argument is interpreted as new information, or wide focus, not as a contrastive topic. It is thus more like the preferred 1P placement (for argument-initial sentences) than the 1W placement as far as the pragmatic properties go.

Non-branching initial predicates, on the other hand, seem to be most compatible with the Topic interpretation associated with 1W

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[5] An issue I do not address here is the precise featural representation of contrastive focus, givenness, and discourse newness, leaving this matter to future research. For some discussion of the issues involved see (among others) Schwarzschild (1999), Rooth (1996), Féry and Samek-Lodovici (2006) and Selkirk (2007).

placement, rather than the Given-Focus interpretation associated with the 1P placement.

(15) Važan   *je*   taj zadatak.
        important is-Cl that task
     'That task is important.'

Here the sentence is most compatible with the unmarked context: "You asked me what is important.." The biased context is quite infelicitous: "How can you minimize the importance of your duties? Your lackadaisical attitude will destroy us!"

       At first blush, this observation seems to pose a dilemma in that the non-branching cases of argument-initial and predicate-initial sentences seem to behave differently with respect to clitic placement, as revealed by their intonational and information structure. The problem can be summed up by the following schema:

(16)   Arg   →   1st Phrase $[\ X^o]_{XP}$+clitic
        Pred   →   1st Word $[\ X^o$ +clitic$]_{XP}$

In non-branching argument sentences, clitics seem to be attaching as phrasal affixes, while in the non-branching predicate cases they attach at the head level. The sentence-initial "word" seems to be behaving as a phrase in one case and as a word in the other. However, recalling the clitic attachment preferences in the two cases - 1P for argument, 1W for predicate - presents a way of resolving the situation. In each of the non-branching cases, the interpretation (or clitic attachment, rather) that emerges is that associated with the preferred, or unmarked case for the given sentence type:

(17) Clitics with Non-Branching Initial Element:
       Arg: 1st Phrase placement (XP attachment), Wide Focus
       Pred: 1st Word placement (X^o attachment), Topic

That is, neither the X^o nor XP level is associated with a particular interpretation, marked or unmarked, it is only in combination with sentence type that an association arises.

7. Typological Implications

The characterization of clitic placement discussed above has some potential typological implications, allowing for cross-linguistic generalization. Earlier descriptions of second position clitic placement have focused primarily on the contrast between first word (1W) and first phrase (1P) placement, leading to the three-way classification I presented at the outset of the paper:

(18)

	1st Wd	1st Phr	Cases
Type 1	✓		Hittite, Old Bulgarian
Type 2		✓	Czech, Slovenian, Malagasy
Type 3	✓	✓	Serbian, Ngiyambaa, Warlpiri

The results presented here raise the possibility of a new cross-linguistic typology based not only on the 1W/1P contrast but also the contrast in the initial constituent - Argument/Predicate. In particular, there are certain implicational relations suggested by the Serbian results of the form: *If a language has X, then it also has Y*:

(19) a. Arg, 1st Word   →   Pred, 1st Word
     b. Pred, 1st Phrase →   Arg, 1st Phrase

Essentially, if a language has the marked option for a particular clitic placement, it will also have the unmarked option.

Spelling out the proposal in detail, step-by-step, this hypothesis permits a number of options for languages with two possibilities for second position clitic placement: (1) always following the first phrase, (2) always following the first word, and (3) following the first word with predicates, and first phrase with arguments. The first case (1P in all cases – whether argument-initial or predicate-initial) is exemplified by Slovenian (Golden and Sheppard 2000) and Czech (Toman 1986, as well as Malagasy, Paul 2001). An example of the second option (1W in all cases) is Old Bulgarian (Pancheva 2005) and Hittite (Garrett 1996),

while a case of the third type is possibly provided by Warlpiri (Legate 2008).

Given the implicational relations in (19), what we do not expect to find is a language which places second position clitics after the first word in argument sentences, and after the first phrase in predicate sentences. Such a language would be in violation of the implications in (19), using only the marked options and not the unmarked ones. As far as I know, no such language exists.

(20)

(none)	1st Word	1st Phrase
ARG	√	
PRED		√

When considering second position clitic languages with three options for clitic placement, we have two typological possibilities. A language can place clitics after the first phrase in argument sentences, and after the first word and first phrase in predicate sentences, *or* a language may place clitics after the first word and first phrase in argument sentences, and after the first word in predicate sentences. The first case is exemplified by Tagalog (Anderson 2005), and an example of the second is provided by Croatian (Katičić 1986).

(21) a.

(Tagalog)	1st Word	1st Phrase
ARG		√
PRED	√	√

b.

(Croatian)	1st Word	1st Phrase
ARG	√	√
PRED	√	

There are also two impossible language options among the possibilities for three clitic placements. Each of these possibilities involves choosing a marked option without also choosing its unmarked counterpart, leading to an unviable "setting".

(22) a.

(none)	1st Word	1st Phrase
ARG	√	√
PRED		√

b.

(none)	1st Word	1st Phrase
ARG	√	
PRED	√	√

Again, I know of no languages satisfying these criteria.

When viewed through this typological lens, Serbian is revealed as a language which allows all four possibilities for clitic placement:

(23)

(Serbian)	1st Word	1st Phrase
ARG	√	√
PRED	√	√

The relative rarity of languages of this type may be a reflection of the fact that this option involves two marked choices in addition to two unmarked possibilities for clitic placement.

Thus, the typology proposed here not only provides a more adequate description of the distribution of second-position clitics in Serbian, but also provides a means of classifying second-position clitic languages more generally.

8. Conclusion

The results from the corpus and experimental studies clearly demonstrate that there are preferred and dispreferred clitic placement options in argument-initial and predicate initial sentences. The differences are reflected in higher occurrences rates in the corpora, higher percentages in subject placements, faster processing, and higher acceptance rates for the preferred options – 1P for argument-initial sentences, 1W for predicate-initial. Thus, the 1W/1P alternation is not a matter of mere optionality, whether syntactic or otherwise.

The results presented here demonstrate that clitic placement is an interface phenomenon, construing the term in its broadest sense. Characterizing clitic placement in terms of interfaces is not new, but previous analyses have been somewhat more limited in their scope. In earlier work syntax and phonology have had a central role in analyses of clitic placement. The extent of the syntactic component has been debated (Franks and Progovac 1994, Franks 2000, Bošković 2001, Predolac 2007). Arguments for syntactic placement of clitics largely focus on 1W placement and the co-existence of syntactically derived "splits" such as left branch extraction (LBE). However, 1W and LBE are not fully co-extensive in Serbian (Predolac 2007). Furthermore, Chung (2003, 558)

argues against a syntactic approach to 1W placement in Chamorro, essentially on the grounds that Chamorro does not allow left branch extraction in any other contexts. It is also well-established that in the case of first word placement, the initial word must be defined in prosodic terms (Halpern 1995, Zec and Inkelas 1990, Zec 2005). Furthermore, while the notion of intonational phrase plays a prominent role in a number of theories of clitic placement (Radanović-Kocić 1996, Bošković 2001, Chung 2003), these claims have not been studied in prosodic terms or substantiated by acoustic evidence.

As shown by the demonstration of the role played by information structure, the role of discourse conditions and intonation is crucial to clitic placement. Thus, any theory of clitic placement will have to take into account pragmatics as well as syntax and phonology.[6] Research currently underway will explore further the contextual conditions on clitic placement and the intonational contours involved and how these factors can be integrated with a syntactic and phonological theory. Finally, consideration of clitic placement in the context of this broader view of the grammar may also lead to a better understanding of second-position clitics in the wider range of languages.

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[6] An additional remaining open issue is integrating these results with those of Predolac's (2009) exploration of information structure effects in bipartite NPs in Serbian.

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